
Abstracts of the XXVIII Annual Research and Education Forum

I. Poster Presentations

R- 001 Marital satisfaction and Job Satisfaction of a sample of Non-Resident Physicians at a Hispanic Academic Medical Center.

Luz N. Colón de Martí, Luis F. Acevedo, Wayca Céspedes

Marital satisfaction and job satisfaction of a sample of 92 voluntary Non-Resident Physicians at a Hispanic Academic Medical Center were studied. Data was obtained using the Dyadic Adjustment Scale (a validated scale for marital satisfaction) and a Job Satisfaction Scale. Some relevant socio-demographic information was also obtained. Gender distribution was 71% males and 29% Females, 44% belonged to the Surgical Specialties group and 56% to the Non-Surgical Specialties group. Marital satisfaction was reported to be within the "Average to Above average" range. Ninety seven percent (97%) of the participants reported being "Satisfied" to "Very Satisfied" with their job. We found no statistical significance in the level of Marital satisfaction and Job satisfaction between the two groups (Surgical and Non-Surgical). There was no association between Marital satisfaction and Job satisfaction in this sample. The Marital satisfaction of this group of Non-Resident Physicians compares with the Marital satisfaction reported in a group of Resident Physicians at the same academic medical center.

R- 002 Modern Spectroscopic Methods for Determination of Solubility Enhancement for Carvedilol (Coreg), a Water Insoluble Drug. X. Wei, E. Ghaly

Carvedilol is a poorly water-soluble oral antihypertensive agent, with problems of variable bioavailability and bio-inequivalence related to its poor water-solubility. The present study is aimed to enhance solubility and dissolution of the drug using solid dispersions. The solvent evaporation and physical mixture methods were used. The solid binary systems were prepared at three different drug concentration (25%, 50%, and 75%) with three different water soluble carriers, which are polyethylene glycols (PEG) 4000, polyglycolized fatty acid ester (Glucire 55/13), and poloxamer (Pluronic F68). The formulations were characterized for drug content, solid state and complexation using different scanning calorimetry (DSC), fourier transform infrared spectroscopy (FTIR), powder X ray diffraction (PXRD), scanning electron microscopy (SEM), nuclear magnetic

resonance (NMR) and dissolution testing. FTIR and NMR study indicated that there is no hydrogen bonding with polymer. The PXRD, DSC and SEM demonstrated that no important and well-defined chemical interaction was found between the ingredients. The solid dispersion of the drug demonstrated higher dissolution rates than pure Carvedilol, due to improved wettability, local solubilization, and drug particle size reduction.

R- 003 Lipids implants studies for controlled release of Theophylline. M. Pagán Pruna, E. Ghaly

Lipids does not swell to a notable extent upon contact with aqueous media and are used as a time-controlled drug delivery systems. The aim of this study is to understand the transport mechanisms involved in different lipid implantable delivery systems using trilaurin, trimyristin, tripalmitin and tristearin as lipids model, theophylline as drug model. Theophylline was dissolved in water (solution 1) and the lipids in methylene chloride (solution 2). Solution 1 was added to solution 2 and mix in dynamixer for 8 hours until a homogeneous emulsion was obtained to form the implant. The separation of implants was achieved by three methods: filtration using vacuum (emulsion-compression method), the second method was the freeze drying and then filtration with vacuum (emulsion-compression method with freeze drying) and the third method was by using rotovapor to remove the solvent (solution-compression method). Samples were compressed to 400mg tablets to perform scanning electron microscope to study the morphology of the implant, drug content, physical properties and dissolution. Formulation containing 1 tripalmitin: 1 drug ratio using emulsion-compression method entrapped 86.6mg drug per tablet and released 10% of drug at 6 hours compared to formulation containing 0.5 tripalmitin: 1 drug ratio that entrapped 176.67 mg drug per tablet and released 12% of drug at 6 hours. It can be concluded that triglycerides (lipids) has potential to entrap drug and form implants. The implant can release the drug at different rate depending on the type of lipid used and method of preparation.

R- 004 Evaluación del Programa S.I.M.P.L.E. Myriam González Cordero, Sacha Rivera Sárate, Ruth Ríos

El objetivo general de este estudio fue evaluar la efectividad del Programa S.I.M.P.L.E. La misma se evaluó en términos del aumento en el conocimiento

y el cumplimiento con la terapia de medicamentos y el aumento en la satisfacción con el farmacéutico en una muestra por disponibilidad de los participantes del programa. La evaluación siguió un diseño cuasi-experimental donde se recopiló información de los participantes del Programa S.I.M.P.L.E., antes y después de su participación en el mismo con la colaboración de farmacéuticos de la comunidad. Los datos demuestran que hubo un aumento significativo en el cumplimiento y en el conocimiento de las personas de edad avanzada y los cuidadores en cuanto a la terapia de medicamentos después de haber participado en el programa. Los datos analizados también evidenciaron que la satisfacción con el farmacéutico aumentó significativamente después de haber participado en dicho programa.

R- 005 A Novel Vaccine Candidate against F. hepatica Infection is a Fasciola/Schistosoma Cross- Reactive Antigen. Bonnibel Delgado, Francheska Rivera, Ana M. Espino

Fascioliasis caused by *F. hepatica* is a disease of great economical impact that infects primarily sheep and cattle worldwide. Economical losses have been estimated in more than \$3 billion per year. It is also a pathogen of great human importance since there are approximately 17 million people infected with this parasite mainly in America. Our laboratory is focused in the identification of novel *Fasciola* antigens with potential for developing a vaccine that can prevent *F. hepatica* infection and/or diminish the irreversible liver damage typically caused by the migrating fluke during liver invasion. A promising antigen have been already identified, cloned and characterized. It is an 11.5kDa polypeptide termed FhSAP2 that is a member of the *F. hepatica* saposin like/NK-lysin protein family. FhSAP2 has shown to induce significant protection in rabbits to a challenge infection. In the present study we demonstrated that FhSAP2 is also a good antigen for immunodiagnosis since it was highly reactive with sera from rabbits and humans with chronic infection. Sera from humans and mice infected with *S. mansoni* strongly react with FhSAP2 by ELISA, Western blot, and Inhibition ELISA assay. We also demonstrated that FhSAP2 possess two dominant lineal B cell epitopes at the N- terminus and C- terminus respectively of its protein moiety which are *Fasciola/Schistosoma* cross-reactive epitopes. Because cross-immunity between *Fasciola* and *Schistosoma* species have been demonstrated, it is possible that FhSAP2 could be further tested as a possible antigen with potential for developing a dual multi-antigen vaccine against both parasites.

R- 006 The Protein FhSAP2 of Fasciola hepatica Induce Significant Anti-Pathological Effect in the Mouse Model of Fascioliasis. Adelaida Morales, Bonnibel Delgado, Francheska M. Rivera, Ana M. Espino

We recently reported the molecular cloning of a novel member of the *Fasciola hepatica* Saposin-Like family termed FhSAP2, which is a lytic polypeptide of 11.5 kDa. This antigen is expressed at early stages of infection and it is highly reactive with sera from humans and animals with acute or chronic fascioliasis. In the present study we have demonstrated preliminary results demonstrating that FhSAP2 delivered as recombinant or DNA vaccine, protection was evidenced by significant reduction of liver parasite burden ($p < 0.001$) and reduction of liver damage compared to controls. In the experiment, BALB/c mice were used. Mice injected with the rFhSAP2 received three s.c. doses of 20µg each emulsified in classical Titer Max Adjuvant three weeks apart and mice vaccinated with the DNA vaccine received three i.m. injections of 100µg each at three weeks intervals. Challenge was performed orally with 10 *F. hepatica* metacercariae six weeks after the last injection. Animals were bled for serum collection 40 days after challenge and necropsied. A non-vaccinated; infected group, served as positive control, and a non-vaccinated; served as negative control. Isotyping antibody determination showed that all the experimental groups developed higher levels of IgG1/IgG2 ratios than control group. Results suggest that protection induced by FhSAP2 could require a mixed Th1/Th2 response with presence of high levels of Th1 antibody isotypes.

These studies were supported by the MBRS-SCORE Program of the UPR Grant #S06-GM008224 and the RCMI Program of the UPR Grant#G12-RR-03051.

R- 007 Manual Prehension Strategies in Rhesus Monkeys Before and After Cervical Hemisection. D.C. Dunbar, D. Jindrich, N. Hamouda, R. Roy, H. Zhong, G. Courtine, J. Liu, T. Bernot, R. Moseanko, M. Tuszynski, V. Edgerton

Unilateral section of the cervical spinal cord in nonhuman primates initially results in a loss of prehensile abilities, followed by a period of rapid recovery. This recovery is incomplete, however, particularly in terms of hand pre-shaping, dexterity, and fine digital movements. Thus, some component of the recovery of manual prehensile abilities post-lesion consists of compensatory behavioral strategies that accommodate deficits. We examined this behavior after a cervical (C5-C6) hemisection in rhesus

monkeys (*Macaca mulatta*). Chair-restrained monkeys reached to remove and eat a grape from a stick. Pre-lesion, the hand was pre-shaped, pronated, and supinated. At 4 weeks post-lesion, global upper limb movements from the shoulder were possible, but not grasping, and the hand was not pronated or pre-shaped. At 8 weeks, grasp strategies, which took advantage of passive muscular visco-elastic properties, were developed to compensate for deficits. The strategies continued, but hand pre-shaping began again at 12 weeks and was improved at 20 weeks. Underlying these behavioral changes, pre-lesion muscle (EMG) magnitudes diminished and coordination patterns changed following the lesion (4 weeks), but magnitudes began to increase again at 8 weeks and coordination patterns similar to those seen pre-lesion began to emerge at 20 weeks. These findings suggest that continually adapting neuromotor strategies evolve over a period of months in controlling hand function. Approved by IACUC.

Funded by the Roman Reed Spinal Cord Injury Fund of California, NIH (R01 NS42291), and the Caribbean Primate Res. Ctr. (NIH-NCRR P40 RR003640).

R-008 Tunicamycin Inhibits VEGF-induced Vessel Sprouting in Matrigel™ Implant.

Banerjee, K. Baksi, M. Burgos, J. Hernández, A. Claudio, D.K. Banerjee

Angiogenesis is critical for tumor progression and metastasis. The exact mechanism of switching to a new angiogenic phenotype during tumor growth is currently unknown. Our laboratory has been studying the cell surface asparagine-linked (N-linked) glycoprotein expression and observed its upregulation during angiogenesis. Also, tunicamycin, a protein N-glycosylation inhibitor arrested capillary endothelial cells in G1, developed unfolded protein response and induced apoptosis. Our hypothesis is tunicamycin must withstand the tumor microenvironment to be an effective anti-angiogenic therapeutic. Our objective is to study the reversibility of tunicamycin-induced apoptosis by VEGF. When exposed to VEGF165 (10-100 ng/ml) the capillary endothelial cells exhibited a time-dependent increase in cell proliferation. Total VEGF receptor-1 (Flt-1) expression did not change but phosphorylated Flt-1 was high for 12 hours in control cells. Tunicamycin down-regulated both total and phospho Flt-1 expression. But, VEGF165 failed to overcome the anti-angiogenic effect of tunicamycin (1μg/ml). To evaluate it in in vivo angiogenesis, Matrigel™ implants in nude mice were analyzed after ten days. Histological analysis indicated VEGF induced vascular sprouting in Matrigel™ plugs but tunicamycin reduced

neovascularization. Immunohistochemistry with CD34 and/or CD144 antibodies supported it. We, therefore, conclude that tunicamycin is an excellent anti-angiogenic glycotherapeutic for breast tumor growth. Supported by grants from Susan G. Komen Breast Cancer.

Foundation BCTR58206, NIH/U54-CA096297 (DKB), and NIH/NCRR/RCMI G12-RR03035 (KB).

R-009 Will staying indoors prevent the exposure to outdoors aeroallergens? Godenee Cervantes Flores, Carolina, Sacha Gonzáles, Helena Antongiorgi, Elizabeth Quintero, Benjamín Bolaños

The purpose of this investigation was to determine the infiltration of outdoor aeroallergens, especially fungal spores, into buildings and homes in the city of Caguas under following conditions: 1) natural ventilation, 2) window AC unit and 3) heating ventilation air conditioning (AC/HVAC) system. The indoor spores were compared to the outdoor concentrations reported to the American Academy of Asthma Allergy and Immunology (AAAAI). The question if an allergy asthmatic patient will avoid the exposure to the outdoor aeroallergens by staying indoors was tested under the conditions above. Air samples were taken 24 hours for 12 to 30 days with the Allergence Air Sample (MK3). The fungal spores were counted and differentiated at the microscope and expressed as spores/m³. Fully entrance of fungal spores was observed under natural ventilation (infiltration 95%, p=0.65) and window A/C (infiltration 89%, p=0.45). In contrast, the AC/HVAC system was able to filter 86% of the outdoor aeroallergens (infiltration 14%, p=0.000). Therefore, staying indoors will not prevent the exposure to outdoor aeroallergens, even with a window AC unit. Only buildings, with AC/HVAC system will prevent the entrance of outdoor fungal spores.

R-010 Formulation of Promethazine HCl Suppositories Using Different Combinations of Bases and Surfactants for Enhancement of In-Vitro Drug Release. Y. Alicea, E. Ghaly

Oral administration of a drug can also be administered via rectal administration as a suppository. Absorption from suppositories is dependent on the nature of the suppository base, the use of surfactants and the solubility of the drug in the suppository base. Therefore, both drug solubility and excipient characteristics have a crucial role on the rate of drug absorption. The main purpose of this research was to determine the best formulation for Promethazine HCl Suppositories by combining different

surfactants and bases to increase the dissolution rate. Nine different suppositories formulations were prepared using fusion method. A formulation containing 50 mg of the drug with base only was prepared for comparison. Suppositories were weight and tested for disintegration, assay, softening time and dissolution. Disintegration results showed that formulation containing Cocoa Butter with Tween 80 disintegrated more rapidly than other formulations, (2 minutes). Assay results showed that the concentration of all formulations was within specifications. Formulation that gave the most rapid softening time and best dissolution rate was Cocoa Butter with Sodium Lauryl Sulfate. Softening time was 9 minutes and drug dissolution was 100% at 60 min. Dissolution results showed that the inclusion of surfactant in the majority of the formulations caused an increase in dissolution rate of Promethazine HCl compared to control formulations. It can be concluded that type of base used and the incorporation of surfactant have potential effect on drug dissolution from suppository and consequently have effect on enhancement of bioavailability.

R- 011 Design and Development of a Naproxen Liposome. K. Corujo Lugo, E.S. Ghaly

Naproxen is a nonsteroidal anti-inflammatory drug (NSAID) widely used to relieve symptoms of arthritis and for treatment of mild to moderate pain, and it is available as tablets and suspensions. Liposomes are excellent drug carriers, and are an alternative dosage form that can be considered for the delivery of Naproxen. The aim of this project is to design and evaluate a novel Naproxen liposome and to explore a non-volatile organic solvent method for the preparation of liposomes. The effects of varying the lipid to lipid ratio; lipid to drug ratio; and the method of preparation of the liposomes were evaluated. The data obtained indicated that liposomes prepared at 3 lipids: 1 drug ratio by the Reverse Phase Evaporation Method were the best. Formulations prepared using 10 Lecithin (Lec): 4 Cholesterol(Ch): 1 Cholesteryl Hemisuccinate (ChH)ratio gave the highest drug entrapment efficiency (20.90%) and the formulation prepared by using 5 Lec: 1.4 Ch: 1 ChH ratio gave the highest amount of drug release(78.08%) in six hours of testing dissolution. The amount of drug, lipids, ratio of different lipids, drug: lipid ratio, and the methods of preparation, affect the entrapment efficiency of Naproxen and the release of the drug by dissolution testing. The Heating Method, using non-organic solvent, is a simple and safe procedure that should be further explored as an alternative method for liposome preparation.

R- 012 Design and Evaluation of Multilayer Sustained Release Tablet Using Polysulfonate Resin. M. Pérez, E.S. Ghaly

Multiple-unit dosage forms have been accepted to provide advantages over single unit dosage forms. Naproxen is a non-steroidal-anti-inflammatory (NSAID) drug used for the management of mild to moderate pain, fever, and inflammation. The aim of this study was to investigate the effect of polysulfonate ion exchange resins, and direct compression fillers on the physical properties, such as hardness and disintegration time. The change of NSAID release from resins after compression was also investigated. NSAID resins were formed by a complexation of NSAID with strong cation exchange resins, Dowex 50 W or Amberlite IRP69. Several formulations containing drug-resinate complex were prepared using different level of Methocel polymer and Avicel PH-101 and were compacted into tablets. Physical properties, drug content and drug release were evaluated. The best formulation was selected based on the entrapment efficiency of the drug and the drug release. Tablet formulation containing drug - Dowex resinate complex and 15% Methocel gave the highest entrapment efficiency (21.4 mg drug per tablet). Tablets containing drug - Dowex resinate complex and 30% Methocel gave 64.29% drug release at 6 hours of testing dissolution while tablet formulation of the same composition but prepared by using Amberlite resin to form the complex gave only 46.78% drug release. In conclusion, the properties of polysulfonate resin such as particle shape and degree of cross-linking; percent of polymer added and the deformation of the filler under compaction affect the physical properties and the drug release from the drug - resinate tablets.

R- 013 Partial characterization of an ABCG homologue gene in Plasmodium yoelii. Bárbara González, Glenda Rodríguez, Edalish Gascot, Gloriene González, Adelfa E. Serrano, Iván Ferrer-Rodríguez

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 of transporter, which translocates substrates across cell membranes. One of such groups of transporters belongs to the ABCG subfamily, which play a critical role in drug resistance in neoplastic cancer cells. We identified the Plasmodium yoelii ABCG homologue gene (pybcrp) in PlasmoDB 5X coverage (Contig 56). Computed topology predictions revealed a structure typical of half transporters, consisting of an ABC and a transmembrane domain composed of

six transmembrane helices (TM). The characteristics Walker A, glutamine loop, ABC signature, Walker B and histidine loop motifs were identified in the ABC domain. 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. To ascertain if point mutations were present in the drug resistance lines of *P. yoelii*, the complete open reading frame of the gene was PCR amplified and sequenced in *P. yoelii* NS (chloroquine selected), NS/1100 (mefloquine selected) and ART (artemisinin selected) lines. Preliminary results revealed four amino acid substitutions in NS/1100 and two in ART, as compared to the NS parental line. In addition, expression of the gene was confirmed in intraerythrocytic stages of the parasite by RT-PCR. Currently, we are performing additional experiments to measure gene copy number and expression levels of the *P. yoelii* ABCG homologue.

R- 014 First Report of KPC-4, a Carbapenem Hydrolyzing Enzyme, in *K. pneumoniae* Isolates in PR. C. Fernández, M. Maldonado,

E. Aquino, G. Vázquez, M. Sante, I. Robledo
KPC enzymes are a group of carbapenemases capable of inactivating all beta-lactam antibiotics. Several outbreaks produced by isolates harboring KPC-2 or -3 type enzymes have been reported. The KPC-4 enzyme has been reported from a single *Enterobacter* isolate. A PCR beta-lactamases (BL) surveillance, conducted in PR, revealed the presence of the KPC gene in 27/285 *K. pneumoniae* (Kp). Isoelectric focusing (IEF) identified an enzyme with a pI value of 6.7 in 23/27 isolates which correlates with KPC-2 or -3 type enzymes. In 4/27 isolates a BL with a pI of 7.65 was identified as KPC-4. The objective of this study was to characterize the BLs present in these 4 isolates. Susceptibility testing was performed using microbroth dilution. The types of BL present in these isolates were determined using PCR amplification for the family-specific genes of plasmid-encoding AmpC, KPC, CTX-M, TEM, SHV, IMP, VIM, cloning and sequencing of blaKPC. The 4 Kp isolates were resistant to ceftazidime, cefotaxime, and aztreonam but susceptible to the three carbapenems: imipenem, meropenem and ertapenem. PCR revealed the presence of blaTEM and blaKPC in all the isolates. The KPC specific amplified product was cloned, sequenced, and identified as KPC-4. This is the first time that a molecular surveillance of beta-lactamases is performed in PR. KPC-2, -3 and -4 type enzymes were identified for the first time in PR. This is the first worldwide report of *Klebsiella pneumoniae*

producing the KPC-4 enzyme. Organisms harboring the KPC enzymes may show a false susceptibility to carbapenems which may be problematic to clinical laboratories and physicians.

R- 015 Cystatin B Associates with STAT-1 in Monocyte derived Macrophages and Placental Macrophages: a possible link to HIV activation. Claribel Luciano-Montalvo, Loyda Meléndez-Guerrero

Cystatin B, a cysteine proteinase inhibitor has been found to induce nitric oxide production in macrophages and secreted in HIV infected monocyte derived macrophages (MDM) supernatants. We found increased intracellular levels of cystatin B in HIV-infected MDM when compared with uninfected cells. Cystatin B was even higher in both uninfected and HIV-infected MDM when compared to uninfected and HIV-infected placental macrophages where HIV replication is restricted compared to MDM. We wanted to elucidate the signaling pathway that could play a role in viral replication or cell activation upon HIV infection of PM and MDM. We analyzed cystatin B after immunoprecipitation of uninfected and HIV-infected MDM and PM cell culture lysates with a specific anti-cystatin B monoclonal antibody. Using western blotting the immunoprecipitated cystatin B was tested for STAT activation with anti-STAT-1, STAT-3, and STAT-5 antibodies. We found that STAT-1 co-immunoprecipitated with cystatin B. Our study demonstrated the direct interactions of cystatin B and STAT-1 suggesting a possible mechanism for nitric oxide activation. We posit that STAT-1 interaction with cystatin B can enhance viral replication by increasing levels of nitric oxide. Therefore the study of STAT-1 in the context of cellular interaction with other proteins during the HIV infectious process could shed important information for the development of future antiviral therapies.

R- 016 Effects of BMP-2 on Osteoblast Differentiation. C. Chiqués, S. Korecki, Y. Liu, M. Alikhani

Osteoporosis is a bone debilitating disease that affects the mechanism of bone coupling. Research has been focused on understanding the mechanism of resorption, and the development of many anti-resorptive drugs that prevent bone loss and reduce fractures, but do not restore bone already lost to the disease. It has been shown that Bone Morphogenetic Proteins (BMP-2) are a group of transforming growth factors that, when in contact with their receptors produce a signal that starts osteoblast differentiation. The objective is to study the effect of

BMP-2 in MC3T3-E1 osteoprogenitor cells (cells that are already determined to differentiate to osteoblasts). It has been shown that these cells in the presence of Ascorbic Acid can differentiate to osteoblasts. Treating osteoprogenitor cells with both solutions and measuring the concentration of Alkaline Phosphatase production during a determined amount of time will help establish which cells undergo differentiation. BMP-2 can increase the activity of alkaline phosphatase in osteoprogenitor cells in a 1 day period, while the control group demonstrates similar increase in alkaline phosphatase activity in the presence of Ascorbic Acid in 3 days. An increase in differentiation of osteoblasts in response to BMP-2 stimulation is accompanied by a decrease in proliferation of these cells. BMP-2 can target cells in different stages of differentiation in the hierarchy of osteoblastic lineage. These findings can help in further understanding of the mechanism of osteoblast differentiation and in possible therapeutic interventions for the treatment of osteoporosis.

R- 017 Bone Mineral Density and Trabecular Structure in Rhesus Macaque (*Macaca mulatta*) Lumbar Vertebrae: A Comparison of Micro-CT and DEXA. J.E. Turnquist, A.M. Cerroni, K.J. Faccia, S.K. Boyd, B. Hallgrímsson

Naturally occurring osteoporosis is associated with increased fracture risk, including vertebral crushing. Bone Mineral Density (BMD) measured using Dual-Energy X-ray Absorptiometry (DEXA) is the established standard for defining osteoporosis and relative fracture risk. This method, however, examines only bone quantity and not trabecular bone architecture / quality which are also implicated in increased fracture susceptibility. This study compares data from DEXA and micro-CT to assess the relative fracture risk predictability of each. The last lumbar vertebral body from 36 female free-ranging rhesus macaques (5.4 to 23.7 years) from Cayo Santiago, PR were examined. Results showed a 0.80 correlation between areal BMD (g/cm²) from DEXA (Lunar) and the closest equivalent volumetric micro-CT (SCANCO) value (mg/cm³). Multivariate analysis [$\alpha=0.05$] of micro-CT trabecular structure and architecture revealed bone density is most highly correlated with trabecular thickness (0.94) and bone volume ratio (0.99). Correlation between bone density and other bone architectural elements, e.g., connectivity, bone surface ratio, and number of trabeculae, was not significant. Neither morphology nor BMD revealed significant differences between last vertebrae of individuals with or without

fractures elsewhere in the vertebral column. The results of this study show DEXA as a less perfect measure of actual bone density than micro-CT which also provides insight into trabecular structure to help assess osteoporotic status and relative fracture risk.

Support: University of Calgary, University of Toronto, UPR RR03640 & RR03051.

R- 018 Prevalence of CYP2C19 Gene Polymorphisms in the Puerto Rican Population. P. Silen-Rivera, J. Duconge, P. Piovanetti, L.M. Castro-Rosario, J.Y. Renta, P.J. Santiago Borrero, John Guerra, C.L. Cadilla

Genetic polymorphisms of the CYP2C19 gene known to cause poor metabolism of important prescription drugs were examined in the Puerto Rican (PR) newborn population. The objectives of this study were to determine the gene and allele frequencies of clinically relevant allele variants (CYP2C19*2, splicing defect G681A and CYP2C19*3, stop codon, G636A) in the PR population and finally to determine whether the genotype frequencies for these gene mutations met the Hardy – Weinberg equilibrium (HWE). Genomic DNA was extracted from 108 dry blood filter samples from the Puerto Rico Newborn Screening Program (PRNSP) and analyzed by the PCR-RFLP technique. Genotype analysis revealed that the allele frequency for CYP2C19*2 was 0.098. The prevalence of poor metabolizers (PM) estimated from genotype data was found to be about 1%, but ~ 23% of the individuals were carriers. Genotype frequencies were tested for agreement with HWE by χ^2 analysis and no significant discrepancies were found ($p>0.05$). We examined 72 of these samples for the CYP2C19*3 mutant allele (null metabolizer) and could not detect any carriers or individuals homozygous for this mutation, which suggests that the frequency for the CYP2C19*3 allele is lower than that for the CYP2C19*2 allele. A larger number of samples need to be genotyped for these two allelic variants in order to better estimate the genotype and allele frequencies for these important CYP2C19 mutations in Puerto Ricans.

This project has received support from NIH grants R25GM61838 and P20RR011126, as well as from the PRNSP of the UPR School of Medicine.

R- 019 Effect of *Valeriana officinalis* Extracts in [3H]Glu Binding. L. Del Valle, Y. Ayala, J.G. Ortiz

Valeriana officinalis extracts are known for their sedative and anxiolytic effects. The specific mechanism(s) of

action responsible for its pharmacological effects have not been fully elucidated. The most accepted theory is that Valerian root extracts stimulate GABA inhibitory neurotransmission. Alternatively, relaxation and sleepiness can be produced if Valerian reduces the activation of glutamate receptors; ionotropic (iGluR) and metabotropic (mGluR) receptors. The objective of our study is to determine the effects of Valerian extracts preparations on the excitatory neurotransmission through [3H]Glutamate binding to mGluR and iGluR receptors. For this purpose, freshly prepared valerian extract (4pg/ml – 20mg/ml) was incubated with rat cortical membranes in presence of: [3H]Glutamate and different receptor agonists. Valerian extract (0.05 mg/ml) decreases the effects KA (kainic acid) but disappears at 10 mg/ml. In presence of NMDA, the Valerian extract (10 mg/ml) increases the binding. In contrast, in presence of LCCG it decreases binding in both concentrations. At (10 mg/ml) Valerian extract increases binding in presence of QA (quisqualic acid). Our data shows that aqueous extracts from Valeriana officinalis selectively interact with mGlu and iGlu receptors. The Valerian-mGluR-II interaction obtained is consistent with the reputed anxiolytic effect.

Supported in part by MBRS-RISE Grant No. 2 R25 GM061838-05.

R- 020 CD8 Positive Mycosis Fungoides, Folliculotropic Variant Miosotis. García, Roman Vélez, J. Buhler

Mycosis fungoides represents almost 50% of cutaneous lymphomas. The patients usually present with patches and/or plaques in the trunk. The diagnostic criteria include a band-like superficial and dermal infiltrate of lymphocytes with enlarged, hyperchromatic, cerebriform nuclei showing epidermotropism. Pautrier microabscesses are present in up to 38% of cases. The immunophenotype of the atypical lymphocytes is CD2+, CD3+, TCR beta +, CD4+, and CD8-. We present an extremely rare variant of mycosis fungoides characterized by follicular infiltrate of cerebriform T-cells involving the scalp with CD4- and CD8+ phenotype. Polymerase chain reaction studies shows TCR gamma clonal rearrangement supporting the diagnosis. The World Health Organization-European Organization for Research and Treatment of Cancer Classification classifies this entity in the group of indolent clinical behavior, but prognosis seems to be less favorable than in the “classical” variant. Identification of CD8+ cutaneous tumors is important because they may not respond to retinoids and interferon treatment that usually have a beneficial effect in CD4+ cutaneous T cell lymphomas.

R- 021 Contaminación por sangre de los equipos de anestesia. Dasha M. LLanos

El riesgo de adquirir una enfermedad a través de un patógeno en sangre es una amenaza ocupacional en la práctica de anestesia (Hall 1994). El propósito de esta investigación fue determinar si existe contaminación por sangre de los equipos de anestesia en una institución del área metropolitana de San Juan. Las preguntas que dirigieron este estudio fueron las siguientes: ¿Existió prevalencia de contaminación por sangre de los equipos de anestesia? ¿Se llevó a cabo los protocolos de limpieza, desinfección y esterilización en la institución? Se examinaron 100 equipos (laringoscopios, máquinas de anestesia, oximetrías de pulso y máquinas de monitoreo) con una prueba de fenolftaleína que constó en frotar los equipos de anestesia con un filtro de papel o un palillo de algodón donde luego se le aplicó la solución de alcohol, fenolftaleína y peróxido de hidrógeno para detectar sangre. Se examinaron 50 equipos en la mañana (antes de la primera cirugía del día) y 50 en la tarde (antes de la última cirugía del día). Se observó que cuatro (8%) de los equipos examinados en la mañana no estaban limpios en su totalidad (manchas de yodo) a pesar que estaban listos para utilizarse con pacientes sin embargo al realizarse la prueba ninguno fue positivo para sangre oculta. Por otro lado, de los 50 equipos examinados en la tarde, veinticuatro equipos (48%) estaban contaminados con sangre visible y 31 de los equipos (62%) con sangre oculta. La realización de este estudio puede ayudar a concienciar al profesional de la salud sobre el compromiso de llevar a cabo los protocolos de descontaminación de equipo en su ambiente laboral.

R- 022 Rosai-Dorfman Disease in a 2 year old boy: Case report. J.R De Jesús, R. Vélez, A. Mendoza

Rosai-Dorfman disease (RDD) is a rare disease of unknown etiology, characterized typically by massive, bilateral, cervical lymphadenopathy mostly in young black children during the first and second decade of life. This condition is a rare type of benign histiocytosis classified among lymphadenopathies associated with clinical syndromes. In one third of the cases, RDD involves extranodal sites in form of pseudotumors. Almost all organ systems have been recorded as involved sites. The most common are orbit, head and neck region (ear), upper respiratory tract; skin and subcutaneous tissue, skeletal system and central nervous system. Morphologically, the lymph nodes involved by the disease are large, matted, exhibiting fibrosis of the capsule and pericapsular fibrofatty tissues. Microscopically, the architecture is altered by marked dilation of the sinuses, which are distended and occupied

by a mixed population of cells. Most notably and of great diagnostic significance is the presence of cells of histiocytic appearance with a large vesicular nucleus and abundant clear cytoplasm with numerous intracytoplasmic vacuoles containing engulfed lymphocytes, a phenomenon called emperipolesis. The latter, although not specific, is the most important diagnostic criteria. The immunophenotype of these cells shows S-100 (+), and CD1a (-), which help to differentiate RDD of other common histiocytic lesions. We report one case of a 2 year old boy with right cervical lymphadenopathy who presented this rare disease. Also we review the morphology, immunohistochemistry, incidence and biological behavior of this entity.

R- 023 A Study of Enamel Hypoplasia in Children with Severe Early Childhood Caries using Scanning Electron Microscopy.

Tanya Somohano, Charles Larsen, Timothy Bromage, Page W. Caufield

Studies have suggested that the presence of enamel defects acts as a predisposing factor for the development of primary dentition caries facilitating the adherence of cariogenic bacteria and allowing the onset and progression of the disease. Enamel defects in the primary dentition can be classified as opacities, hypoplasia or a combination of both found at different degrees of severity. Studies of enamel hypoplasia may provide additional insight to prevention of caries in the primary dentition. The purpose of this methodological study was to assess the use of impressions for Scanning Electron Microscopy (SEM) investigations of hypoplasia. After the IRB consent and parental approval was obtained, three children with Severe Early Childhood Caries were recruited into the study. All children had visible hypoplasia of the mandibular incisors. Impressions of the mandibular incisors were taken using polyvinyl siloxane impression material and disposable trays. The surfaces of the teeth were cleaned with pumice and acid-etched. The impressions were poured with an epoxy resin and gold coated to be further analyzed by SEM. The SEM imaging showed enamel irregularities, abrasion and depressions, however debris was also noted. Impression technique and materials can be used for SEM assessment of hypoplasia surface and anatomical characteristics. Additional tooth cleaning procedures should be tested to improve this technique.

R- 024 Lymphomas with unusual phenotypes. Report of two cases and review of literature.

María I. Almira, Román Vélez, Edgar C. Belmonte

Making a diagnosis of lymphoma has always been difficult. Classifying a malignant lymphoma as Hodgkin

or non-Hodgkin has always had direct implications for treatment strategies and is a huge challenge for pathologists and hemato-oncologists. Even though immunophenotypic markers for differential diagnosis are extremely helpful, occasionally they show unusual and controversial phenotypes. We present two cases of large cell lymphoma with atypical immunohistochemical stains results. The first case is a 49-year-old woman with a right neck mass that was diagnosed as Peripheral T cell lymphoma positive for CD 20 as an aberrant B cell marker. The second case corresponds to a 60-year-old male admitted in 2005 for severe abdominal pain and splenic mass who was diagnosed with splenic Diffuse Large B cell lymphoma. In 2006 this patient presented with enlarged left inguinal lymph node with an ambiguous histology showing features of Hodgkin lymphoma and Diffuse Large B cell lymphoma. Finally it was diagnosed as Grey Zone Lymphoma, a term used for cases of malignant lymphoma which cannot be reliably classified as Hodgkin lymphoma or non-Hodgkin lymphoma.

R- 025 Low grade Adenomatous Mucinous Neoplasm of Germ-cell (teratomatous origin) Associated with Pseudomyxoma Ovarii, Arising in a Mature Cystic Teratoma: A Case Report. B. Murati, R. Vélez, V. Arce

B. Murati, R. Vélez, V. Arce

We report a case of a 20 year old female grava 0 para 0 without history of systemic illness who complained of a painful palpable abdominal mass. The patient noted a "huge mass" while losing weight accompanied by occasional early satiety and constipation. Pre-surgery laboratory results revealed negative beta fraction human chorionic gonadotropin, elevated carcinoembryonic antigen (41.7ng/mL, normal < 2.5 ng/ml), cancer-antigen 125 (78.8 U/mL, normal values 0-35 U/mL), and carbohydrate antigen 19-9 (484U/mL, normal 0-35 U/mL). Surgical pathology of excised mass was a 8890 gram tumor replacing the left ovary measuring 55 x 31 x 14 cm. The external surface was lobular and smooth. On section, the tumor was multiloculated and most loci were filled with thick yellow-hemorrhagic mucinous fluid. A cyst filled with a white sebaceous material with some hairs was also identified measuring 3.5 x 3 x 1.7 cm. Microscopically, there was a mucinous tumor associated with a mature teratoma. Immunostains of the mucinous lesion revealed strong staining for CK 20, CDX2 and focal staining for CK 7 which is most consistent with a teratomatous origin. The uncommon ovarian mucinous tumors of germ cell (teratomatous) origin have not been extensively evaluated.

R- 026 Fatal Community Acquired P. Aeruginosa Pneumonia, an Epidemic Review.

M. Marcos, W. Quiñones Villegas

Pseudomonas Aeruginosa is a nosocomial pathogen universally accepted. Community-acquired *P. aeruginosa* pneumonia is very rare and it occurs mainly in immunocompromised patients, those with prior antibiotic use, and those with structural lung abnormalities such as cystic fibrosis, bronchiectasis, or repeated exacerbations of chronic obstructive pulmonary disease that require frequent glucocorticoid and antibiotic use. Identification of *P. aeruginosa* pneumonia aroused an epidemiologic review. We report a case of a 46-year-old Hispanic female with a past medical history of diabetes mellitus type 2 and bronchial asthma that presented to the emergency room with severe dyspnea and hyperglycemia. Autopsy findings revealed *P. aeruginosa* pneumonia acquired in a community epidemiologic setting.

R- 027 Minor Head Injury in Children Younger Than Two Years Old: Description, Prevalence and Management in the Emergency Room of the Pediatric University Hospital. Antonio Ortíz, M. L. Fernández, S. Marcano, L. Mejías

In children less than two years old, minor head trauma is a common injury that can result in intracranial injury. No studies exist that determine the number of children younger than two years old who visit the emergency room (ER) due to minor head injury in Puerto Rico. The objective is to determine the prevalence of children with minor head trauma who visit the ER of the University Pediatric Hospital (UPH) and describe related issues. Information was gathered from medical records of children 0 to 2 years old who visited the UPH ER from 2004-2006. From our 136 subjects, there was a male prevalence of 59%. The predominant reason for head injury was a fall (86%). There was abuse in 7% of the subjects. Eighty-five percent (85%) of injuries occurred at home and 52% of children had a parietal lesion. There was a predominance of CT as the preferred radiological assessment method. Ninety-six percent (96%) of the patients were kept at the ER for observation. From the subjects that were considered for consultation, 66% were evaluated by neurosurgery, 18% by neurology, and 51% by social work. The most common etiology for head trauma in this group was a fall that occurred at home resulting most commonly in a lesion on the parietal region of the skull. Abusive head injuries among infants represent a devastating form of child abuse. The prevalence of abuse in 7% of these children should be

of concerned and alert physicians who evaluate children in ER settings to look for this possibility.
IRB approved.

R- 028 Prevalence of Internet Addiction in Latino Adolescents with Psychiatric Diagnosis.

Katyna Rosario, Katia A. Liberatore, Luz N. Colón, Karen G. Martínez

Internet addiction, although not a DSM-IV diagnosis, has been subject for research worldwide during the last decade. It has been described as an impulse-control disorder and it has been associated to psychiatric comorbidity. This descriptive study presents the prevalence of Internet addiction and illustrates the pattern of Internet use in a sample of adolescents receiving treatment for a psychiatric diagnosis. Sixty eight (68) patients from the Psychiatric Clinic at the Pediatric University Hospital completed the Internet Addiction Test along with a questionnaire that described internet use. Of the 68 subjects, 44 reported using the internet. Of these 44 subjects, 31 are online between 30 minutes to 2 hours daily and 28 engage in this activity for 1 to 3 days per week. Of 11 options, verifying e-mails was the most common activity performed (n=10), then surfing the web (n=6), and downloading music (n=5). Twenty (20) subjects use the internet at home and 13 at a friend's house. Only 5 subjects have discussed internet use with their therapist. In terms of dysfunctional internet use using the Internet Addiction Test, 32 had no problems, 8 presented mild, 4 moderate, and 0 severe problems. In contrast to what was expected from this low socio-economic status population, it was found that the majority of patients have access to internet at their homes. Even though no significant pathology associated to internet use was found in our sample, it is important to state that adolescents being treated for a psychiatric condition have a higher probability of high-risk behaviors and the use of the Internet should be addressed during evaluation and treatment.

R- 029 The Presence of Lactobacilli in Children with Severe Early Childhood Caries.

Luz D. Visbal, D. Saxena, P. W. Caufield

The presence of Lactobacilli (LB) species in the oral microbiota has been considered to play an active role in dental caries. It is present in the oral cavity as a secondary invader and colonizes after a caries lesion is formed. Preliminary studies indicate that LB maybe exogenous and opportunistic colonizer. There are more than 130 species of LB. Through new advances in molecular and genetic typing methods, including specific primers and distinctive 16S rDNA segments, it has become more feasible to identify LB species. The objective of this

project was to collect various samples of plaque from Hispanic children with Severe Early Childhood Caries (S-ECC) and a control group caries free, and to compare the LB species present in both samples to determine whether a specific species is present selectively in the S-ECC children. Pooled plaque was obtained from five caries-free and five S-ECC children. Samples were diluted and plated on Rogosa agar and incubated for 48 h under anaerobic conditions. From each plate, colonies were picked, pure cultured and cultivated in Rogosa broth. Samples were then centrifuged to yield a bacterial pellet. Total genomic DNA of the bacterial sample was extracted using the Epicenter purification kit. DNA quality and quantity were measured using a UV spectrophotometer. Universal primers were used amplify a ~300 bp fragment from the V1-V3 variable region of the 16S rDNA. We found several different species of LB present in S-ECC but none specific to this form of caries. The wide range of species found suggest that LB arise from the environment of a yet to be discovered natural reservoir.

R- 030 Developmental Study of a Hispanic Pediatric Cohort Diagnosed with Neonatal Seizures: Long Term Outcomes of Epilepsy and Intelligence. L. San Miguel-Montes, M. Vázquez Correa, J. Ríos del Pozo, D. Piskorski, M. Dávila, L. Reverón

Neonatal Seizures (NS) occur in 1% of the population (Wong, 2006), represent the most distinctive sign of neurological disease in the newborn and are regarded as an age specific seizure disorder that is a separate category from epilepsy. In an effort to establish the long term outcome of children with neonatal seizures we aimed to describe the clinical and intellectual functions of Puerto Rican children diagnosed with NS after 7 years. Our IRB approved data review consisted of 115 infants both male (62%) and female (38%) from urban (73%) and rural (25%) areas. The sample included cases referred from the Neonatal Intensive Care Unit and the Emergency Department of Puerto Rico Medical Center for neurological evaluation after presenting episodes suggestive of neonatal seizures. Forty two percent of patients were premature and 58 % were born at term. Initial neurological exam was normal in 60 % of patients and abnormal in 40%. Onset of seizures was mainly within the first 24 hours after birth. Etiologies included Metabolic, CNS malformations, Hypoxia, Intraventricular hemorrhage, infections and multiple conditions. In addition, we found variety of alterations in electrophysiological (EEG) studies. After age 3 Psychometric results ranged from above average

through profound mental retardation with most patients falling in the average classification (55%). In summary Puerto Rican children with neonatal seizures present a wide variety of clinical conditions and different neurological, electrophysiologic and psychometric profiles. These findings appear to be similar to other NS outcome studies on different populations.

R- 031 Exacerbation of Hypoxic Trophoblast Produced Capillary Hypertension (Preeclampsia): Searching for the Cause. Carene Oliveras, Karlis Adamsons

Our textbooks, and even our most regarded medical journals, have chosen to classify the etiology of Preeclampsia as unknown, in spite of the generally accepted fact that this disorder occurs only in the presence of a poorly oxygenated trophoblast. Not recognizing that it is capillary, and not arterial hypertension, that can cause serious morbidity and even mortality, treatment has remained essentially unchanged for more than half a century. Treatment has been directed toward reduction of maternal symptoms such as high blood pressure. An exacerbation of symptoms of Hypoxic Trophoblast Capillary Hypertension (HTCH), except in cases of placental separation [placental abruption], is not caused by a sudden decrease in the oxygenation of the trophoblast, but rather by the progression of PO₂ decline in the Intervillous Space (IVS) below 30 torr, resulting from worsening of maternal hypovolemia, increase in blood viscosity, and decrease in the oncotic pressure of plasma, all of which are easily correctible disorders if managed aggressively at onset. Why the clinician chosen to ignore them, and has concentrated her/his efforts to further increase the already abnormally high arterial conductance with vasodilators, remains unexplained.

R- 032 Post-radiation caries prevention protocol after head and neck cancer. Ali N

Head and neck cancer accounts for 4% of all new cancer diagnosed and 2% of cancer deaths in the United States every year. In Puerto Rico in 2002 the incidence of oral cancer cases was 19.5 for males; and 5.1 for females; for both groups combined was 11.4. The treatment for head and neck malignancies include radiation, surgery and chemotherapy. Irradiation of the stomatostomasticatory complex usually results in pathological changes in oral tissues. These changes compromise the salivary gland function; therefore these patients develop xerostomia and are at high risk to develop rampant dental caries. Identify existing protocols for patients after radiation of head and neck region, especially those related with

caries prevention and establish an ideal protocol for the Puerto Rican population. A systematic literature review was done. A research for scientific articles at PubMed was carried out. The keywords used were: post-radiation caries, xerostomia related caries, xylitol gum and xerostomia. 25 related articles were selected and 12 of those were directly related to the topic and were systematically reviewed. 11,189 articles were found after the search; post radiation caries (44), xerostomia related caries (64), xylitol gum (201) and xerostomia (10,880). The protocols used to prevent post-radiation caries consist of rigorous oral hygiene, daily self-application of fluoride, remineralizing mouthrinse solutions, and artificial saliva preparations. Protocols have remained the same over the last forty years. Success of these preventive measures is dependent upon patient's compliance and attitude towards oral health.

R- 033 Programa Comunitario de Prevención de Caídas.

El Programa de Maestría de Terapia Física incluye en su nueva oferta curricular cuatro cursos de práctica clínica. Como parte del curso Práctica Clínica II los estudiantes realizan un estudio de caso para desarrollar destrezas en el examen, evaluación, diagnóstico e intervención en Terapia Física, manejo de caso y comunicación. Usualmente este estudio de caso se lleva a cabo con un paciente en el escenario de hospital. Para esta experiencia se seleccionó un ambiente no tradicional para que tres estudiantes bajo la mentoría de su profesor desarrollaran destrezas de cernimiento e intervención en un programa de prevención de caídas en viejos. Seis viejos voluntarios residentes de un proyecto de vivienda pública del área metropolitana de San Juan, Puerto Rico participaron del programa. Los sujetos fueron entrevistados y examinados inicialmente para determinar historial de caídas, balance estático y dinámico, además de su historial de salud en general. La intervención consistió en una sesión educativa en factores de riesgo y estrategias para la prevención de caídas y en cuatro sesiones de ejercicios de flexibilidad, fortalecimiento y balance. Los estudiantes tuvieron la oportunidad de: 1) desarrollar un programa de promoción para reclutar voluntarios, 2) administrar pruebas de cernimiento para la selección de sujetos y determinar riesgo de caídas, 3) evaluar las residencias de los sujetos y complejo de vivienda para determinar barreras ambientales y/o arquitectónicas, 4) desarrollar un programa comunitario de prevención, 5) referir sujetos a otros miembros del equipo de salud cuando indicado y 6) determinar logros alcanzados.

R- 034 El sistema de reducción de riesgos de Cuba: Lecciones para la preparación, la respuesta y la recuperación en casos de emergencias y desastres en Puerto Rico. Ralph Rivera Gutiérrez, Heriberto Marín Centeno

El sistema de reducción de riesgos en Cuba ha sido señalado por las Naciones Unidas, la Federación Internacional de Sociedades de la Cruz Roja (FICR) y otras entidades internacionales como un modelo para países en desarrollo y un ejemplo a emular en lo que el manejo de emergencias y desastres se refiere. Los logros cubanos en la reducción de riesgos y vulnerabilidad son producto de un impresionante proceso multidimensional. Su base es un modelo socioeconómico que reduce la vulnerabilidad e invierte en la formación de capital social mediante el acceso universal a los servicios gubernamentales y la promoción de la equidad social. Los altos niveles resultantes de alfabetización, desarrollo de infraestructura en las zonas rurales y acceso a una salud pública de calidad y otras formas de capital creadas, además de una estrategia enfocada en el fortalecimiento de capacitación en reducción de riesgos a nivel comunitario, funciona como un efecto multiplicador de los esfuerzos nacionales en la preparación para casos de desastres y en la mitigación y respuesta ante los mismos. Dado que Puerto Rico enfrenta las mismas amenazas naturales que Cuba, es mucho lo podemos aprender sobre el modelo de reducción de riesgos cubano. La presentación será basada en la experiencia obtenida de los autores al realizar una visita a Cuba en diciembre de 2007 para estudiar el sistema de preparación y respuesta de emergencias y desastres. Se presentará el sistema de reducción de riesgos de Cuba y se plantearán elementos que se pueden tomar de la experiencia cubana para mejorar la preparación y respuesta para emergencias y desastres en Puerto Rico.

R- 035 Análisis de las diferencias en la población de 65 años o más que vive bajo niveles de pobreza y tienen algún tipo de discapacidad en el Censo del 2000 y la Encuesta sobre la Comunidad de Puerto Rico 2006. Miguel A. Cortés-Santiago, Roberto R. Marrero-Cases, Jonathan J. Morales-González, Ana Luisa Dávila-Román

El objetivo de esta investigación es describir la población de 65 años o más que vive bajo niveles de pobreza y tiene algún tipo de discapacidad, según el Censo de Población y Vivienda del 2000 y la Encuesta sobre la Comunidad de Puerto Rico 2006 (PRCS 2006). Esta es una investigación de tipo descriptiva. Para llevarla a cabo, se utilizaron los archivos del Censo del 2000 y el PRCS del 2006. Como

fuelle de datos se recurrió a la muestra del 5% de los datos para uso público. Las variables utilizadas son: sexo, edad, niveles de pobreza, años de escuela completados, estado marital y discapacidad (sensorial, física, mental, actividades instrumentales de la vida diaria). Los datos obtenidos de este estudio indican que la población de 65 años o más comprende el 11.2% de la población de Puerto Rico para 2000 y 12.8% en 2006. El 44% de esta población se encuentra bajo los niveles de pobreza, según definidos por el Censo en 2000 y de 43.6% en el 2006. El 59% de esta población tiene al menos una discapacidad en el 2000 y de 62.7% en el 2006. La proporción de mujeres discapacitadas (61.3% en 2000; 65.8% en 2006) es mayor que la de los hombres (53.0% en 2000; 57.2% en 2006). En el PRCS el Censo Federal modificó la forma de recoger datos socioeconómicos de la población. En este trabajo se explican y se analizan ambas metodologías. El 50.2% de la población 65 años o más con alguna discapacidad viven bajo el nivel de pobreza, según el Censo del 2000 y el 53% en el 2006. Se puede concluir que el aumento de la población estudiada se debe a diferencias en las metodologías utilizadas y no necesariamente al aumento de ésta.

R- 036 Association between increased body mass index and self-reported asthma in the Puerto Rican Population. Orquídea Frías-Belén, Cynthia Pérez-Cardona, Gilberto Ramos-Valencia

The prevalence of asthma appears to be higher among obese subjects, and a link between these chronic conditions has been postulated. To evaluate the association between an elevated body mass index (BMI) and a diagnosis of self-reported asthma among Puerto Rican adults, data on 25,039 subjects aged 18 years and older who participated in the 2003 Continuous Health Survey for the Municipalities of Puerto Rico was analyzed. A probability sample of 16,617 households representative of the 78 municipalities of Puerto Rico was selected using a multistage stratified cluster sampling design. Logistic regression, stratified by sex, was used to examine the association between asthma prevalence and BMI category (normal: 18.5-24.9kg/m²; overweight: 25.0-29.9kg/m²; obese: \geq 30.0kg/m²) adjusting for age, education, health insurance, smoking and drinking status. Prevalence of self-reported asthma was 8.8% (95% CI: 8.4%-9.2%), 6.5% for men (95% CI: 6.2%-6.8%) and 10.9% for women (95% CI: 10.5%-11.3%). Compared to women with a normal BMI, overweight and obese women had a significant higher odds of asthma [overweight: POR=1.23 (95% CI: 1.07-1.42); obese: POR=1.92 (95% CI: 1.67-2.21)] after adjusting for age, education, health insurance, smoking and drinking status.

However, the association between BMI category and prevalence of asthma among males did not reach statistical significance ($p>0.05$). The current study closely agrees with other investigations that have documented an excess of asthma among obese individuals. Additional research is needed to further elucidate the pathogenesis and temporal sequence between obesity and asthma.

R- 037 Risk Factors for Suicidal Behavior among Adolescent Students in Puerto Rico, Academic Years 2002-03 and 2003-04. L. Rodríguez-Figueroa, S.D. Harlow, M.R. Sowers, B.N. Sánchez, K.B. Welch, M.R. Moscoso

Several risk and protective factors for suicidal ideation and suicide attempts among adolescents have been identified yet few studies have explored them among Puerto Ricans. Our objective was to determine the association between ideation and attempts with socio-demographic, individual, family, peer/social, school, and community characteristics. This study is a secondary analysis of Consulta Juvenil VI, an island-wide cross-sectional survey. 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 in PR. Multiple logistic regression analyses were performed. Individual and family characteristics were more important predictors for ideation and attempts among adolescents than peer/social, school, and community characteristics. The presence of depressive symptoms and sensation seeking behaviors were the strongest individual predictors. Family conflict was the most important family characteristic. A significant interaction between the presence of depressive symptoms and family conflict was identified among females. The level of community disorganization was also an important predictor. Few school factors and no peer/social characteristic remained in the final model after adjustment. This is the first study in PR to examine suicidal behavior in a representative sample of students. These results have profound implications for suicide prevention programs, pointing to the need for increased focus in addressing depression in adolescents, particularly when expressed as part of family conflict.

Supported by ASSMCA.

R- 038 Factores Sociodemográficos y Biológicos de las Mujeres que hayan presentado muerte fetal en Puerto Rico 1994-2005. M.S., R. Cordero Cortés, A.L. Dávila

Desde 1994 el Departamento de Salud recoge en sus archivos computarizados las muertes fetales que

representan el 1% de los partos. El objetivo de este estudio fue realizar un análisis detallado de las características sociodemográficas, datos médicos, factores de riesgos e historial de fecundidad de las mujeres, cuyos embarazos culminaron en muerte fetal. El método implementado fue el análisis descriptivo estadístico y, los datos utilizados se obtuvieron del Departamento de Salud de Puerto Rico, de los certificados de las muertes fetales de 1994 al 2004. El 42% de las muertes fetales se pueden relacionar con algún factor de riesgo. Entre los factores de riesgo más sobresaliente fueron diabetes con 11%, hipertensión asociada con el embarazo con un 8%, anemia presentando 7% e hipertensión crónica un 7%. Además, cerca del 53% de las muertes fetales corresponde al sexo masculino y 31% de las muertes se observaron en el grupo de 20 a 24 años. Se observó que 77% de las mujeres comenzaron su cuidado prenatal durante el primer trimestre de gestación. El 62% de las muertes fetales ocurren entre las semanas vigésima y vigésimo séptima. Cerca del 60% de las muertes fetales pesan menos de 2 libras. Casi una cuarta parte de las muertes fetales están relacionadas con el periodo de gestación y el bajo peso.

R- 039 La Situación de las Personas sin Hogar: Características, Necesidades y la Utilización de Servicios en Puerto Rico. Juan Carlos Reyes, Hector Colón, Ibis Carrión

La literatura científica señala que la población de deambulantes presenta una gran variedad de problemas de salud al ser comparada con la población general. La Fundación Chana & Levis, creó el "Homeless Management Information System" en Puerto Rico. Este es un sistema electrónico operado por múltiples organizaciones que brindan servicios a los deambulantes. El objetivo de este estudio fue analizar la población registrada en el sistema en el 2006 (1,278 personas) para establecer un perfil sociodemográfico, necesidades y utilización de servicios. Los análisis estadísticos incluyen distribución de frecuencias, análisis bivariados y regresión logística. Los resultados reflejan un aumento sostenido de deambulantes nuevos entre el 2003 (1.0%) y el 2007 (30.1%). El estudio caracterizó a los deambulantes como una población con múltiples necesidades. El 46% de las personas no tenía escuela superior, 95% sin empleo, 73% carecía de ingreso, 55% sin cubierta médica, 33% cumplía criterios de deambulante crónico, 58% padecía problemas de adicción, 15% de trastornos mentales, y el 10% de condiciones físicas crónicas. Solamente el 20% de la población obtuvo vivienda. Los deambulantes más dados a obtener vivienda fueron: mujeres, con mayor escolaridad, no casadas, con cubierta médica y que no presentaban

un problema de adicción. En conclusión, la población de deambulantes en Puerto Rico está aumentando y presenta una gran variedad de necesidades. Además, es importante destacar que existe gran dificultad para obtener vivienda, lo cual hace necesario que se intensifiquen los esfuerzos para desarrollar programas de vivienda permanente.

R- 040 Candida Albicans Meningitis and Brain Abscesses in a Neonate: Case Report. Ingrid M. Ancalle, Juan Rivera, Inés García, Lourdes García, Gloria Reyes, Marta Valcárcel

Invasive *Candida* infection is an increasingly important cause of mortality and morbidity in the neonatal intensive care unit. Risk factors include birth weight less than 1000 g, exposure to broad spectrum antibiotics, parenteral nutrition, central venous catheter, preceding fungal colonization, intrauterine growth restriction, and pulmonary hemorrhage. Neonatal candidemia occurs in 4-15% of extremely low birth weight infants. Meningitis occurs in 5-9% of patients with candidemia. A few infants with *Candida* meningitis (4%) present ventriculitis or brain abscess. *Candida* meningitis and brain abscess are associated with significant mortality and severe neurological impairment. We report an infant born at 34 weeks gestational age, birth weight 2045 g, and history of premature rupture of membranes of 6 days, who was initially treated for pneumonia and suspected necrotizing enterocolitis. At 12 days old she presented apnea and seizures. Cerebrospinal fluid (CSF) grew *Candida albicans* in 2 cultures, blood cultures were negative. Head sonogram and computed tomography scan were negative. Brain magnetic resonance imaging (MRI) detected multiple brain parenchyma micro abscesses. The patient also presented endophthalmitis and hydrocephaly requiring shunting. She received 70 mg/kg total amphotericin B therapy and 65 days of flucytosine. This case confirms the need of obtaining adequate cultures including CSF when sepsis is suspected. Neuroimaging should be included in diagnostic workup of patients with systemic fungal infection. Improved neuroimaging techniques such as MRI may lead to earlier diagnosis of cerebral abscesses.

R- 041 Acute Disseminated Encephalomyelitis: A Case Series Report at the University Pediatric Hospital in Puerto Rico.

M. Dávila, K. Cruz, R. Alvarado, B. González
Acute Disseminated Encephalomyelitis (ADEM) is considered an uncommon, immune-mediated inflammatory disorder of the central nervous system. It is characterized by the development of focal and multifocal neurological

deficits, occurring days to weeks after a systemic viral infection or vaccine administration. Although ADEM is described as an infrequent disorder, its real incidence is not well established and relies mostly from reports of isolated cases or small series of patients. This is a description of our experience with four children diagnosed with acute disseminated encephalomyelitis during the year 2007, at the University Pediatric Hospital, a tertiary medical center in Puerto Rico. Our patients were all hispanic between the ages of 8 to 16 years with a male to female ratio of 3:1. In all cases, the diagnosis was established based on clinical presentation, MRI findings and cerebrospinal fluid results. Three patients were treated with the standard therapy of intravenous (IV) methylprednisolone at 30mg/kg per day for 3 to 5 days. One patient was treated with IV immunoglobulin therapy at 0.4g/kg per day for 5 days. All patients had partial or complete recovery of their neurological deficits, supporting the favorable outcome of this condition in spite of its dramatic presentation.

R- 042 Incidental Subarachnoid Hemorrhage (SAH) in a woman with HIV infection – A Case Report. T. De La Torre, T. Ginebra, S. Santiago, R. Villalobos, C.F. Ramos-Matos, V. Wojna

Case of a 43 year old woman with a 15 year history of HIV infection using antiretroviral treatment (ART) for 10 years with undetectable plasma viral load and 723 CD4 cells/mm³ who presented a 3 months history of oppressive, mild/moderate bi-temporal and occipital headaches. Denies nausea/vomits, seizures, or confusion. She was diagnosed with episodic tensional headache after a negative head CT scan and was treated with orphenadrine without improvement. Eventually had an emergency room evaluation where a diagnosis of sinusitis was done. Antibiotics for 13 days resulted in mild improvement. As a participant in our cohort study after an unremarkable exam a lumbar puncture was performed resulting in a bloody CSF (1854 RBCs; 927 fresh, 927 crenated). She was diagnosed with SAH and admitted for evaluation. Follow up head CT and lumbar puncture were unremarkable and was discharge 7 days after. SAH in patients with HIV infection is not a rare event. It may be associated to aneurysm, vasculitis, thrombocytopenia, coagulopathies, opportunistic infections, dysimmune process, and drug abuse. It is important to create awareness in considering the full range of etiologies of severe headaches in patients with HIV infection including SAH. With the advent of ART, HIV infection is now considered a chronic disease since patients are living longer presenting other co-morbidities like aging, stroke, and cardiovascular complications. SAH

is a critical emergency diagnosis since it carries a high rate of morbidity and mortality and its early identification and treatment improves quality of life.

NIH funds: SIINS46278, U54NS43011, P20RR11126.

R- 043 Nonimmune Hydrops Fetalis and Down Syndrome: Case Report. N. Claudio, L. García, M. Valcárcel

Hydrops fetalis is a severe, life threatening problem of severe edema in the fetus and newborn. Nonimmune hydrops fetalis (NIHF) is the most common type with 25% of cases being due to undetermined causes. Chromosomal aberrations are found in 7% to 15% of cases. We report a newborn admitted to the Neonatal Intensive Care Unit with the diagnosis of NIHF and Down syndrome. The infant was born at 31 weeks gestation to an adolescent mother via cesarean section. Antenatal ultrasound identified fetal ascites, pleural effusions, scalp and body wall edema, and absent umbilical artery diastolic flow. Fetal arrhythmia was identified and treated with digitalis prior to delivery. APGAR scores were 0/3/5 at 1, 5, and 10 minutes, requiring resuscitation, paracentesis and bilateral thoracentesis in the delivery room. Upon admission, she was treated for pneumothorax and pleural effusion. She presented hypoalbuminemia, hyponatremia, thrombocytopenia, anemia, and leukopenia. Echocardiographic evaluation showed patent ductus arteriosus, patent foramen ovale, and pulmonary hypertension. Karyotype showed Down syndrome. There was no evidence of TORCH or parvovirus B19 infection. Her clinical course was complicated with hypotension, metabolic acidosis, and disseminated intravascular coagulopathy, resulting in death at 5 days. A fetus or a newborn, like this one, with signs of hydrops must be considered critically ill and at risk of death. Chromosomal analysis is important in the evaluation of NIHF because of the association of Down syndrome with this condition.

R- 044 Cyclic disulfides as potential inhibitors of enzymes with cysteine in the active site. Sandaliz Espinosa, Anitza Villalobos, Cornelis Vlaar

A wide variety of biologically relevant enzymes have the thiol-containing amino acid cysteine in their active site. Frequently, these cysteine residues play an active role in key biological processes. Many of these enzymes have been recognized as a potential therapeutic targets in drug discovery for various diseases such as cancer, autoimmune diseases and infectious diseases. The objective of the current project was to synthesize novel compounds containing five-membered-ring 1,2-dithiolanes and six-

membered-ring 1,2-dithianes. These cyclic disulfides can potentially covalently bind to cysteine residues that are present in the enzyme active-site and function as an enzyme inhibitor. 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. The compounds were tested for inhibitory activity against various enzymes containing cysteine-residues in their active site. Various compounds synthesized showed inhibitory activity. For example two of the compounds prepared inhibited rat Thioredoxin reductase more than 80% at a concentration of 10 μ M. A group of molecules containing novel cyclic disulfide building blocks have been synthesized and shown to be promising enzyme inhibitors. These inhibitors could potentially lead to novel therapeutics in a wide variety of diseases.

R- 045 Asociación entre Genotipo de CK-MM y Respuesta Funcional a un Programa de Ejercicio Acuático. D. Cordero, J.L. Martínez, J.A. Lopéz-Taylor, M.A. Rivera

Recientemente variaciones en la secuencia del ADN han sido asociadas con la respuesta del organismo a programas terapéuticos, como el ejercicio. Este estudio evaluó la hipótesis de asociación entre un polimorfismo de ADN en el gen de Creatina Kinasa Muscular (CKMM) y el cambio (∆) en la duración de nadar 400 metros en repuesta a 8-semanas de un programa de natación de larga distancia (PNLD). Se tuvo acceso un banco de ADN de varones (N=66; Edad=20.4 \pm 1.2 años) nadadores recreativos en aparente estado de buena salud y biológicamente no-relacionados entre sí. Estos cumplieron con un PNLD de 8-semanas de duración que requirió de 4 a 6 sesiones semanales. Antes y después del PNLD estos completaron, en una piscina de 50 metros, una prueba de natación de 400 metros. El polimorfismo A/G en la región 3' no-codificante del gen CKMM fue detectada por la reacción encadenada de polimerasa y digestión con NcoI. El ∆ (tiempo de natación antes – tiempo de después) inducido por el PNLD, por genotipo fue comparado utilizando la aplicación PROC MIXED de SAS. Los tres genotipos esperados de CKMM-NcoI fueron observados y consistentes con el equilibrio Hardy-Weinburg (P>0.05). El ∆ observado corregido por edad, fue caracterizado por diferencias genotípicas (p=0.01). Homocigotos para el alelo A evidenciaron un ∆ significativamente menor (∆=30 \pm 5seg (media \pm de); n= 8) que los heterocigotos (∆=115 \pm 11seg; n=22) u homocigotos para el alelo G (∆=126 \pm 17seg; n=36). Estos resultados apoyan la hipótesis que el

polimorfismo evaluado en el gen CKMM u otro gen circundante en fuerte desequilibrio está asociado con adaptaciones biológicas a un PNLD.

R- 046 Variations in population density estimates of water quality indicator bacteria along a thermal gradient in the Aguas Frias stream in Toa Baja, Puerto Rico. V. Cruz-Soto

The extent of pollution in a given area is determined by the evaluation of the adequate environmental quality indicators. Microbiological water quality standards have been established to reduce the risk of disease by exposure to water polluted with fecal matter. Variations in abiotic factors such as water temperature may result in increased population density estimates of the indicator organism without the occurrence of a polluting event. In our study we examined the variations of indicator organism's population density along a thermal gradient in an anthropogenically disturbed stream. Water samples as well as temperature readings were obtained from six stations along the Aguas Frias stream in Toa Baja, Puerto Rico. Fecal coliform, total coliform and fecal streptococci population densities were determined by membrane filtration with subsequent culture on selective and differential media. Population densities of the indicator bacteria were plotted with the average temperatures for each sampling station. The ratio of fecal coliforms to fecal streptococci per sampling station was also plotted. An increase in estimated population density was observed towards the station with the highest average temperature followed by a subsequent reduction. This same pattern was observed in the FC/FS ratio, it should be noted that fecal coliforms are the most thermo tolerant bacteria of these groups. Seeing as how non pollution related events can cause variations in current microbiological water quality indicators new, more precise indicators should be developed.

Funded by IAUPR-CECIA and PR-LSAMP.

R- 047 Academic Response to Community Complaints: An Analysis to an Environmental Health Air Quality Problem. Ana Lymaris Benítez Sabó, René Rolando Dávila Torres, Víctor Emanuel Reyes Ortiz, Rafael Ríos Dávila

Guayabal is a community in the Juana Díaz municipality that has been affected by quarries activity since the 1940's. By the 1980's, community members started protesting against the quarries activity, claiming that the activities affect their well-being, lowering the air quality and having adverse consequences on their respiratory

health. Nevertheless, community complaints have not stopped the quarries activity due to lack of evidence-based claims. Therefore, the community requested evidence-based studies to support their complaints. Describe the Academy's role responding to the community's complaints for evidence based environmental health studies. A document compilation and analysis of local newspapers, governmental documents, and the School of Public Health's theses was performed. The Academy has conducted three studies in the community. The first one was a geological study; the second one was an epidemiological study; the third one was an environmental health study from a conduct perspective. The Academy currently has designed two additional studies: one focused on community leaders' perceptions on environmental risks, and the second focused on environmental health education in schools. Consequent of the Academy-community collaboration, one of the quarries was ordered to cease operations.

R- 048 Mapping of the Octopaminergic System in the CNS of the Freshwater Prawn in the Context of Agonistic Behavior. Dalynés Reyes-Colón, Nietzell Vázquez-Acevedo, Nilsa M. Rivera-Chévere, María A. Sosa-Lloréns

The freshwater prawn is a crustacean that serves as a model to study the neural basis of specific behaviors. Adult males develop through 3 morphotypes (small [SC], yellow [YC] and blue claws [BC]), each representing a level in the dominance hierarchy of a group, BC being the most dominant. We are interested in understanding the role played by biogenic amines in the mechanisms underlying aggressive behavior and the establishment of dominance hierarchies. Injection of octopamine in lobsters produces postural changes related with submission. In the prawn, injection of octopamine makes a BC more submissive than a YC. Thus, octopamine may be involved in the modulation of aggressive behavior. Possible mechanisms include up- or downregulation of neurotransmitter release or of receptor expression. Here we present results on the immunohistochemical distribution of octopamine neurons in the prawn's CNS. Octopamine immunoreactivity (oct-ir) was found in the eyestalk, brain, circumesophageal (CEG), and thoracic ganglia of the SC prawn. In the CEG, two neurons with their axons were oct-ir. Four oct-ir neurons were consistently observed in T4-T5 ganglia in an area surrounding a large artery. In the medulla of the eyestalk and optic nerve, a single large-sized and a group of 10-12 small-sized neurons with their axons also showed oct-ir. Our laboratory has also cloned the first crustacean

Tyr/Oct receptor, which appears to be expressed at a higher level in submissive prawns. We are now using in-situ hybridization to quantitatively map the distribution of this receptor in the prawn's CNS.

MBRS S06GM008224, MRISP MH48190, RCMI G12RR03051.

R- 049 Modulation of the PKC1 Pathway by Ribosomal Gene Transcription in Myosin II Deficient Yeast Strains. J.F. Rodríguez-Quiñones, J.R. Rodríguez-Medina

In budding yeast, *Saccharomyces cerevisiae*, cytokinesis in myosin type II deficient strains (*myo1* strains) causes cell wall and plasma membrane stress resulting in activation and essentiality of the PKC1-mediated cell integrity pathway. Ribosomal protein genes RPL30 and RPS31 show reduced mRNA levels in *myo1* strains and are dosage suppressors of Nikkomycin Z (NZ) hypersensitivity in these strains. We wanted to relate the down regulation of these mRNAs to cell wall integrity by monitoring hyperphosphorylated Slt2p (p-Slt2p) in *myo1* strains overexpressing RPL30 and RPS31. The acquisition of resistance to NZ reported in *myo1* strains overexpressing RPL30 and RPS31 could be correlated with up-regulation of the PKC1-mediated cell integrity pathway as evidenced by increased accumulation of p-Slt2p, detected by the Western blot technique. Unexpectedly, increased levels of p-Slt2p were also in wild type strains under the same conditions. Accumulation of p-Slt2p in both strains was correlated with increased transcription of SLT2 mRNA. We have proposed that down regulation of RP genes in *myo1* strains limits the cell wall integrity response by restricting the level of activation of the PKC1 pathway. This interpretation was supported by an improvement in cell wall function in *myo1* strains that overexpress RPL30 and RPS31. A similar activation of the PKC1 pathway in wild-type strains suggests the existence of a regulatory loop where RP mRNA and/or protein levels can modulate the activation of the PKC1 pathway.

Research support was provided by NIGMS-SCORE (S06-GM008224), NCCR-RCMI (G12-RR03051), and NIGMS-RISE (R25-GM61838).

R- 050 Comparison of *Lucina pectinata* Hemoglobins full length mRNA and Gene Structures. Linda E. Rivera, Juan López-Garriga, Carmen L. Cadilla

Lucina pectinata is a mollusk that houses intracellular symbiotic bacteria and produces three hemoglobins (Hbs).

HbI is sulfide-reactive whereas HbII and HbIII are oxygen-reactive proteins. HbII and HbIII have very similar amino acid compositions (64%) but differ significantly from HbI (32%). Since similarities at the protein level do not imply similarity at the genomic level, we decided to characterize the full-length mRNA of HbIII and the gene structures of the three Hbs. The full-length mRNAs of HbII and HbIII only differ in the length of their 3'UTRs. HbIII has the shortest 3'UTRs (355nt) whereas the HbII 3'UTR is markedly longer (1549nt). The 3'UTR of HbI is 825nt long. The 5'UTR's and coding regions of HbII and HbIII are identical in size (62 and 459 nt) and show a high nucleotide sequence identity (75%), but not the 3' UTRs. The 5' UTR and coding region of the HbI mRNA are shorter (42 and 429nt). The full-length mRNAs sizes were confirmed by Northern Blot. All *L. pectinata* Hb genes contain two introns in conserved positions (B12.2 and G7.0). The HbIII gene has a unique pre-coding intron located 60 bases before the start codon. Hence, the HbIII gene has three introns of 1162, 933 and 1298 bp long. The two HbI introns are 710 and 1459 bp long while the HbII introns are 2,651 and 1174nt long. The *L. pectinata* Hb genes may be under different cellular controls that direct them to exert their particular functions, which requires characterization, analysis and functional studies of the regulatory elements of the cognate genes.

This study was supported by grants from NCRR RCMI G12RR03051 and MBRS RISE R25GM061838.

R- 051 Identification of Progenitor Cells in Salivary Gland Cell Culture Using Sgn-1 Mouse Model I.Z. González-Rosario, T. Bullard, C.E. Ovitt

Oral balance can be disturbed by salivary gland dysfunction. Evidence has shown that in SG development there are markers, which determine the two major cell types, Sgn-1 and Mist 1 (ducts and acinars). Moreover, it has also been observed that they are expressed in a subset of cells in the intercalated ducts. The goal of this study was to establish SG culture conditions and identify cell types in submandibular gland cell culture which are derived from Sgn1-expressing cells. Sgn-1 EGFP/Cre knock-in cells were cultured in different conditions. Immunohistochemical analysis was performed on the cell cultures using duct, acinar, intercalated duct and stem cell markers. Lineage tracing was performed (beta-gal). RT-PCR was performed to look for expression of specific duct, acinar, intercalated duct and stem cell markers. Isolated cells from Sgn-1 EGFP/Cre knock-in cell culture showed different phenotypes under different

cell culture conditions. SMG cells grown on a feeder layer exhibited distinct structures, which resembled duct like- structures after 1 to 2 weeks. Immunohistochemical analysis demonstrated that cells in culture expressed markers for acinar, duct and intercalated duct cells. RT-PCR analysis corroborated that the cell cultures expressed SG and stem cell markers. In conclusion, this study has shown that different cell types from SMG can be grown in culture and progenitor cells were identified with stem cell markers. Overall, we demonstrated that Sgn-1 progenitors can differentiate in vitro into various cell types. Therefore, transplantation of these cells can be contemplated as a future treatment for SG dysfunction.

R- 052 Drug Metabolism and Immune Response Crosstalk: The Role of Pregnane X Receptor In MHC-II Transcriptional Regulation.

Enrique Fuentes-Mattei, B.D. Jiménez

Pregnane X Receptor (PXR) is known to act as a sensor to a broad range of natural and synthetic xenobiotics to mediate the induction of CYP3A detoxification enzyme as well as through other drug metabolizing enzymes. Recently, the roles of PXR in other transcriptional regulation and its interaction with CREB have been demonstrated. Adding to these findings, activation of rodent PXR has been shown to induce Major Histocompatibility Complex class II (MHC-II) in primary hepatocytes. To investigate further the molecular mechanism by which PXR induces transcription of MHC-II genes, we performed a dose response experiments with PXR activator at different time courses in human bronchial epithelial cells (BEAS-2B). To investigate any crosstalk between PXR and the immune response, we also performed a dose response experiments with IFN gamma to evaluate changes in PXR mRNA levels. Preliminary results showed induction of HLA-DR α gene in BEAS-2B cells after 4hr treatment with rifampicin or IFN gamma. The presence of PXR mRNA in this cell line was confirmed by means of RT-PCR. Induction of PXR was observed after 4hr treatment with rifampicin or IFN gamma. PXR and CYP3A4 mRNA expression was found to be induced in BEAS-2B cells treated for 24hr with IFN gamma. MHC-II gene expression was also induced in cells treated with the PXR activator, SR-13128. These findings support the hypothesis of an involvement of PXR by enhancing transcriptional induction of MHC-II genes. These results continue adding a new dimension to a relationship of immune and detoxification regulation through PXR function as means of a xeno-protective mechanism.

R- 053 Placental and Monocyte Derived Macrophages have Different Secretome.

García, K., García, V., Duan, F., Pérez Laspiur J., Meléndez, L.M.

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. We tested the hypothesis that HIV-1 inhibitory factors are secreted by PM and differentially expressed in PM and MDM using proteomics. Cells were cultured for 12 days and supernatant was collected. To characterize PM supernatants, the protein profiles of PM were compared to MDM using the protein chip assay (CIPHERGEN). The weak cationic exchange (CM10) and metal affinity (IMAC30) surfaces provided the greatest number of protein peaks. Subsequently, proteins were separated by 1D SDS-PAGE and identified by LC-MS/MS. Significant differences were found in 4 protein peaks with m/z values of 6075, 6227, 11662, 14547, between PM and MDM supernatants on the CM10 chip and in 3 protein peaks with m/z values of 6158, 7740, 11934 on the IMAC chip confirming our hypothesis. Proteins were sequenced and identified with high confidence. Worth noting are four peaks that were identified as over-expressed in PM corresponded to Fatty Acid Binding Protein-3 (FAB) (14,858 Da) corresponding to the 14,547 m/z SELDI-TOF protein peak. Also FKBP 12 (11,951 Da) corresponding with 11934 m/z protein peak, Thioredoxin (11,737 Da) and closely correlates with the 11662 m/z protein peak. Apolipoprotein E (apo E, 7,558 Da) corresponding to 7740 m/z peak. The identity of these proteins found increased in the PM secretome will be validated by Western Blots as they could play a role in the inhibition of HIV-1 infection observed in PM.

R- 054 Contributions of the Hyperpolarizing-Activated Inward Current (I_h) to Sensory Responses in a Multifunctional Motor Neuron in *Aplysia californica*. C. Martínez-Rubio, G. E. Serrano, M. W. Miller

Contributions of peripheral sensory inputs to the generation of rhythmic motor patterns has been explored in both vertebrates and invertebrates. In our studies on the feeding network of the model system *Aplysia*, we have observed that an identified pharyngeal motor neuron (B67) receives sensory input when the salivary duct is stretched. This phenomenon was observed in the salivary burster (SB) motor neuron of *Limax maximus*, where the SB was shown to itself transduce duct distension (Beltz and Gelperin 1980a; 1980b). My preliminary

observations show that when the salivary duct is stretched, B67 responds with a transient hyperpolarization that is followed by an intense phase of excitation. The early hyperpolarizing response in B67 is being characterized to determine whether it is an intrinsic property of B67 or whether it is synaptically mediated. As previous findings in our lab have shown that B67 possesses an endogenous hyperpolarization-activated inward current (I_h-like; Serrano et al 2007), the possible involvement of I_h in B67's sensory-induced hyperpolarization and post-inhibitory rebound (PIR) is also being explored. Preliminary experiments have shown that intracellular injection of the specific h-current blocker ZD7288 decreases hyperpolarization-induced sag potentials from 6.3 to 1.3mV in B67. This study characterizes an unusual hyperpolarizing sensory response in a multifunctional motor neuron and explores its role during ingestive and egestive buccal motor programs.

R- 055 Serotonergic regulation of the heartbeat in the crab *Callinectes sapidus*: actions on the CPG and periphery. K. B. García-Crescioni, M. W. Miller, E. Stern, V. Brezina

Considerable evidence supports the role of serotonin (5-HT) as a circulating neurohormone in crustaceans. Although the ability of 5-HT to produce excitation of crustacean hearts is well documented, the relative contributions of its actions on the cardiac ganglion (CG) versus its peripheral neuromuscular actions remain unexplored. In this study, immunohistochemical methods were used to demonstrate the presence of serotonergic fibers and varicosities in the pericardial organ. The physiological actions of 5-HT were evaluated on (1) the isolated CG, (2) the semi-intact working heart, and (3) a controlled-stimulus preparation. Within the CG, the principal excitatory actions of 5-HT were exerted on the premotor neurons that control the timing of the heart rhythm. In a concentration-dependent fashion, 5-HT increased the duration, but decreased the frequency, of the premotor neuron spike bursts, and consequently also of the motor neuron spike bursts that the premotor bursts drive. At the same time, however, the motor neuron cell bodies were hyperpolarized by the 5-HT. In the periphery, the actions of 5-HT included decreased amplitude of excitatory junctional potentials elicited by the motor neuron spikes in the heart muscle fibers. This was necessarily a peripheral action as it was seen in the CS preparation where the motor neuron spike pattern was not allowed to vary. 5-HT thus exerted a combination of not only excitatory but also inhibitory actions at multiple sites in the CG and in the periphery.

R- 056 Dysregulation of the antioxidant enzyme defense in Hispanic women with HIV-associated neurocognitive disorder. Ixane Velázquez, Marines Plaud, Juliana Pérez-Laspiur, Richard Skolasky, Valerie Wojna, Loyda Meléndez

HIV-associated Neurocognitive Disorders (HAND) remains prevalent during HAART. Neurotoxins and inflammatory mediators secreted by monocytes can induce oxidative stress and neuronal death. We hypothesize that monocyte innate immunity is defective therefore contributing to oxidative stress in the CNS in patients with HAND. Studies from our laboratories have demonstrated different protein profiles in blood monocyte-derived macrophages and CSF that are related to HAND. We confirmed differential expression and activity of Cu/Zn Superoxide Dismutase (SOD-1) in the CSF and monocytes in a cohort of Hispanic women with HAND using HAART. The present study investigates activity of Glutathione Peroxidase (GPx) in the CSF, monocytes, macrophages, and plasma of 36 Hispanic women with or at risk of developing HAND. GPx activity was measured indirectly by the change in absorbance at 340 nm upon oxidation of glutathione and NADPH. We found that CSF from women with cognitive impairment (CI, MSK≥1) had a significant decrease in GPx activity ($p=0.001$). Monocytes showed a decreased Gpx activity although not significant ($p=0.124$). Monocyte-derived macrophages showed a higher activity in the asymptomatic group of patients ($p=0.056$) which decreased with HAND severity. Interestingly, we found a higher activity of GPx in plasma of patients with CI ($p<0.05$). Our conclusion is that Hispanic women with CI have decreased protection from oxidative damage in the central nervous system. The reduction of GPx and SOD activity in monocytes may contribute to the significant low antioxidant activity found in the CSF of patients with CI.

R- 057 Subcellular Localization and Expression of Wild Type and Mutated Forms of the TWIST2 Transcription Factor in Transfected HeLa Cells. H. Franco, J. Casanovas, C. Carmona, C. L. Cadilla

The TWIST2 gene, which codes for a transcription factor of the basic helix-loop-helix (bHLH) family, was shown to cause Setleis syndrome (MIM 227260) by homozygosity mapping. Two nonsense mutations (Q119X and Q65X) in TWIST2 code for truncated forms of the transcription factor. Setleis syndrome is characterized by abnormal craniofacial development presenting with superficial bilateral temporal lesions resembling forceps marks,

an aged leonine appearance with puckered skin about the eyes, multiple rows of eyelashes on the upper lids and none on the lower lids, eyebrows that slant sharply upward laterally, and a rubbery feel of the nose and chin. TWIST2-Wt, Q119X, and Q65X were cloned into the mammalian expression vector pCI-neo to produce Myc-tagged proteins. The TWIST2 constructs were transfected into HeLa cells, and subsequently visualized through immunofluorescence confocal microscopy. Protein expression levels were assayed by Western blots of nuclear and cytoplasmic fractions. The three proteins were also produced in vitro using the Quick Coupled Transcription/Translation System to assay for expression and stability. TWIST2Wt and Q119X proteins were localized in the nucleus of transfected cells, while the Q65X mutant protein was found mainly in the cytosol. Subcellular localization of the mutant forms could be responsible for the presumed abnormal transcription regulation. All three TWIST2 forms were produced readily in vitro, although both truncated forms were less stable than the WT protein.

This work was supported by RCMI Grants (P20RR011126 and G12RR03051) and MBRS RISE Grant R25GM061838.

R- 058 Tri-dimensional Imaging of Periodontal Bone Loss. N. Plaza

P. gingivalis is a Gram-negative bacterium that has been associated with periodontal disease. The high number of studies made with this bacterium makes it a good choice of use for further investigations. Record the change in the progression of mandibular bone loss in C57B6/J mice infected with *P. gingivalis* and sustained under the same diet and conditions during a ten weeks period. Mice were euthanized and both maxilla and mandible extracted. The jaws were processed and x-rayed with micro computer tomography (microCT). The images were tridimensionally reconstructed to make them suitable for measurements of the bone loss between the specimens. We simultaneously used two computer programs, Amira® and Analyze 6.0® to compare the microCT's of different specimens. MicroCTs were resized to an area of interest (first molar). The images were reoriented with Analyze 6.0® by performing an automatic function using one of the images as the template. The images then were separate to their different components in the image (enamel, cementum, bone) by their threshold values and reconstructed with a new value. MatLab® calculates the surface area of the different components of the image. The resulting measurement of bone loss was the amount of exposed root. The similarity in threshold values of bone and cementum

made this process of computerized separation of structures limited. Because of this limitation, the process had to be done manually and was time consuming. Further research in the utilization of micro-three-dimensional images for the measurement of periodontal bone loss when measuring hard tissues with similar thresholds.

R- 059 Creation of a Membrane Targeted MRP8.
V. Monllor

Calprotectin is a noncovalently complexed heterodimer of two small anionic proteins, MRP8 and MRP14 it is expressed in the cytosol of neutrophils, monocytes, activated macrophages, and squamous mucosal epithelia. It is believed to have some antimicrobial and anti-tumor activity. This investigation involved the creation of a stably expressed, membrane-targeted form of calprotectin to yield information about its protective role in oral keratinocytes. The pIRES vector was used in this attempt. The pIRES vector is a mammalian expression vector which allows to express two genes. We tried to use it to express our Calprotectin genes of interest; MRP8 and MRP14. We isolated MRP14 by cutting it with restriction endonucleases and MRP8 by PCR. Afterwards the pSecTag2 vector was mutated to have a XbaI cutting site near the signal cleavage sequence. MRP8 and MRP14 were ligated to 2 pSecTag2 vectors (now called pSax8 and pSax14 respectively) pSAX8 will be used as a template (with PCR) to add RE sites to insert MRP8 into pDisplay. Also the stop codon will be removed to get a fusion protein. pDisplay vector is a mammalian expression vector. It allows displays of proteins outside the cell membrane. MRP8 is going to be inserted in to the pDisplay vector by heat shock. To verify the authenticity of the pSAX8 and pSAX14 we cut them along, we did digest, double digests and compared all with their respective uncut plasmid DNA. Results were inconclusive, the sequencing of pSAX8 did not result in any significant similarity to MRP8. Our choices were to redo the pSax8 vector and continue with our plans. This investigation was halted for external reasons.

R- 060 In vitro Conditions for Cellular Growth of Amygdala and Hypothalamic Cells from Postnatal Rats. J. Labault, A. Lugo, J. Parrilla-Carrero, J.L. Roig, J.L. Barreto-Estrada

Sex steroids regulate reproductive behaviors through a series of actions, however their action are not limited to this regulatory function on reproduction. They have been shown to affect anxiety-related behaviors through actions of neuropeptides and growth factors. Our interest is to

unravel the cellular and molecular mechanisms behind anxiety and sexual behavior. Given that these processes are mostly studied using in vivo models, the main goal in this project is to validate an in vitro model in which to observe the effects of androgen exposure on isolated cells from the medial pre-optic nucleus (mPOA), arcuate nucleus (ARC) and amygdala (BLA) complex. Our experiments have been limited to the standardization of neuronal cultures from postnatal (PN) rats. Cellular growth was attained over a laminin substrate using 5% FBS, DMEM-F12 medium and supplemented factors that accelerate growth and metabolism (B27). Several days after cells were seeded their cell somas and neurites were measured using a Nikon camera and microscope. Soma diameter for mPOA cells from 2-day old PN rats was $14.02 + 2.27\mu\text{m}$, for BLA 6-day old PN was $20.88 + 5.44\mu\text{m}$ and for ARC 19-day PN was $14.08 + 4.77\mu\text{m}$. Fiber length was variable in 2-day old PN rats with $24.53 + 17.06\mu\text{m}$. Our data confirm that the above culture conditions are appropriate for studying androgen regulation of the cellular mechanisms underlying reproductive and anxiety-related behaviors. Future experiments will address morphological changes as well as neuropeptide expression at the mRNA and protein levels.

MBRS-RISE RCM and UNE, RCM-RCM, PRAABRE-NIHNCRR and MRISP. Approved by IACUC.

R- 061 Evaluación de la Geología Ambiental del Jardín Botánico y Cultural del Municipio de Caguas, Puerto Rico. Dr. José Seguinot Barbosa, Betzaida Sandoz, Anthony Rivera, Michelle Bonkosky

El 30 de marzo de 2007 el municipio de Caguas dio apertura, al Jardín Botánico y Cultural. Su alto valor cultural y ecológico hace de este un espacio especial para la ciencia, la educación y la comunidad. El propósito central de la investigación ha sido el estudio de los elementos geográficos para desarrollar una teoría GEO-histórica que explique la formación y desarrollo del lugar. Para esto se identificaron los puntos que poseen alto valor geográfico y ecológico. Para desarrollar este proyecto se han utilizado las técnicas disponibles en el campo de la geociencias como: análisis de fotos aéreas y satelitarias, pruebas de escorrentía y flujo, análisis de perfiles topográficos y geológicos, y el uso de sistemas de información geográfica para el modelaje de condiciones geográficas. El estudio reveló el estado ecológico del área, el que se podría comparar con estado de áreas expuestas al desparrame urbano y evaluar el contraste entre estos dos tipos de espacios a través de la salud ambiental como parte de la salud pública. Se encontró que el clima y la geografía

del lugar son ideal para el estudio de inversiones térmicas, mediciones de particulados, estudios de la isla urbana de calor y de los cambios climáticos globales. Además se identificaron al menos cinco remanentes boscosos que podrían ser tratados como corredores biológicos para el disfrute, esparcimiento y el ecoturismo. Este jardín se puede convertir en un lugar de estudio para la comparación y análisis de diferentes aspectos de la salud entre comunidades rurales y urbanas, además de sentar las bases de lo que es hacer desarrollo sostenible en el país.

R- 062 Detection of protein carbonylation after exposure of cells to oxidative stress.

C. Rosa, L. Santiago, R. Castro, N. Villafañe, S. Ayala-Torres

Evidence suggests that oxidative stress and mitochondrial dysfunction may be involved in neurodegeneration associated with Huntington's disease (HD). It is not clear whether oxidative damage to mitochondrial proteins is a primary event in the neuropathogenesis of HD. Carbonyl groups can be introduced into proteins as a result of oxidative stress. We hypothesize that protein carbonylation increases in HD. To test this hypothesis we will apply an assay that detects carbonylated proteins from cell and tissue lysates. The rationale of this assay is that protein carbonyl groups are derivatized to 2,4-dinitrophenylhydrazone (DNP-hydrazone) after reacting with 2,4-dinitrophenylhydrazine (DNPH) and detected using antibodies specific for the DNP moiety. Our first objective was to standardize the assay using protein lysates obtained from control and hydrogen peroxide (H₂O₂) treated lymphoid cells. The derivatized DNP samples were resolved by polyacrylamide gel electrophoresis and the carbonyl groups detected by Western blotting. Our results show an increase in carbonylated proteins of various molecular weights after treatment of cells with H₂O₂. In conclusion, we have detected oxidatively modified proteins that will be used as positive controls in our future experiments, which consist on determining the extent of protein carbonylation in the striatum and cerebral cortex from HD mice as compared to wild-type mice.

R- 063 Plasma Cell Leukemia: A Case Report.

Gilberto Jiménez-Justiniano, Justiniano Castro-Montalvo, Adry Fernandez-López, Jean Fradera

Primary plasma cell leukemia (PPCL) is a rare plasma cell dyscrasia which comprises about 1% of plasma cell neoplasms. The clinical presentation is de novo (PPCL) or as a final event in patients with multiple myeloma (MM). Patients with PPCL usually present with fatigue, anemia,

thrombocytopenia and hepatosplenomegaly. We describe a 70 y/o man who was admitted to the University Hospital complaining of nausea, early satiety and tiredness. Blood counts revealed WBC of 33,109/μL; HgB of 7.6 g/dL and a platelet count 67,000 x10³/μL. Examination of peripheral blood revealed 80 % of plasma cells. Flow cytometry from peripheral blood showed 59 % plasma cells CD 38 + with a 99% monoclonal expression of lambda. The cytogenetics studies revealed a complex karyotype and deletions of chromosomes 13 and 14. Skeletal survey was negative for lytic lesions. The urine was negative for proteinuria. Serum protein electrophoresis revealed a small monoclonal protein spike of 0.5g/dl. The patient underwent induction with standard VAD regimen. Peripheral blood and bone marrow examination 4 weeks after treatment revealed complete hematologic remission. This was confirmed with flow cytometry and bone marrow aspiration and biopsy. The cytogenetics studies after therapy showed a normal karyotype 46, XY At present time a standard treatment for PPCL has not been defined and variable results have been obtained with intensive poly chemotherapy and bone marrow transplantation. In conclusion, more experience with newer drugs used for the treatment of MM is necessary to define the optimal therapeutic regimen for PPCL.

R- 064 Tracheal Intubation in the Pediatric Intensive Care Unit. E. Bezares, R. García, A. Fernández

A. Fernández

Tracheal intubation (TI) is commonly performed in the pediatric Intensive Care Unit (ICU). It is done urgently in unstable patients. Efforts must be made to reduce the morbidity/mortality associated with TI. Characterize the population at increased risk for TI after admission to the pediatric ICU. Retrospective chart review of patients admitted to the University of Puerto Rico Pediatric ICU from 07/01/06 to 06/30/07. There were a total of 497 admissions. Forty-four percent of admissions required invasive ventilatory support; 38% were admitted tracheally intubated. Seven percent of patients required TI in the ICU. The most common reasons for intubation outside the ICU were respiratory distress (38.8%) and neurologic compromise (36.6%). The reasons for ICU intubation were respiratory distress (40%) and hemodynamic instability (34.3%). No variations found in age distribution between previously intubated patients and those who required TI in the ICU. The Pediatric Risk of Mortality Score (PRISM) for patients admitted to the ICU was 8.2, while for those who required TI in the ICU was 12. Few studies have focused on the risks and complications related to TI in the ICU. We attempted

to characterize the at risk population for TI in the ICU. This study shows that patients with respiratory distress are intubated more often. Hemodynamic instability was more recognized as an indication for TI in the ICU than outside. It is necessary to further characterize patient's diagnoses and complications leading to TI to identify risk factors and develop strategic interventions for patient care.

R- 065 Outcome of Very Low Birth Weight Infants who required Epinephrine for Resuscitation in the Delivery Room. A. Frontanes, A. Rivera, L. García, I. García, M. Valcárcel

In recent years there has been an improvement in the survival of very low birth weight (VLBW) infants. However, many of them require epinephrine for resuscitation in the delivery room. The use of epinephrine has been associated with poor survival and increased morbidity. To analyze the outcome of VLBW infants who required epinephrine in the delivery room. We included all VLBW infants admitted to the University Pediatric Hospital neonatal intensive care unit (NICU) from January 1999 until December 2006. The data was obtained from the Vermont-Oxford Network forms and the data collection system of the Neonatology Section of the UPR School of Medicine. During the study period 1459 VLBW infants were admitted to the NICU. The mean gestational age was 29 weeks and mean birth weight 1057 grams. Ninety-one newborns (6.2%) required epinephrine in the delivery room. Infants who required epinephrine were of lower gestational age and birth weight. They had lower 5 minutes APGAR scores and were more likely to develop respiratory distress syndrome, require exogenous surfactant, and to develop pneumothorax, intraventricular hemorrhage and necrotizing enterocolitis. Requirement of epinephrine was associated to a low survival rate (20% vs 68%, $p=0.0000$). This study confirms that VLBW infants who require epinephrine in the delivery room have a high mortality and are more likely to develop further complications in the post resuscitation period that may lead to poorer outcomes.

R- 066 Clinical and Cognitive Profile of Puerto Rican Pediatric Patients: A Pilot Study. Ríos-Motta, M., San Miguel-Montes, L., Avilés, R., Duprey A., Ríos, J., Vázquez, M.

Epilepsy during childhood occurs when the development of basic cognitive competencies are crucial for long-term academic and interpersonal adjustment. It is essential to identify the clinical and cognitive characteristics of these children to provide services tailored to their needs. This study aims to describe the clinical and cognitive profile

of children with epilepsy from the Epilepsy Clinics of the San Juan City Hospital. Data was collected from patients' clinical records referred for psychodiagnostic evaluation. The sample ($n=61$) included 27 males and 34 females aged 4 to 17 years. Demographic, clinical, pre-natal, treatment, co-morbid and cognitive variables were collected. Descriptive data analyses were conducted using SPSS. The most common seizure types were Complex Partial (72%), and Generalized Tonic Clonic (13%). Most patients had normal neurological exams (94%). The most common comorbid condition was Learning Disabilities (21%), followed by ADD/ADHD (3%), Tourette Syndrome (2%), and Cerebral Palsy (2%). Neuroimaging studies were abnormal in 14% of the patients. Epileptiform activity was observed in 56% of the patients' electroencephalogram. The Cognitive Psychometric evaluations showed that 25% had standard scores lower than 80 on the Wechsler Intelligence Scale for Children (EWIN-RPR). For this subset of patients, the Full Scale Intelligence Quotient (IQ) scores were within the borderline range in 54%, within the mild mental retardation range in 33%, and suggestive of moderate mental retardation in 13%. Most patients with epilepsy in our sample have normal IQ, and learning disabilities are quite prevalent.

R- 067 Validación de un cuestionario semi-cuantitativo de frecuencia de consumo de alimentos para estimar el consumo de calcio de adultos en Puerto Rico. R. Ríos, S. Soltero, J. Bertrán, M. Matos, C. Palacios

La ingesta de calcio juega un rol importante en el tratamiento de ciertas condiciones tales como osteoporosis, hipertensión, obesidad, entre otras; por lo que es necesario utilizar métodos de análisis prácticos en estudios epidemiológicos. El objetivo del presente estudio es validar un cuestionario semi-cuantitativo de frecuencia de consumo de alimentos para estimar el consumo de calcio de adultos en Puerto Rico. Se estudiaron 18 sujetos (14 mujeres y 4 hombres) de 36.8 ± 7.8 años y con un índice de masa corporal de 40.1 ± 4.9 (kg/m^2). Al ingresar al estudio, los participantes completaron un recordatorio de 24 horas durante tres días y 45 días más tarde completaron un cuestionario de frecuencia de consumo de alimentos ricos en calcio. El promedio de la ingesta de calcio del recordatorio de alimentos fue de 545 ± 179 $\text{mg}/\text{día}$, y del cuestionario de frecuencia de consumo de alimentos de 458 ± 233 . El coeficiente de correlación de Pearson de dos colas entre los dos métodos fue de 0.515 (p 0.029). En conclusión, el cuestionario de frecuencia de consumo de alimentos es válido para estimar el consumo de calcio en adultos puertorriqueños.

Este estudio fue aprobado por el IRB y financiado por RCMC Clinical Research Infrastructure Initiative (RCRII) Award, 1P20 - RR11126, del NIH. Protocol #A4540107, aprobado 12 de abril de 2007.

R- 068 Patrones alimentarios de un grupo de adultos obesos en Puerto Rico y su relación con la composición corporal. S. Soltero, J. Bertrán, R. Ríos, M. Matos, C. Palacios

Los patrones alimentarios de las personas reflejan la ingesta de nutrientes, energía, composición de macronutrientes y frecuencia del consumo de comidas. Esta información permite estudiar las tendencias de alimentación en un grupo. El objetivo de este estudio es describir los patrones alimentarios de un grupo de adultos obesos y analizar si existe relación con la composición corporal de los sujetos. Se midió la composición corporal por medidas corporales con el "Dual energy absorptiometry X-ray" (DXA) en sujetos obesos. Además, se analizó un recordatorio de alimentos de 24 horas por tres días, dos días de la semana y uno del fin de semana. Los datos fueron analizados con el programa Nutritionist Pro (versión 3.2.0). Un total de 30 sujetos participaron en el estudio, 6 masculinos y 24 femeninos de 34 ± 10 y 38 ± 7 años, respectivamente. Estos se clasificaron por tipo de obesidad, tipo I (IMC: $30-34.9 \text{ kg/m}^2$, $n=7$), tipo II (IMC: $30-34.9 \text{ kg/m}^2$, $n=10$) y tipo III (IMC: $30-34.9 \text{ kg/m}^2$, $n=13$). El total de calorías ingeridas fue de 2008 ± 534 y la composición de la dieta fue de 49.9% de hidratos de carbono, 33.8% grasa y 16.1% proteína. Se encontró que un 36.6% consumía de 1-2 comidas; 46.6% consumía de 3-4 comidas; y un 16.6% consumía de 5-6 comidas. No se consiguió ninguna correlación entre el patrón alimentario y la composición corporal. El contenido de calorías y la distribución de macronutrientes de este grupo de personas fue adecuada. Es posible que no estén reportando lo que realmente consumen.

R- 069 Balance calórico en un grupo de obesos en Puerto Rico. J.J. Bertrán-Schuck, R. Ríos, S. Soltero, M. Matos, C. Palacios

La obesidad es un problema grave de salud pública en Puerto Rico, afectando al 65% de los adultos. Se relaciona con estilos de vida sedentarios, acompañada de una ingesta calórica excesiva, además de otros factores. El objetivo de este estudio es calcular el balance calórico en un grupo de obesos en Puerto Rico. Se administró un recordatorio de 24-h de la ingesta de alimentos y de la actividad física por tres días. Un total de 32 individuos participaron en el estudio de 33.5 ± 9.5 y 37.7 ± 6.8 años y un índice de masa corporal de 40.0 ± 6.2 y 40.6 ± 5.8 , en hombres y mujeres,

respectivamente. El gasto calórico en mujeres fue de 2464 ± 231 kcal, la ingesta calórica fue de 1990 ± 562 kcal y el balance calórico de -437 ± 604 kcal. En los hombres el gasto calórico fue de 2563 ± 437 kcal, consumiendo 2196 ± 492 kcal, con un balance de -368 ± 496 kcal. El balance calórico resultó negativo tanto en mujeres como en hombres. Es posible que este grupo de adultos obesos estén sobreestimando la actividad física y subestimando lo que consumen y/o que no estén reportando lo que realmente consumen.

Este estudio fue aprobado por el IRB y financiado por RCMC Clinical Research Infrastructure Initiative (RCRII) Award, 1P20 - RR11126, del NIH.

R- 070 Longitudinal Changes in a Prospective Cohort of Pediatric HIV Sensory Neuropathy. Nivia Hernández-Ramos, Karen Cruz-Rodríguez, Marla Jordán-González, Alma Camacho, Tania Ginebra, Enid Castillo, Carlos A. Luciano

The objective of this study is to determine the incidence and progression of HIV sensory neuropathy in a pediatric population. Peripheral neuropathy is the most common neurologic complication in adult HIV infection but there is limited information regarding neuropathy in children. HIV seropositive patients aged 7 to 17 years were characterized for demographic, clinical, HIV infection measures and underwent nerve conduction studies and quantitative sensory testing. The measures were followed longitudinally to assess progression. Thirty-one patients (mean age, 11.8 years) were recruited. At baseline, 13 patients were neuropathy-free, 6 had symptomatic neuropathy, 5 had subclinical neuropathy and 7 had distal sensory symptoms. Twenty-seven patients completed one or two follow up visits. Fifteen patients were unchanged, 9 improved and 3 worsened. Of the patients that were unchanged, 5 persisted with neuropathy or neuropathy symptoms. Of the patients that improved, 8 had a reduction or disappearance of the symptoms. Of the 3 patients that worsened, 2 remained asymptomatic but developed physiologic abnormalities and one progressed from distal sensory symptoms to neuropathy. There were no statistically significant differences in the CD4 or viral loads at baseline between the progression patterns. Our findings indicate that most patients remain stable or improve. Baseline parameters of viral replication or immunosuppression do not appear to be associated with the pattern of progression of neuropathy.

Study supported by (if applicable): NIH grants no. NS43011 and 1P20RR11126.

R- 071 The Sural/Superficial Radial Amplitude Ratio as a Marker of Neuropathy in HIV-Associated Sensory Neuropathy.

Ricardo Villalobos, Nivia Hernandez-Ramos, Marla Jordan, Tania Ginebra RN, Carlos A. Luciano

Electrophysiologic studies are one of the principal tools to study peripheral nerve function but there is a need to identify more sensitive markers of neuropathy. To determine the value of Sural/Superficial Radial sensory nerve amplitude ratio as a measure of sensory neuropathy in HIV infection. Adult, HIV seropositive patients from the Puerto Rico NeuroAIDS cohort underwent directed neurologic examinations and nerve conduction studies, among other evaluations. The non-dominant peroneal motor, sural sensory and superficial radial sensory nerves were examined and the limb temperature kept at or above 32°C. For the sensory studies we measured amplitude, sensory conduction velocity and peak latency. The ratio of the amplitude of the sural and superficial radial sensory nerves was also evaluated. A group of healthy control subjects of similar age was used for comparison. One hundred and one adult HIV + patients aged 20 to 64 years (mean, 41.5 years) were examined. Forty-four healthy volunteers (mean age 33.3 years) were recruited as controls. The mean S/R ratio was significantly lower in the patients than in the controls (0.35 vs 0.58; $p < 0.0001$). In the patients, 35 (35%) showed abnormally low (< 0.3) sural/superficial radial amplitude ratios. The sural/superficial radial sensory amplitude ratio is a sensitive marker of HIV sensory neuropathy. The difference between patients and controls supports a length-dependent pattern of involvement of sensory axons.

Study supported by (if applicable): NIH grants no. NS43011 and 1P20RR11126.

R- 072 Efecto de las Restricciones Posturales Post-Maniobra de Epley Modificada en los Síntomas de Pacientes Diagnosticados con BPPV del Canal Posterior. A. Bou Colón, D. Cortés Vélez, D. Rivera Rodríguez, J. Gil Ayala

Vértigo Posicional Paroxístico Benigno (BPPV) es un desorden del sistema vestibular que afecta los canales semicirculares del laberinto en el oído interno. Es caracterizado por episodios breves de vértigo y nistagmo. Estos son provocados por el desplazamiento anormal de los otolitos desde el utrículo a los canales enviando señales erróneas, debido a los cambios en la posición de la cabeza. Determinar si existe diferencia en la resolución de los síntomas entre dos grupos de pacientes que reciben dos

alternativas diferentes de restricciones posturales, luego de la maniobra de Epley en pacientes con BPPV del canal posterior. Ocho (8) pacientes con BPPV del canal posterior fueron tratados con la maniobra de Epley modificada en una clínica de rehabilitación vestibular en Puerto Rico. Estos pacientes fueron divididos aleatoriamente a dos grupos con diferentes niveles de restricciones posturales luego de la maniobra de Epley. Los pacientes fueron re-evaluados una semana después de la maniobra utilizando la prueba de Dix-Hallpike y el "Dizziness Handicap Inventory" (DHI). No se encontró diferencia significativa entre grupos en la puntuación del DHI en la evaluación y reevaluación, indicando que no hubo diferencia en el impacto que tiene el vértigo en la vida cotidiana del paciente entre grupos. El uso de las restricciones posturales luego del reposicionamiento de los otolitos en el oído interno mediante la maniobra de Epley modificada, no se asoció a una mejor prognosis ni a un mayor éxito en el tratamiento.

R- 073 The use of Intracranial Stents for Treatment of Wide-Necked Intracranial Aneurysms.

Elan Colen, Danella M. Rodríguez, Marimerce Toledo, Rafael Rodríguez

The primary goal for treatment of intracranial aneurysms is to reduce the risk of initial or recurrent subarachnoid hemorrhage. Wide-necked (> 4 mm or a fundus to neck ratio < 2) aneurysms are frequently treated by performing parent artery occlusion. The endovascular treatment of wide-necked aneurysms represents a technical challenge. The development of new intracranial stents has increased the options for the treatment of wide-necked aneurysms. Intracranial stents also help prevent aneurysm recanalization, which can still be observed despite the use of bioactive coils and balloon remodeling techniques. To demonstrate how the introduction of intracranial stents has contributed significantly to the treatment options for coil occlusion of wide-necked aneurysms by allowing the neurointerventionalist to treat these lesions safely and effectively, with lower rates of recanalization. We retrospectively revised data from 61 patients who underwent coiling and coiling-stenting of at least one intracranial aneurysm at our institution, and aneurysm recanalization rates in all subjects was analyzed. Results: Recanalization was observed in approximately 18% of subjects treated without use of a stent, and approximately 5% in those treated with both coiling-stenting of aneurysm. We demonstrate the encouraging results observed with the use of intracranial stents for wide-necked intracranial aneurysms, lowering recanalization rates and thereby reducing patient morbidity and mortality. Long term results of stents for this application are still to be assessed.

R- 074 The educational and community impact of the development of the new Child Neurology (CN) Training program in Puerto Rico.

B. González, M. Vázquez-Correa, K. Cruz, J. Ríos

The shortage of child neurologist specialists in USA has been well identified by the American Academy of Neurology (ANN) Workforce Task Force. During the past 20 years, the limited availability of child neurologists in P.R has affected available services and the training of both medical students and pediatric training programs. In order to deal with this concern, the CN Section of the UPR obtained accreditation to start a Program in 2005. This study evaluates the impact of this new program in clinical services provided at the University Pediatric Hospital (UPH) and the post graduate medical training programs. We reviewed the following areas before and after the development of the CN Program: the statistics of in-patient and outpatient services, the variety of diagnosis, the quality and quantity of educational activities provided to the Child and Adult Neurology Training Program and the integration with the community. From 2004 to date there is a 7-fold increase in the number of inpatient services and 4-fold increase in the outpatient visits. The number of applications for the CN training program increased from 1 to 6 in the same time period. There has been a remarkable increase in clinical services and diversity of diagnosis since the beginning of this program. The first graduate was certified by the ABPN, participates as CN Faculty and has started a clinical practice in a services deprived community. The presence of a CN faculty, a training Program, and a CN resident has provided a stimulating exposure and interest in medical students and pediatric trainees to pursue this specialty in P.R. and USA.

R- 075 Proyecto de Adiestramiento e Internado en Liderato: la experiencia de trabajar y crecer con jóvenes con impedimentos en Puerto Rico.

Annie Alonso-Amador, María N. Reyes, Iliá M. Torres-Avillán, Mario H. Rodríguez, Nayda Cruz, Ricardo Figueroa

El Proyecto de Adiestramiento e Internado en liderato para jóvenes con impedimentos tiene como propósito el desarrollo de un currículo dirigido a la formación de competencias en jóvenes universitarios con impedimentos y de consejeros pares, en destrezas tales como auto-eficacia, autogestión y autodeterminación y a medir el impacto de estas estrategias que aprendieron los jóvenes en su desempeño como líderes la sociedad. La implantación de este proyecto se divide en dos fases. La primera fase conlleva el desarrollo y la implantación del currículo en

liderato a través de cinco adiestramientos. La segunda fase consta de internados en donde los participantes tienen la oportunidad de poner en práctica los conocimientos y destrezas adquiridas en agencias gubernamentales y sin fines de lucro. Reciben adiestramientos en temas tales como: (1) Misión y visión de vida (2) Autodeterminación y poder (3) Toma de decisiones (4) ¿Qué es una Junta?/ Procesos parlamentarios/Aspectos de Política Pública (5) Manejo de Grupo. Un total de 81 jóvenes han participado en el adiestramiento en Liderato. Luego del adiestramiento, se les da seguimiento a los jóvenes adiestrados. Estos jóvenes continúan recibiendo apoyo en temas de intercesión, acceso a recursos y participación plena en la comunidad. Algunos de los jóvenes participan como consejeros pares en los Foros de la Oficina del Procurador de Personas con Impedimentos (OPPI) y se han organizado como grupo para trabajar en sus universidades. Este proyecto demuestra la capacidad de liderato de los jóvenes con impedimentos y la posibilidad de éxito al extender el currículo a toda la isla.

R- 076 La Academia en Alianza Intersectorial: Alcance y Educación en Salud a los Viejos Hipertensos del Area Rural.

Loíz Medina L., Tábora Tirado W., González E.

La tendencia actual en el crecimiento sostenido de la población de viejos en Puerto Rico requiere de estrategias relevantes para el cuidado de la salud. La literatura reseña la utilidad de programas de Educación en Salud para aumentar el conocimiento y habilidades en el manejo de riesgos y de la hipertensión, mejorando la calidad de vida. El objetivo es describir la contribución de las prácticas clínicas del Bachillerato en Educación en Salud de la Universidad de Puerto Rico, Recinto de Ciencias Médicas mediante un Proyecto colaborativo, el cual aumentó el acceso a estos servicios y por ende, los conocimientos sobre hipertensión de los viejos de un área rural. Se utilizó como estrategia el modelo PRECEDE-PROCEED como base de la planificación (Green y Kreuter, 2005). Participaron 25 gerontes entre las edades de 60-90 años expuestos a riesgo de desarrollar hipertensión o con la condición. Se promovió su salud mediante la comunicación y educación en salud, la movilización comunitaria, las actividades económicas e incentivos y sociales. La cofradía entre la Universidad, la Corporación Puertorriqueña de Salud y el gobierno municipal de Caguas fue fundamental para la gestión del Proyecto. Se realizaron pre y post pruebas acerca de los conocimientos adquiridos sobre el tema, encontrando un aumento. La Academia en alianza intersectorial forma profesionales competentes en servicios de Educación en

Salud relevantes a las necesidades de los gerontes del área rural, al facilitar el acceso a Proyectos Educativos que alcancen esta la población y que fomenten el bienestar.

R- 077 Análisis de las estadísticas por género de las publicaciones del Departamento del Trabajo y Recursos Humanos. M. Muñoz, A.L. Dávila

En la IV Conferencia Mundial de las Mujeres (Beijing 1995) se estableció la importancia de las estadísticas por género al incluir como uno de sus objetivos estratégicos la generación y diseminación de información y datos por género precisamente para, de una parte, conocer el marco en que se desenvuelven las mujeres y, de otra parte comparar su desempeño con respecto a los hombres. Comenzamos un análisis cualicuantitativo de los informes publicados por el Negociado de Estadísticas del Trabajo del Departamento de Trabajo y Recursos Humanos. Se recopilamos y analizamos los informes en función de los formularios utilizados para recolectar los datos y además, se realizó un informe comparativo de la diseminación de la información. De los 34 informes analizados, en 13 de ellos había información por género, en el restante de los informes, no se pudo hacer el desglose por sexo ya que el formulario no provee información al respecto. Por ejemplo, las estadísticas sobre lesiones y enfermedades ocupacionales nos permiten saber cuantas mujeres se han lesionado en sus trabajos pero las estadísticas de empleo por ocupación no nos ofrecen información por ocupación según el género por lo que no podemos evaluar el riesgo de las mujeres con respecto a los hombres. Es necesario revisar las hojas de recogida de datos para que incluya la variable género de manera tal que puedan realizarse análisis de esta índole por género de las estadísticas de la fuerza trabajadora.

R- 078 Preventing Childhood illnesses in refugee camps: Lessons learned from El Salvador's 2001 earthquake. Julio M. De Pena, Juan A. González

Natural Disasters known to man since the beginning of time, Earthquakes is the way of relieving stress on the earth's surface. Central America is a very active seismologically. In 2001, El Salvador was devastated by a 7.6 earthquake. Healthcare in refugee camps, poses a real challenge, among the reasons that contribute to this matter are: overcrowded living conditions, access to food and water, and availability of proper equipment and medical staff. Situation is even worse for the child populations who has very specific needs and are more prone to respiratory and water born diseases. A Delegation

from the Dominican Republic was in charge of refugee camp in the city of Santatecla, to the west of the capital city. Population of over 700, 140 families were located in camp "Las Delicias". This became a model for other camps nationwide, mainly due to the implementation of the Integrated Management of Childhood Illnesses (IMCI) program, formulated by the World Health Organization and the United Nations Children's Fund, to improve child health, focusing care of children under 5. Tents set up for this purpose staffed with general practitioner physicians, surgeons and pediatricians available all day, monitoring health indicators for the community; about 50 patients were seen daily, mostly for minor complaints. The work of the water sanitation specialists and epidemiologists, screened water supplies, resulted in no reports of childhood illnesses during their stay. The IMCI program implemented in refugee situation shows that it can be easily applied towards special situations preventing suffering to a struggling population.

R- 079 Schistosomiasis in Puerto Rico: Frequency of Positive Circumoval Precipitin Test (COPT) in the 21st Century. Roberto Annexy, Michelle González-Ramos, Jorge Bertrán-Pasarell, Doris Pérez, Rosana Amador, Ana Conde, Awilda Candelario, Daisy Berríos

Schistosomiasis, a chronic parasitic disease caused by *Schistosoma*, was endemic in PR in the 20th century. *S. mansoni* can have high morbidity and can accelerate hepatocellular disease. Multiple efforts were made during 1950-1980 to control its spread. Despite recently documented decreased incidence, new cases with positive COPT have been seen at the SCHIS clinic of the UPR School of Medicine. We present data from log book review from the SCHIS Lab at UPR for a 7 year period. We also include data from record review of patients referred to the SCHIS clinic in 2006-2007. A descriptive retrospective study based on log book review was designed to obtain data of COPTs from 2000-2006. Coprology testing results were also reviewed. Record review from recent referrals was also done to obtain demographics, method of diagnosis, symptoms, and treatment. A total of 3495 blood samples were received for COPT from Jan 2000 to Dec 2006. Six hundred fifteen samples were positive (18%). Five hundred forty five fecal samples were examined during this period for *S. mansoni* eggs. Two patients had positive results. The considerable number of samples received at the lab during this period and the frequency of new referrals suggest that SCHIS is still an important diagnosis in patients with hepatic or pulmonary symptoms.

Stool samples were collected from only 16% of patients who had COPT, for which coprology cannot be correlated. The stage of SCHIS can also affect stool recovery of eggs, which is diminished or absent during chronic disease. A field study to investigate specific areas identified as endemic should be done to confirm findings.

R- 080 Recruitment for a Clinical Study among Elderly in San Juan Area. V. Robles, M. Jiménez, M. Montero, S. Tumanyan, S. Martínez, A. García, A. Dávila, K. Joshipura
The Puerto Rican Elderly Dental Health Study (PREDHS) is the first study to assess the oral health status of a representative sample of older adults (> 65 years) living in the San Juan Metropolitan area using in home dental exams. This abstract describes the effectiveness of the different techniques used to recruit participants for this study. The logistics and response rates of recruiting older Puerto Ricans for a clinical study are important in planning future studies. The initial sampling frame was taken from the Puerto Rican Elderly: Health Conditions study designed to evaluate the general health conditions of a representative sample of older adults across the island. To obtain our sample we restricted our recruitment to those living in the San Juan metro area (N=943) and excluded an additional 551 participants that did not meet the following criteria: did not pass a mini-mental exam (N=123, 13%), previously identified for participation in another clinical study (N=158, 16.8%), were edentulous (N=134, 14.2%), and <65 years of age (N=136, 14.4%) resulting in a final sample of 392. We further excluded 100 participants who were ineligible, sick, dead or unreachable. We achieved a total of 185 completed visits and 107 refusals to participate resulting in a response rate of 63%. Most recruitment was done by telephone, but utilizing a variety of methods to contact individuals did increase participation more than any one technique alone. Implementing several different techniques to contact and recruit potential participants can be imperative to reaching recruitment goals.

Approved by the IRB and sponsored by NIH and RCMI.

R- 081 Predictors of Kidney Disease Progression in Lupus Patients with Mild Renal Involvement at Lupus Nephritis Onset. Mariely Nieves, Ana P. Ortiz, Marilú Colón, María J. Molina, Clarylee Octaviani, Vanesa E. Rodríguez, Luis M. Vilá

The objective of the study was to determine the risk factors associated with renal disease progression in a population of lupus patients with mild renal involvement at lupus nephritis (LN) onset. Medical record examination

was performed and data of 61 LN patients followed at Lupus Clinics of the University of Puerto Rico from 1990 to 2005 was examined. Mild renal involvement was defined as glomerular filtration rate (GFR) ≥ 90 ml/min and the presence of at least one of the following criteria: persistent proteinuria (> 0.25 g/day or $\geq 2+$ dipstick), persistent hematuria (> 5 RBC/hpf) attributed to SLE, and/or presence of urinary cellular casts. Demographic parameters, clinical manifestations, serologic markers, comorbidities, pharmacologic treatments, among other baseline characteristics were evaluated at onset of renal involvement. The outcome of interest was renal disease progression defined as the first time that the patient presented a decline in renal function (GFR < 90 ml/min). GFR was estimated using the Cockcroft-Gault equation. In the Cox regression model; age ≥ 40 (HR = 5.65, $p < 0.001$), low C4 level (HR = 3.81, $p = 0.002$), and proteinuria ≥ 0.5 g/day (HR = 2.63, $p = 0.024$) were associated with an earlier decline in GFR. Early identification of these factors facilitates the assessment of patients who will need prompt and adequate treatment.

R- 082 Epidemiologic Profile of Endometrial Cancer in Puerto Rico: 1987-2003. Frances Escalera-Maldonado, Sheyla Garced-Tirado, Omar García-Rodríguez, Sadjá Gaud-Quintana, Yomayra Otero-Domínguez, Elvis Santiago-Rodríguez, Katherine Svensson, José L. Vergara-Arroyo, Ana Patricia Ortiz

Endometrial cancer is among the most common female malignancies in Puerto Rico (PR) and world-wide. This study describes the age-adjusted incidence and mortality rates of endometrial cancer in PR. The relative survival and lifetime risk of endometrial cancer in PR are compared with other race/ethnic groups in the United States. Population-based data from the Puerto Rico Central Cancer Registry and the National Cancer Institute's Surveillance Epidemiology, and End Results (SEER) were analyzed from 1987-2003; using SEER*Stat 6.3.5, DevCan 6.2.1 and Joinpoint Regression 3.0. The age-adjusted incidence rates of endometrial cancer increased [annual percent change (APC) = +1.88%], while the age-adjusted mortality rates decreased (APC = -2.50%) for PR. Women aged 20-34 years (APC = +7.39%) and 35-49 years (APC = +4.18%) showed the fastest increase in incidence ($p < 0.05$). A lower 5-year relative survival was observed in PR (68.71%) and among US Blacks (66.55%), as compared with US Whites (88.89%) and US Hispanics (85.10%). Puerto Ricans had the lowest risk of developing (1.4 %) and dying (0.5%) from endometrial cancer (1999-2003), but the risk of development increased

from 1 in 95 (1989-1993) to 1 in 74 (1999-2003). Increases in the incidence and probability of developing endometrial cancer suggest changes in the occurrence of risk factors in the population of PR. Assessment of disease characteristics, access to diagnosis, treatment options and response to treatment in this population is required to understand the observed decreases in mortality and reduced survival in Puerto Rico.

R- 083 Challenges in Diagnosing Primary Angiitis of the Central Nervous System: A Case Report. D. Lozada, R.N. Alvarado-Meléndez, L. Vila, V. Wojna

Primary angiitis of the central nervous center (PACNS) is a rare and fatal vasculitis affecting exclusively CNS. Headache is the main clinical presentation although a variety of focal and diffuse neurological symptoms may occur since it involves small/medium-sized leptomeningeal cortical arteries. Although biopsy of the leptomeninges and brain is the gold standard for diagnosis, its yield remains low. Presumptive diagnosis of PACNS is frequently made on the basis of a compelling clinical picture and an angiogram consistent with CNS vasculitis. PACNS is associated with high rates of morbidity and mortality, therefore a high degree of suspicion and its early recognition and diagnosis is crucial to prevent long term complications. Progression of PACNS can be altered by aggressive immunosuppressive therapy improving considerably prognosis. Up to our knowledge we present the first two cases with presumptive PACNS admitted to our service. Both presented with a subarachnoid hemorrhage as their initial presentation. Cerebral angiography revealed diffuse beading of the cerebral arteries consistent with vasculitis. Both responded to immunosuppressive therapy and one year after diagnosis and treatment they remain stable. At present there are no guidelines for diagnosis or treatment of PACNS. Although immunosuppressive agents have been used to treat these patients, treatment remains empirical. Therefore clear clinical criteria for the diagnosis and clinical trials are needed to determine the best modes of early diagnosis and treatment. These cases with this clinical entity illustrate the challenges in diagnosis and treatment of PACNS.

R- 084 Fatal Human Leptospirosis Simulating Acute Pancreatitis: A Report of Two Cases. A. Zamot, W. Quiñonez, C. González

Leptospirosis is a world wide zoonosis, endemic to tropical areas. Pancreatitis as an atypical presentation of leptospirosis has infrequently been described in the literature. Diagnosis of pancreatitis is complicated by

the fact that elevated amylase and lipase in the setting of leptospirosis can be explained by other concomitant etiologies such as renal failure. We present two cases of fatal leptospirosis whose initial presentation was that of an acute pancreatitis. The first case is an 18 year-old man who presented with fever, severe epigastric abdominal pain, nausea, vomiting and abdominal distention. The second case is a 51 year-old man who also presented with epigastric pain, nausea and vomiting. He had signs of acute abdomen and jaundice. In both cases laboratories included elevated amylase, lipase, creatinine and thrombocytopenia. Both patients were admitted and attended as acute pancreatitis, followed by rapid deterioration and death. Both autopsies revealed bilateral pulmonary hemorrhages/edema and multiorgan failure as the main cause of death. No evidence of pancreatitis was found on autopsy. Leptospirosis was confirmed by tissue immunohistochemistry. These cases represent fatal leptospirosis simulating an acute pancreatitis. Although degree of involvement of the pancreas is not yet well defined in human leptospirosis, in endemic areas, presentation of acute pancreatitis with concomitant renal dysfunction, hemorrhagic diathesis and/or respiratory failure should raise the concern of severe leptospirosis. Early diagnosis and treatment are essential for improving survival.

R- 085 Clinical Experience with Posaconazole in Three Patients with Mucormycosis. Michelle González, Jorge Bertan-Pasarell

Posaconazole (POS) is approved for prophylaxis of Aspergillus and Candida infections in immunocompromised patients; data is limited as step down therapy after Amphotericin B (AmB). Three cases with refractory mucormycosis (MCS) who required treatment with POS are presented. Case A: A 63 y/o diabetic female with chronic sinusitis. Magnetic resonance (MR) showed osteomyelitis (OM), 42 days of IV antibiotic were provided. A follow up CT scan revealed OM of the base of the cranium and left temporal lobe abscess. Pathology report revealed MCS. MR after treatment with AmB confirmed persistence of cerebral involvement. POS 200mg PO four times a day (QID) was provided. MR showed reduction of cerebral lesion without evidence of OM, after one year there is no evidence of relapse. Case B: A 54 y/o diabetic female developed left maxillary sinusitis with facial swelling. Pathology report revealed MCS. Left facial paralysis developed despite treatment with AmB. A biopsy revealed unresolved MCS. POS 200mg PO QID was provided, after 6 months healthy nasal mucosa was evidenced. Case C: A 25 y/o male with acute leukemia

was started on chemotherapy; he developed neutropenic fever unresponsive to broad spectrum antibiotics. Right periorbital swelling and tenderness with ocular secretions developed. Nasal endoscopy revealed soft tissue and bone necrosis, MCS confirmed. After treatment with AmB and surgical interventions, POS was provided. He received consolidation chemotherapy twice without relapse of infection. POS demonstrated to be an effective therapeutic option for management of refractory MCS in our patients and may warrant further study.

II. Oral Presentations

R- 086 A novel recombinant Fasciola hepatica protein belonging to the methyl transferase protein-like family is a useful serodiagnostic antigen. J. F. Gaudier, A. M. Espino

Fasciola hepatica is a liver pathogen acquired through soft waters. This infections reflex significant economic losses incurred by the animal industry in many countries and may cause fasciolosis in human as well. A protein termed Fh4.26 was identified by means of successive screenings of a cDNA library previously prepared from *F. hepatica* adult worms using a rabbit anti-*F. hepatica* excretion and secretion ES antigens serum and a serum from rabbit with 4 week of *F. hepatica* infection. By structural homology with other related proteins Fh4.26 was classified as a member of the *F. hepatica* methyl transferase protein family. cDNA encoding Fh4.26 was cloned into the plasmid pGEX4T and optimally expressed at 0.2mM IPTG as fusion protein with GST using *E. coli* BL21(DE3) cells. The fusion protein was then purified by affinity chromatography and digested with Thrombine for releasing the Fh4.26 protein from the GST tag. rFh4.26 was used as an antigen for an enzyme-linked immunosorbent assay (ELISA) against fascioliasis- and schistosomiasis-infected sera to evaluate its serodiagnostic potential. The assay was 94% specific and 100% sensitive and revealed that animals infected with *F. hepatica* begin to produce immunoglobulin G antibodies against Fh4.26 from 4 to 10 weeks after infection, which suggests that the corresponding antigen is expressed either at early or late stages of infection. These results indicate that the recombinant Fh4.26 protein is a potent serodiagnostic reagent for acute or chronic fascioliasis.

Approved by IACUC #7870104 and supported by the MBRS-SCORE Program of the University of Puerto Rico Grant # S06-GM008224.

R- 087 Profile of P2Y2 Receptor Expression after Spinal Cord Injury. Ana E. Rodríguez, Aranza Torrado, Johnny D. Figueroa, Fernando A. González, Jorge D. Miranda

Spinal cord injury (SCI) increases inhibitory molecules release and reactive astrocytes proliferation at injury site producing nonpermissive environment for axonal regeneration. Reactive astrogliosis mechanism is unknown, but the release of nucleotides has been linked to this hypertrophic state. Our goal is to investigate the spatio-temporal profile of P2Y2 after SCI. Molecular biology and immunohistochemical (IHC) studies were used to evaluate the expression and role of these receptors in rats injured at the T-10 level using the NYU impactor device. P2Y2 gene temporal profile using standardized RT-PCR showed a two-fold increase after 4-7 days post-injury (DPI) and returned to basal levels by 14 DPI. Double labeling IMH localized P2Y2 in cells bodies, axons, macrophages, oligodendrocytes and astrocytes. Also, levels of P2Y2 immunoreactivity were increased after injury in astrocytes. Therefore, the gene profile of P2Y2 after SCI showed that the levels of this mRNA and protein increased after trauma, suggesting a role in the establishment of the restrictive environment for axonal regeneration after SCI.

Support by NIH-MRISP 2R2MH48190-14, NIH-SNRP NS39405, MBRS-SCORE S06-GM008224, MBRS-RISE GM-68138, PR-EPSCOR EPS-9874782

R- 088 Actitudes y conocimientos de enfermeras/enfermeros anestesistas hacia personas viviendo con VIH/SIDA. Ramírez Gómez, R.

La infección causada por el VIH sigue siendo un problema de salud pública y una enfermedad estigmatizada y considerada vergonzosa. Enfermería ha jugado un papel saliente en el cuidado de personas afectadas. Aunque se han realizado investigaciones con estos profesionales, muy poca información existe con enfermeros/as anestesistas, que también proveen cuidado a la personas con VIH/SIDA. Aportar información actualizada acerca de los conocimientos y actitudes de anestesistas hacia pacientes con VIH/SIDA y relacionarlos con los factores demográficos, sociales o culturales. Se realizó encuesta con 64 anestesistas del área metropolitana. El grado de conocimiento es mayor que el grado de actitudes positivas hacia el VIH/SIDA. El factor personal asociado a mayor conocimiento y mejores actitudes fue el tener como primer grado un bachillerato. Los factores sociales y culturales asociados al conocimiento estuvieron relacionados con haber recibido un curso o certificación en VIH y recibir educaciones continuas por el hospital y por parte de colegas y amigos. Un mayor conocimiento y mejores

actitudes están íntimamente ligados con una educación amplia y dirigida a disminuir los estigmas asociadas a esta condición por parte del equipo interdisciplinario. Se observa la importancia del rol de educador que tienen los centros hospitalarios hacia sus empleados. Se sugieren mejores currículos de enseñanza en todos los niveles y más educación continua.

Esta investigación recibió apoyo del Nursing Research Center on HIV/AIDS Health Disparities P20NR008342.

R- 089 The effect of Buprenorphine on the gene profile after spinal cord injury. Santiago J.M., González M. M., Cruz A., Torrado A., Kalyan-Masih P., Miranda J.D.

It is known that after trauma to the spinal cord pain generates. Therefore, analgesic should be administered. Buprenorphine is a drug highly recommended as part of the postoperative treatment after a spinal cord injury (SCI) in the rat model, but conflicting molecular and cellular effects after the administration of it have been reported. These results have generated a debate about the post-operative treatment that must be given to experimental animals after SCI. This project aims to demonstrate that experimental rats with SCI could receive Buprenorphine to reduce the pain sensation without affecting the gene expression profile of genes. Adult female Sprague-Dawley rats received a moderate contusion with the NYU impactor at the T10 level. Half of the rats received Buprenorphine and the other half saline for three consecutive days, the animals were sacrificed either at 2 or 4 days post-injury (DPI), microarray analysis was performed. In addition, BBB open field scores and tcmMEPs (transcranial magnetic motor evoked potentials) were evaluated in animals treated with Buprenorphine at 7 and 14 DPI. Finally, histological studies were performed on the same spinal cords to assess white matter spare tissue after the lesion. The results showed that administration of Buprenorphine did not alter the outcome after the SCI in the animals on any of the aspects evaluated. Therefore, Buprenorphine could be used to treat animals with SCI to reduce acute pain with the confidence that this treatment would not affect the gene profile, behavioral, electrophysiological or anatomical outcomes.

R- 090 Expression profile of Ephexin levels after spinal cord injury in rats. Rosas O.R., Figueroa J.D., Rivera M., Torrado A.I., Miranda, J.D.

The central nervous system has the capacity to regenerate, but the microenvironment generated after spinal cord injury (SCI) limits this faculty. This occurs because the presence of inhibitory factors that block axonal outgrowth at the

lesion epicenter. Among the inhibitory molecules are the Eph receptors and their ligands, the Ephrins. The activated Eph receptors mediate alterations in the cytoskeleton via Ephexin protein. Ephexin is a member of the family of guanine nucleotide exchange factor that could be activated by the Eph receptor, and preferentially activates RhoA. RhoA stimulates actin-myosin contractility and stress fiber formation resulting in growth cone collapse. Therefore, we decided to determine the expression profile of ephexin after SCI. Adult female rats received a moderate contusion at the thoracic level (T10) with the NYU impactor device. The expression of ephexin mRNA and protein were evaluated at 2, 4, 7, 14 and 28 days post-injury (DPI). Preliminary studies using real time RT-PCR demonstrated a decrease in the levels of the ephexin mRNA at 2 and 4 DPI, that was followed by an up-regulation at 7 DPI, but returned to basal levels at 14 DPI. Western Blot analysis showed a significant up-regulation at 2 DPI, without a significant increase at other time points. Immunohistochemistry studies revealed a basal expression of Ephexin in motor neurons and reactive astrocytes of the spinal cord. These results suggest that ephexin could be an intracellular mediator of the repulsive activity initiated by the Eph receptors after SCI.

R- 091 Cross Protection Studies between DENV and WNV. Xiomara Mercado, Yisel Rivera, Elizabeth Hunsperger, Idali Martínez

West Nile Virus (WNV) was recently isolated from chickens and mosquitoes in Puerto Rico but human cases have not been reported up to date. Since the Island is endemic to Dengue viruses (DENV), it is possible that prior immunity to DENV will protect the population against WNV-induced disease. To test this hypothesis, we studied the effects of sequential infections with DENV and WNV in mice. In preliminary studies, we determined the susceptibility of Balb/c mice at different ages to WNV infection. In 15-week-old animals, mortality was first detected on day 7 after WNV infection and high viral loads in blood and brain were observed on day 2 and day 8 post-infection, respectively. In the present experiment, 15-week-old mice received 3 doses of DENV-1/DENV-2, DENV-2 or a DENV-2 DNA vaccine expressing the envelope protein. WNV challenge was performed 6-weeks after the last immunization. The lowest mortality (40%) was observed in mice inoculated with DENV-2 virus. Animals inoculated with the DENV-2 DNA vaccine exhibited 60% mortality while both, the PBS and DENV-1/DENV-2 groups showed 80% mortality. Kaplan-Meier survival analysis with a log rank test demonstrated a significant difference in survival between the DENV-2 and PBS groups. However, this significant difference was not observed in animals inoculated with 1

dose of DENV-1 followed with 2 DENV-2 doses, neither in those mice inoculated with the DENV-2 DNA vaccine. These results suggest that previous infection with DENV-2 virus can confer partial cross-protection against WNV morbidity and mortality.

R- 092 Expression Profile of Inhibitory Molecules Resulting from Spinal Cord Injury. Arocho L.C., Torrado A.I., Miranda J.D.

Contrary to the peripheral nervous system (PNS), the central nervous system (CNS) is characterized by limited regeneration after trauma. Spinal cord injury (SCI) elicits the re-expression of inhibitory molecules that produce a repulsive environment for axonal outgrowth. An example of such molecules is EphA receptors. During development, these receptors interact with ephrin ligands (A1-A5) to regulate axonal pathfinding. In the adult, studies have shown that activation of ephrin ligands initiate reverse signaling mechanisms that can either promote adhesion or repulsion of axons. In vivo molecular studies done previously in our laboratory have shown the upregulation of ephrinA ligands after SCI which correlate with the upregulation of their conjugate Eph A receptors. It is our interest to identify the cell phenotype that expresses a particular ligand by performing double-labeling studies. We hypothesize that ephrin ligands are expressed in various cell types after SCI. For this purpose we have established two study groups: sham and injured rats. A laminectomy at the thoracic level (T10) will be performed in both groups, and the injured group will receive a moderate contusion with the NYU Impactor device. Immunohistochemical studies show the colocalization of ephrinA1 ligands with GFAP and NeuN in spinal cord tissue 7 days post injury, which indicate the presence of this ligand in reactive astrocytes and motor neurons, respectively. To further elucidate the cell phenotype that expresses this particular ligand, double labeling studies will be performed with other cell types. Also we will include studies with other ephrins.

R- 093 Playing Violent Electronic Games As A Risk Factor In Agressive Behavior In Adolescents Between 13-17 Years Old Og Age From The Outpatient Clinics Of Child And Adolecent Psychiatry At The Pediatric District Hospital In San Juan, Puerto Rico. Roberto Gutiérrez, Alexis González, Luz Colón

Research findings on mass media has found that exposure to media portrayals of violence increases aggressive behavior in children and adolescents. Studies have found

that the identification and understanding of risk factors are as important as the identification and understanding of protective factors. The relationship between exposure to violence in the electronic video games and children's aggressive behavior as been the subject of many studies. However, we found no study regarding this relationship in the Puerto Rico youth, although research has found that approximate 1/3 to 1/2 of all referrals to psychiatric services are for children and adolescents with violent and conduct problems. We wanted to study the exposure to violent video games (risk factor) and the role of parental supervision(protective factor) in adolescents 13-17 years old of age seen at the Outpatient Child and Adolescent Ambulatory Clinics at the Pediatric University Hospital in San Juan, PR. Fifty five (55) adolescents and their parents received a 44 item and 7 item questionnaires, respectively, which measure video game use and habits, and parental supervision. The Buss-Perry Aggressive Scale was used to determine aggressive behavior in the adolescents' sample. In our preliminary results we found that 78.2% of our sample own a video game console and that only 60% reported to have parental supervision. Other results are in the process of analysis.

R- 094 Efficacy of Two Cyclophosphamide Regimens for the Treatment of Lupus Nephritis in Puerto Ricans: Low vs. High-Dose. Lesliane E. Castro-Santana, Marilú Colón, María J. Molina, Clarilee Octaviani, Vanessa E. Rodríguez, Angel M. Mayor, Luis M. Vilá

Evaluate the efficacy of two established protocols for lupus nephritis in Puerto Ricans with systemic lupus erythematosus (SLE). Forty-nine SLE patients with clinical or biopsy-proven lupus nephritis were treated with intravenous low or high-dose cyclophosphamide. Demographic parameters, clinical manifestations, autoantibodies and pharmacological treatments were determined prior to cyclophosphamide treatment. Renal parameters, disease activity and damage accrual were determined before and after treatment. Cyclophosphamide-associated adverse events were also examined. Thirty-nine SLE patients received the high-dose treatment and 10 patients the low-dose therapy. At baseline, demographic parameters, clinical manifestations, autoantibodies profile, disease damage and pharmacologic treatments (other than cyclophosphamide) were similar in both groups. Disease activity was higher in the low-dose group. After cyclophosphamide therapy, marked improvement of renal parameters and a significant decrease in disease activity was observed only in the high-dose group. No differences were observed in adverse events

except that upper respiratory tract infections occurred more frequently in the low-dose treatment group, whereas urinary tract infections were more common in the high-dose group. The high-dose cyclophosphamide therapy appears to be more effective, and similar in terms of drug safety, than the low-dose regime for the treatment of lupus nephritis in Puerto Ricans. These results are in disagreement with previous works performed in other ethnic populations. Pharmacogenetic factors could be implicated in explaining these discrepancies.

R- 095 Socio-demographic characteristics and risk factors in families of patients born with Cleft Lip and/or Palate treated at the Center for Craniofacial Disorders, School of Dentistry, University of Puerto Rico.

Ilse G. Salcedo, Heidi Ortega, Miguel Yanez, Pedro Santiago

Cleft lip and/or palate (CL/P) is known as the most frequent craniofacial disorder in newborns. Its presence has a profound psychosocial impact in the patient and his/her family. Early detection and treatment of the deformity are important in order to achieve adequate psycho-social, functional and esthetic results. The objective is to describe the socio-demographic, epidemiologic and clinical characteristics of patients with CL/P treated at the Center for Craniofacial Disorders, School of Dentistry, University of Puerto Rico from February 2007 to November 2007. Being CL/P the most common craniofacial disorder, it is imperative to understand the factors responsible for its presence. Socio-demographic and risk factor studies should be conducted in order to develop an effective prevention campaign to reduce its incidence. For the last 25 years there has been no scientific publication reporting such important data in the Puerto Rican population. Of the 132 CL/P patients treated at the Craniofacial Clinic, only 4 refused to participate in the study. All patients reported having health insurance, 52 % of the patients' mothers had a college degree, 9 % of the patients' mothers and 40% of the patients' fathers smoked during the pregnancy period. 12% of the patients' mothers ingested alcohol during pregnancy, and 46% of the patients' fathers ingested alcohol before and during the pregnancy, 35% of the patients' fathers worked on places that increase the risk of having a child with CLP, and 43 % of the patients with CLP have family history of the condition.

R- 096 Características de la Participación Social de Niños/as con el Desorden de Autismo. Julmarie Rios, Ruth Rivera, Keysha Camacho

El propósito de esta investigación es describir la participación social de un grupo de niños escolares con el

Desorden de Autismo (DA). Específicamente describir la diversidad e intensidad de la participación en actividades de tiempo libre y la conducta adaptativa de socialización. Es importante conocer las características de la participación social de manera que se puedan desarrollar intervenciones efectivas para promover una mejor calidad de vida en esta población. Existe limitada investigación sobre las necesidades en el desarrollo de las destrezas sociales en niños con DA. Se utilizó un diseño descriptivo. La muestra consistió de 30 niños con DA entre las edades de 6 a 12 años. Los instrumentos utilizados fueron la Evaluación de Participación y Disfrute de los Niños y la Vineland II. Los resultados reflejaron que los niños con DA participan con una baja diversidad e intensidad en actividades de tiempo libre. Se encontró que un gran porcentaje de los participantes realizaron las actividades mayormente con sus familiares. Los resultados del Dominio de Socialización reflejaron que en promedio los niños presentaron un nivel adaptativo de más de dos desviaciones estándares bajo el promedio. Esto sugiere marcada dificultad en las destrezas de interacción socialmente. La información obtenida de este estudio ayudará a planificar actividades de tiempo libre que vayan de acuerdo a las necesidades particulares de esta población. Sugiere que es favorable que se fomente la participación en actividades con personas fuera del contexto familiar y participación en actividades estructuradas y/o en equipos.

R- 097 A Rare Case of Cutaneous Metastasis of Postpartum Choriocarcinoma to the Left Third Digit. Keimari Méndez, Yaniris Avellanet, Sharee Umpierre

Choriocarcinoma has been reported to be responsive to chemotherapy, with a 90% cure rate. Risk factors for treatment failure are long disease, high beta HCG, brain or liver metastasis, term pregnancy and prior chemotherapy. Choriocarcinoma following term pregnancy is rare(1/50,000) with poor prognosis. We present a rare case of cutaneous metastasis of choriocarcinoma to the left third digit. Only three other cases of cutaneous metastasis were found reported in literature. Twenty three (23) y/o female with history of fetal demise and severe preeclampsia at term in 9/2006. Presented later with persistent vaginal bleeding and HCG>200,000. Empty uterus on sonogram. CXR showed 3 distinct round lesions. Metastatic choriocarcinoma was diagnosed. Nodular lesions detected in scalp and left third digit. Chest CT showed pulmonary and mediastinal metastasis. Enhancing lesion seen on brain CT. Patient was started in EMA-CO therapy. After one cycle, HCG was 91,000. The finger biopsy revealed large cells nests with pleomorphic nuclei. Pathology reported an undifferentiated

neoplasm, probably skin metastasis. After the second and third cycles, HCG dropped to 1,877. Cutaneous lesions resolved completely. She was discharged home with outpatient chemotherapy. Choriocarcinoma is rare but treatable. Early diagnosis is important. High HCG, prolonged disease and metastasis, are important for prognosis. Prognostic score > 7 (high risk), requires intensive combination chemotherapy. Cutaneous metastases are rare, having poor prognosis. Lung metastases followed by brain and liver are more common.

R- 098 Degradation of Polycyclic Aromatic Hydrocarbon (PAH) by a Heterokonts (Thraustochytrids): Pollution Mitigation through Phytoremediation. Leo Angelo C. Tiin II, Jema S. Tabinas, Jan Alfred P. Duyaguit

Phytoremediation is defined as the cleanup of contaminated sites using plants. There has been evidence of enhanced polycyclic aromatic hydrocarbon degradation in soils for a limited number of plants. However, the objective of this study was to assess the potential use of thraustochytrids in enhancing the degradation of PAHs namely naphthalene, phenanthrene and fluorene. Thraustochytrids, a group of osmoheterotrophic chromistan protists are ubiquitous in the sea. However, little is known of their ecological role, particularly in oceanic waters. The culture bottles with medium and thraustochytrid cells were set on a clean bench to situate the PAH (1g naphthalene, 1g phenanthrene, 1g fluorene) that was dissolved with 50 ml of methanol. Before the PAHs were inoculated, it was filtered using a syringe with 0.45µm filter unit to strain imperceptible bacteria. In that case, 10ml each kind of PAH were pipetted to the media. Furthermore, it was continuously agitated using culture rollers for 5-7 days. High performance liquid chromatography columns were fabricated from stainless steel tubing because it is chemically inert and can withstand the high pressures involved. The columns were 10 to 50 cm long with an inside diameter of 2 to 10 mm. Thraustochytrids yielded up to 99.95% degradation of naphthalene in an incessant experiment. With the heterokont, it appeared to cause a significant phenanthrene reduction and succumbed up to 99.99% of fluorene. These results support the hypothesis that thraustochytrids can enhance the degradation of polycyclic aromatic hydrocarbon.

R- 099 Neurosyphilis: A Rare and Life-threatening Complication of a Common Disease
G. Benitez, WE De Jesús-Monge, D. Badia, M.Z. Allende-Vigo

Syphilis is a sexually transmitted disease (STD) caused by *Treponema pallidum*. If untreated, the likelihood of

developing clinical manifestations of neurosyphilis is 6.5%. The objective of this report is to describe a patient with neurosyphilis and to review this life-threatening disease. A 64 years-old man presented to hospital with progressive bilateral vision loss since six months before admission. The patient had an unknown STD at the age of twenty. The man had small and irregular pupils that reacted poorly to light but well to accommodation. Serum tests showed reactive rapid-plasma-reagin and microhemagglutination assay for antibody to *T. pallidum*. Cerebrospinal fluid test was reactive for venereal disease research laboratory. The final diagnosis was neurosyphilis and he was treated with penicillin G 4 million units intravenously every 4 hours for 21 days. The patient was discharged home with follow up in clinics. The patient presented with "Argyll Robertson pupils", a manifestation of neurosyphilis. Neurosyphilis is a progressive, disabling, and life-threatening complication of syphilis. It is very important to prevent neurosyphilis by prompt diagnosis, adequate treatment, and follow-up of early syphilis. Future research studies could evaluate the prevalence of neurosyphilis in Puerto Rico and the social and economic risk factors that are associated to the development of this rare complication of syphilis.

R- 100 Direct Puncture Percutaneous Embolization with alcohol for treatment of Hemangiomas.
Elena Nogales, Rafael Rodríguez Mercado, María M. Toledo

There are three types of hemangiomas: capillary, cavernous or mixed type. These are benign lesions, more frequently seen during childhood and generally resolve spontaneously. Indications for treatment include uncontrolled growth or interference with any function. Medical treatment consists mainly of corticosteroids, interferon alpha, vincristine and aminocaproic acid, all with their inherent side effects. Intralesional embolization is usually reserved for urgent cases in which patients fail to respond to medical therapy. We will describe the technique of intralesional direct percutaneous puncture embolization under fluoroscopic monitoring with ethanol, and establish the effectiveness and safety of this modality for treatment of hemangiomas. The methodology consists of retrospective analysis of 29 cases, review of the procedure in each case and analysis of the results. A period of 24 months was studied. Dehydrated ethylic alcohol was used as the sclerosing agent. A total of 29 patients were treated and a total of 66 embolizations were performed. A positive result was obtained in more than 75% of the cases. Percutaneous embolization with ethylic alcohol is an effective way of treating cutaneous hemangiomas. It is another alternative

in the line of treatment of these lesions, and should not only be considered as a last resort. It is a simple procedure with a low morbidity. Even if total obliteration is not achieved, most of the patients experienced a significant improvement in their quality of life after treatment.

R- 101 Participación Ocupacional del Viejo Puertorriqueño: Propiedades Psicométricas de la Prueba de Sorteo de Tarjetas de Actividades. E. Orellano, D. Irizarry

El evaluar el impacto de las enfermedades e impedimentos en la participación diaria se ha convertido en un mandato para los profesionales de la salud mundialmente. El "Activity Card Sort" (Baum y Edwards, 1993), permite evaluar la participación de adultos mayores en actividades instrumentales del diario vivir, actividades socio-culturales y de ocio mediante fotografías de viejos realizando diferentes actividades. El propósito de esta investigación fue determinar las propiedades psicométricas de una Versión Puertorriqueña de la prueba de Sorteo de Tarjetas de Actividades (PR-STA). Este estudio incluyó la administración del PR-STA y la Versión Puertorriqueña del RAND 36-Short Form Health Survey a 146 participantes: 106 adultos mayores de 60 años o más y 40 adultos con esclerosis múltiple de 50 años o más. Se examinó la validez al investigar la relación de las puntuaciones de la PR-STA con otras variables. Evidencia de confiabilidad incluyó prueba-reprueba y consistencia interna. Los resultados demostraron que la PR-STA logró discriminar entre participantes con diferentes niveles de funcionamiento ($t = 6.86$; $p = .00$). Mostró una correlación positiva con la versión Puertorriqueña del RAND 36-Short Form Health Survey ($r = 0.66$; $p = .00$). Evidenció también buena confiabilidad de prueba-reprueba ($r = 0.82$) y alta consistencia interna de la puntuación total (.91). Los hallazgos sugieren que la PR-STA es un instrumento válido y confiable para ser utilizado con la población de adultos mayores de Puerto Rico.

Este estudio fue aprobado por el IRB de Nova Southeastern University.

R- 102 Relationship of bone with dietary and physical activity habits in a group of Puerto Rican obese adults. Cristina Palacios, José Bertrán, Ruth Rios, Sandra Soltero, Marisa Matos

Osteopenia and osteoporosis are mayor public health problems in Puerto Rico, affecting approximately more than 50% of women older than 50 years of age. To determine the relationship between dietary and physical activity to bone mineral content (BMC) and density (BMD) in a group of

adults obese in Puerto Rico. Dietary intake was estimated from 3 24-h diet records and daily physical activity level was measured by the Framingham Physical Activity Index during the same 3 days in a group of Puerto Rican obese adults, aged 21-50 years. Whole body BMC and BMD were measured by Dual-Energy X-Ray Absorptiometry (Hologic). A total of 32 subjects, 25 females and 7 males, participated in this study. BMI was 40.5 ± 5.8 kg/m², protein intake was 80 ± 20 mg/d, calcium intake was 550 ± 156 mg/d, magnesium intake was 184 ± 63 mg/d, vitamin K intake was 27 ± 19 mcg/d, phosphorus intake was 933 ± 246 mg/d, and physical activity index score was 29.4 ± 2.7 . Total BMC was 2435 ± 476 g and BMD was 1.186 ± 0.130 g/cm². BMI ($r = 0.46$, $p < 0.01$), protein intake ($r = 0.33$, $p < 0.05$) and phosphorus intake ($r = 0.34$, $p < 0.05$) was significantly correlated to BMC and phosphorus intake was significantly correlated to BMD ($r = 0.34$, $p < 0.05$). In this group of young obese adults, only protein and phosphorus intake were correlated to bone. Calcium, magnesium and vitamin K intakes were much lower than recommended intakes and most subjects had a sedentary lifestyle. Therefore, a larger study is warrant to determine the major determinants of bone in Puerto Ricans.

Supported by the RCMI-RCR II Award, 1P20 - RR11126, from NCRR, NIH.

R- 103 Intracranial Hemorrhages associated to Sexual Intercourse and Childbirth: Rare Etiologies of a Deadly Clinical Entity. WE De Jesús-Monge, G Benítez, D Badia, MZ Allende-Vigo

Sexual intercourse and childbirth have been uncommonly associated with intracranial vascular rupture. The objectives of these reports are to describe 2 patients with intracranial hemorrhages, one associated to sexual intercourse and the other to childbirth, and to review these rare but deadly clinical associations. Case #1: A 38-years-old man presented to hospital with loss of consciousness while having sexual intercourse with his wife. He showed arterial hypertension (HTN), respiratory distress, and was placed on mechanical ventilation (MV). A head computed tomography (HCT) scan revealed intracranial hemorrhages. The patient deteriorated neurologically and died on hospital day #14. Case #2: A 30-years-old woman arrived to hospital with progressive headache since postpartum day #2. The pregnancy and vaginal childbirth were uncomplicated. At postpartum day #6 she deteriorated neurologically and was placed on MV. A HCT scan showed intracranial hemorrhages. An electroencephalogram showed no brain activity and was declared dead on postpartum day #7. Common etiologies for hemorrhagic strokes are ruptured

aneurysm, arteriovenous malformation, and HTN. Sexual intercourse is associated to 3.8-12% of patients with subarachnoid hemorrhages and may lead to excessive HTN and tachycardia. The incidence of cerebrovascular disorders is increased by pregnancy among women of reproductive age. Misdiagnosis as atypical eclampsia is common and it delays the diagnosis. A future research study could evaluate if orgasm and pregnancy/childbirth stimulates a biochemical inducer of HTN that may lead to intracranial vascular rupture.

R-104 Pediatric Patient with Refractory Thrombotic Thrombocytopenic Purpura (TTP) who Responded well to ANTI-CD20 Monoclonal ANTIBODY. Jhon A. Guerra, Liliana Lojo, Enid Rivera, Pedro J. Santiago-Borrero

Rituximab has been used very successfully in many severe autoimmune disorders, but with little experience in TTP, especially in children. A three (3) y/o girl presented with a 1 week of fever, cough, dark brown diarrhea, "yellowish skin", and a seizure. Initial evaluation, showed WBC 20.4K/mm³, nucleated RBC 45%, HB 4.5 gr/dl, PLT 7K/mm³, Total bili 9.7 mg/dl (D:0.6), LDH 4469 IU/L, PT 14.6 sec, PTT 28.8 secs and Sed Rate 52 mm. Coombs were negative. Viral titers were negative. The patient was treated with PRBC and PLT as well as IVIG without response. Patient was diagnosed with TTP. Laboratories included low ADAMTS 13 activity and increased inhibitor. She was started in treatment with plasmapheresis (5 days), steroids (14 days), with good response in HB and PLT, and she was discharged 20 days after admission. In the next few weeks the patient presented severe relapses despite 3 more courses of plasmapheresis and steroids. Due to refractoriness, treatment with Rituximab was offered; she received 375 mg/m² at weekly intervals x 4. The patient showed significant improvement after the first dose with normalization in HB, PLT and LDH. She has remained in complete remission for 8 months. Laboratories including HB, PLT, LDH, ADAMTS13 activity are normal with negative inhibitor. This case demonstrates that Rituximab might be useful in pediatric patients with severe refractory TTP; however, further controlled studies are needed.

R-105 The Academia in action: Identification of Educational Needs related to air pollution issues in a community of Puerto Rico. Victor Emanuel Reyes Ortiz, René R. Dávila Torres, Rafael Ríos Dávila

To evaluate the educational needs related to air pollution in one community in Puerto Rico. A representative sample of

263 households in the community was used. An interview was designed to obtain information of all participants. 56.7% indicated to have heard or read in the media of an environmental educational campaign. 75.7% expressed that they have not heard or read any educational air quality campaign. 81.0% also indicated that there have not heard or read an environmental educational campaign for their community. 83.6% consider that marches and strikes are an educational way to be heard in communities. The participants showed to not to know what an air quality index was or if there are official data for air quality in the island. Nevertheless, 86.3% are interested to frequently receive and be advised of the community air quality index. 88.2% of community manifested that communitarian groups can be used to bring health educational programs/information; 77.5% considers that the county government can be used; and 86.3% considers that the State Agencies can be used to bring health educational programs/information to them. Other educational needs expressed were: Right for a clean air, duties of the different governmental agencies, health problems related to environmental air quality, among others. Participants identified multiple areas for environmental improvement in the need assessment. Subject areas should be taken into consideration at the time health education interventions are going to be made by scholars.

R-106 Traducción y Adaptación Cultural de la Prueba "Activity Card Sort" para el Viejo Puertorriqueño. Irizarry, Dyhalma, Orellano Elsa & Guzmán

La tendencia en la práctica de las profesiones de la salud requiere de evaluaciones que estén centralizadas en el cliente con el fin de responder mejor a sus necesidades particulares. Se ha documentado la necesidad poseer instrumentos de evaluación en español, que hayan sido adaptadas culturalmente y que posean propiedades psicométricas que permitan medir las necesidades particulares de los clientes de habla hispana. El instrumento conocido como "Activity Card Sort" (Baum y Edwards, 1993), permite evaluar la participación de adultos viejos en actividades instrumentales del diario vivir, actividades sociales y ocio mediante fotografías de viejos realizando diferentes actividades. El propósito de esta investigación fue traducir al español y adaptar culturalmente este instrumento para determinar su aplicabilidad a la población Puertorriqueña. La metodología utilizada incluyó: la traducción, determinación de la equivalencia semántica y adaptación cultural del instrumento utilizando un panel de expertos y un panel de viejos saludables que representan la población

a la cual está dirigida la prueba. Los resultados del análisis de las opiniones de ambos paneles permitió diseñar una versión al español adaptada a la población puertorriqueña. Se eliminaron actividades y se sustituyeron por otras más relevantes a la cultura. Esta versión fue administrada a una muestra de la población de interés para determinar su validez y confiabilidad. En esta presentación se enfatizará el proceso y análisis de los resultados de la traducción y adaptación cultural de este instrumento de evaluación. *Aprobado por IRB Protocolo # 3570107.*

R-107 ECC Prevalence, Caries Risk and Prematurity in PR Children. Lydia López del Valle

The purpose of this retrospective study was to assess the ECC prevalence and caries risk from a sample of Puerto Rican children aged 6 to 69 months based on records. The children were classified in cases and controls by history of premature delivery and/or LBW. One hundred fifty six records from children aged 6 to 69 months from a previous ECC prevalence study were classified in cases and controls based on premature delivery and/or LBW. ECC prevalence, prematurity, gender, mean age, mean BW, mean months of gestation, type of delivery and mean dmft, dmfs and dt were collected from records. ECC was classified between SECC and ECC based on AAPD guidelines. Descriptive statistics and significant associations were studied for risk of ECC and prematurity. Twenty four of the sample was classified as cases based on 8 mos or less of gestation and LBW below 5 pounds. Mean sample age was 34.87 mos (36.61 mos cases, 34.05 mos controls), mean BW was 6.45 pounds (5.06 p cases, 6.81 p controls); mean gestational age was 8.68 mos (7.64 mos cases, 9 mos controls); mean dmft, dmfs and df was 2.44, 4.11, 2.12 for total sample (3.64, 6.9, 2.9 for cases, 1.69, 2.66, and 1.54 for controls). Caries prevalence in the total sample was 33% (cases 47% and controls 30%). SECC was seen in 32% of the cases and in 15% of the controls. Significant associations were found for being premature (case) dmft, dmfs, dt, eruption age and SECC. Cases have 2.36 more caries risk than control (OR=2.36, p=0.03). Risk of severe carious involvement or SECC is associated with history of prematurity and LWBW in the sample studied.

R-108 Association of Major Depression and Diabetes in Medically Indigent Puerto Rican Adults. O.M. Disdier-Flores, M.I. Jiménez-Chafey

Studies have found that major depression and diabetes mellitus are strongly associated. People with diabetes have a greater risk of presenting a serious psychological

disorder such as depression, anxiety and schizophrenia than individuals without diabetes. Also, there evidence suggesting that major depression is an independent risk factor for diabetes. Research studies related with depression and diabetes in Puerto Rico are scarce. The main goal of this study was to evaluate the association between major depression and diabetes in a large medically indigent population of Puerto Rican adults living on the island. A secondary database analysis through a cross-sectional design was used for this study. Participants were selected from the Puerto Rico Commonwealth Health Plan database, beneficiaries of the public health sector, for a total of 1,060,323 medically indigent adult insured's with at least one claim during 2002. The International Classification of Diseases (ICD-9) was used for disease classifications. The prevalence of diabetes was 14.6% in subjects with major depression and 9.7% for those without major depression (POR 1.59, p<0.001). The strength of this association remained after adjusting for obesity and sex. Prevalence of diabetes appears to be significantly higher in Puerto Rican adults with major depression compared to those without this psychiatric disorder. Longitudinal prospective studies and randomized controlled trials are needed to shed light on the temporal or causal relationship and to test whether effective prevention can reduce the risk of developing diabetes.

R-109 The Increase in Preterm Births in Puerto Rico: A Challenge for the Health Care System. Hernando Mattei, José F Cordero, the PR March of Dimes Taskforce on Preterm Births

Preterm births (PTB) are a serious public health issue in Puerto Rico (PR). PTB increased from 1990 to 2004 reaching the highest rate of any jurisdiction in the US. We studied potential risk factors that may be associated with the increase. To assess the risk factors associated with preterm delivery in PR for the period 1990 to 2004. We used the birth certificate files of all live births in PR from 1990 to 2004 produced by the Puerto Rico Health Department. We studied year of birth, birth weight, gestational age, trimester of first prenatal visit, maternal age, maternal education, and municipality of residence. PTB rose from 11.4% in 1990, to 17.9% in 2004. Late-PTBs births accounted for most of the rise. During the same period the rate of PTB in the US rose from 10.6% in 1990 to 12.5% in 2004. During the same period, LBW in PR rose from 8% to 10% and VLBW from 1.2% to 1.5%. In 1990, the rate of PTB was at the level of Hispanics in the US, by 2004 the PR PTB exceeded the rate of African Americans. PTB increased throughout all

municipalities. The traditional risk factors, such as early prenatal care, maternal age and others did not explain the observed increase. There is a major increase in PTB in Puerto Rico and traditional risk factor did not explain it. Future research should address environmental factors and changes in the health care delivery system that may impact PTB.

R-110 Second Malignancies after Adjuvant Radiotherapy for Breast Cancer in Women in Puerto Rico, 1987-2003. Taína De La Torre-Feliciano, Nayda Figueroa-Vallés

The risk of developing secondary primary tumors as a result of scattered radiation in patients who had radiotherapy (RT) for breast cancer (BC) is an important concern. Among these are sarcomas, lung and bronchus, and esophagus cancer. The study aim was to estimate the risk of second malignancies (SM) after RT for BC. Methods: Women diagnosed with BC between 1987-2003 and who developed a SM posterior to the diagnosis of BC were included. Of the 636 patients with a SM, 231 were irradiated and 406 were not. The SMs included all first nonBCs and contralateral BCs as first event during the follow-up period. Median patient age at BC was 59 years for the whole population, and 56 and 60 years for irradiated and not irradiated patients, respectively. There was an excess risk of developing the following SMs: urinary bladder (72%), gynecological (55%), stomach (50%), lung and bronchus (12%), esophagus (9%) and liver (3%) cancers in the RT group compared with the non-RT group. Treatment with RT was not found to increase the risk of other types of cancers such as sarcomas, thyroid, and ovarian cancers, among others. We also found that women treated with radiation had a significant lower risk (60%) of developing a contralateral BC as first event than women who were not irradiated ($p < .05$). Our findings suggest that adjuvant RT may increase the risk of esophageal, stomach, liver, lung and bronchus, gynecological, and urinary bladder cancers, whereas it did not increase the rate of other malignancies. In this study RT seemed to significantly lower the risk of developing a contralateral BC.

R-111 Trends in the Incidence Rates of Liver Carcinoma by Histologic Type in Puerto Rico 1987-2003. Z. Acosta-Carrillo, C.M. Nazario-Delgado, N.R. Figueroa-Vallés

Hepatocellular carcinoma (HCC) and cholangiocarcinoma incidence have increased dramatically in the Western hemisphere. In Puerto Rico (PR), HCC in men is ranked eighth and fourteenth in women. To evaluate the incidence

trends of liver cancer by histological type in PR between 1987-2003 by age groups and gender, incidence cases of liver cancer from 1987-2003 were obtained from the PR Central Cancer Registry. Data was analyzed by histology, gender, and age groups. Age adjusted and age specific incidence rates were calculated for liver cancer (all types) and by histological type. Annual percent changes were estimated using SEERStat Program. For 1999-2003, when both genders were considered together, the incidence rate of all liver cancers in PR was 17.9. However, the incidence in males was 3.6 times higher than in females. When 1987-2003 data was analyzed by type, all liver cancers, HCC, and cholangiocarcinoma showed an upward trend. The APC for liver cancer was 2.3% ($p > 0.05$), 0.6% for HCC and 1.4% for cholangiocarcinoma. Analysis by age group and gender showed a statistically significant increase in men of 45-59 years for all liver cancers (3.8%) and for HCC (2.6%), but not for cholangiocarcinoma. In women, an increase is seen in the 45-59 age group for all liver cancers and a decrease in HCC and cholangiocarcinoma, but none were statistically significant. In PR, the incidence of all liver cancers and HCC is increasing the fastest among men 45-59 years old. These findings suggest a possible rationale for evaluating the influence of recent trends in the prevalence of major risk factors in PR like HCV, and alcohol.

R-112 Mortality Trends for Cancer, Heart, and Diabetes Mellitus Disease in Puerto Rico by Age Group, Sex and Geographical Region, 1987-2004. J Pérez-Irizarry, NR Figueroa-Vallés

Heart disease (HD), cancer and diabetes mellitus (DM) are the leading causes of death in Puerto Rico (PR). These chronic diseases represent more than 40% of the total deaths in PR. To analyze the patterns of mortality rates for HD, cancer and DM by sex, age group, and geographic region in PR during 1987-2004. Mortality data for cancer, HD and DM were obtained from Central Cancer Registry and the Vital Statistics of PR. Annual percent changes (APC) were used to evaluate mortality trends by age group, sex, and geographical region during 1987-2004. Overall mortality rates of HD and cancer showed a descending trend, while DM showed an increasing trend during 1987-2004 ($p < 0.05$). The decline of the age-adjusted mortality rates from HD (APC = -3.8%) was three times greater than cancer (APC = -1.1%). Mortality trends by sex for HD and cancer showed a downward trend; female HD showed the greatest reduction. In contrast, DM mortality trends increased for both sexes, being significant for males. Trends declined for HD and

cancer for all age groups and both sexes. Age-specific mortality rates for DM increased for all groups. For the most recent period age-specific cancer mortality rates were higher than HD rates, except for the extreme age groups. The greatest mortality from HD was found in the south region, for cancer was the southeast region and for DM was the western region. While HD mortality trends showed a significant decline, trends for cancer and DM mortality suggest that more efforts are needed to reduce risk factors, identify high risk groups and promote changes in life styles.

R-113 Colorectal Cancer in Puerto Rican Adults Younger than 50 Years of Age, 1987-2003.

M. Torres-Cintrón, N.R. Figueroa-Vallés

Colorectal cancer is increasing among people younger than 50 years of age (Fairley, 2006). The disease could be more aggressive and have a worse survival in this age group. The purpose of this study is to determine the CRC incidence rates in patients younger than 50 years of age, evaluate the time trends and compare the 5-year relative survival of younger (<50) versus older CRC patients (50+). Incidence data were obtained from the Puerto Rico Central Cancer Registry. Age-adjusted incidence rates were standardized using the 2000 PR population. The study included microscopically confirmed CRC cases (N=18,634) from 1987 to 2003. The incidence rates were analyzed by sex, year of diagnosis and anatomic subsite. Annual percent changes (APC) were estimated. Five-year relative survival rates using the actuarial method were calculated by age group. Ten percent of the CRC were diagnosed in patients between the ages of 20-49 years. From 1987 to 2003, an increment was observed in the colorectal cancer incidence for all age groups (20-39y APC=0.2%, 40-49y APC= 2.2% and ≥50y APC=1.8%). Younger CRC patients had the worst 5-year cancer-specific survival compared to older patients. CRC incidence rates are rising in young people and their survival is worst compared to older patients. This suggests that the disease in young patients could be more aggressive or that early detection of CRC in this age group is less effective. Special attention should be given to the 40-49 years old population. People at higher risk should begin screening at younger age and may need to be tested more frequently.

R-114 Effects of Diabetes During Pregnancy on Neonatal Health Outcomes in Puerto Rico.

M. Campos, C. Pérez, G. Ramos, L. García

Diabetes is a common complication of pregnancy in the Puerto Rican population. Epidemiologic studies in other groups have demonstrated increased health risk in children

and adults that were born of women who suffered diabetes during pregnancy independent of diabetes type. Individuals who were born premature, low birth weight and with macrosomia have all been related to increased risk of obesity, hypertension and metabolic syndrome later in life. The objective of our study is to evaluate the effects of maternal diabetes in the development of adverse neonatal outcomes in the population that delivered in Puerto Rico. We evaluated Puerto Rico birth certificate registry database for the years 2003 and 2004. After classifying the neonates per maternal history of diabetes, we documented the following outcomes: prematurity, low birth weight (LBW), and macrosomia. A total of 102,042 live born neonates were included in the study. Of these a total of 2503 were classified as infants of diabetic mothers (2.5% IDM). The rate of complications for the total sample: prematurity 18.8%, LBW 1.4%, and macrosomia 0.4%. However, when we compared the population per diabetes exposure we found a higher risk for prematurity (OR 2.0, CI 1.9, 2.2), LBW (OR 1.3, CI 1.0, 1.8) and macrosomia (OR 6.8, CI 5.1, 9.1). Maternal diabetes during pregnancy results in adverse neonatal conditions in our population, which have been associated to later chronic disease in other studies. Future studies are needed to determine if that higher risk of disease is observed in our population.

IRB approved protocol, Funded by CRECD NIH grant No. 1R25RR17589.

R- 115 Trends in Breast Cancer Incidence and Mortality among Women in Puerto Rico by Behavior and Age Group. K.J. Ortiz-Ortiz, C.M. Nazario-Delgado, N.R. Figueroa-Vallés

Breast cancer is the commonest cancer in women in Puerto Rico and has increase since 1950. This increase is observed in invasive cancer as well as in the in situ behavior. The increase in the insitu incidence rate may be explained by an increase in the screening strategies. The objective of this study is to analyze the incidence trends according to age and tumor behavior throughout 1987-2003 and to analyze mortality trends by age for the period 1987-2004. Incidence data were obtained from Puerto Rico Central Cancer Registry, and mortality data were acquired from the Department of Health Vital Statistics. Regression analysis was done using JoinPoint Regression Program. The incidence trends for in situ breast cancer indicates a significant increase ($p<0.05$) for all age groups. The incidence trends for invasive breast cancer indicated a significant increase of 1.9% for the 40-64 age group and a 2.3% increase for those ≥ 65 years old ($p<0.05$). A significant decrease in mortality was observed for women <65 years old. However, for those ≥ 65 years old the APC increase (1.5%) was significant ($p<0.05$). The incidence rates of breast cancer, both in situ and invasive,

have consistently increased for all age groups. Increases could be attributable to changes in risk factors experienced by Puerto Rican women, among them reproductive factors related to the development of breast cancer. The increase in the incidence of in situ breast cancer could in addition be explained by the increase in the use of screening among Puerto Ricans. Further research is required to identify the causes of the increase in mortality among women ≥ 65 years old.

R- 116 Método madre canguro: conocimientos y actitudes del profesional de enfermería.

Jo Ann Cabrera, Karen Mora

Una de las tres primeras causas de mortalidad neonatal en Estados Unidos y Puerto Rico es la prematuridad y los bebés de bajo peso. En la Isla existe una de las tasas de natalidad más altas de bebés prematuros de todos los Estados Unidos (Ramos, 2007). Según las estadísticas del año 2004, en Puerto Rico nacen anualmente 51,239 bebés, de los cuales mueren 608.9 por cada 100,000 nacidos vivos antes de cumplir sus primeros 28 días de vida (Estadísticas Vitales de P.R., 2005). Estudios llevados a cabo en Estados Unidos han evidenciado que el Método Canguro mejora todos los parámetros fisiológicos del recién nacido, tienen menos necesidad de oxigenoterapia, ayuda a la ganancia de peso, entre otros (Worku, & Kassie, 2005). Este método consiste en el contacto piel a piel entre el pecho de la madre y su hijo. Esta investigación midió el nivel de conocimientos y actitudes que tienen los profesionales de la enfermería sobre la importancia y los beneficios de dicho método. Se utilizó un diseño descriptivo exploratorio para determinar el nivel de conocimientos y actitudes del profesional de enfermería que labora en las áreas de Sala de Parto, Unidad de Cuidados Intensivos Neonatales, Maternidad y Sala de Recién Nacidos en tres hospitales del área metropolitana de Puerto Rico. Se utilizó un instrumento creado por las investigadoras, el cual fue validado por un panel de expertos e implantado en un estudio piloto de profesionales de enfermería. La recolección total de los datos aun está en proceso. La meta final es concienciar al profesional de enfermería sobre la importancia y los beneficios de la implantación del Método Madre Canguro.

R- 117 Impact of an Educational Intervention by Pharmacy Students and Faculty on Adequate Medication Management to Geriatric Participants in Community Service Centers. M.J. Beriguete, G. La Santa, S. Rivera, E.E. Vega

The pharmacist is responsible for educating people on adequate medication management. Engaging pharmacy

students in developing programs to educate elders, allow them to implement innovative strategies to prevent diseases and promote health through adequate medication use. The purpose of this study is increase elders' knowledge on adequate medication management through an educational intervention, designed by pharmacy students and faculty. The study population consisted of 247 elderly men and women 60 years old or older who were participants of ten community service centers in San Juan. A questionnaire was developed to collect demographic data and drug therapy knowledge. Pre and post tests were designed to measure the following variables: medication storage, adherence and understanding label instructions. Educational intervention consisted of a 60 minutes talk about adequate medication management. The intervention was designed taking into consideration aspects that facilitate and promote elders' learning. Participant's completed the questionnaire and pre and post test. From 247 participants, 210 answered the questionnaire. The correct answer mean in the pre-test and post-test was 6.70+ 2.25, and 8.19+2.05, respectively (p-value < 0.001). A statistically significant increase in knowledge was observed for the three variables studied. The intervention demonstrated to be an effective tool to increase geriatric population knowledge about adequate medication management. Sharing these results with private and government agencies may lead to develop public policy in elderly education on adequate medication management.

R- 118 Funciones del Educador(a) en Salud Pública según las prácticas profesionales realizadas en el entorno laboral puertorriqueño.

M. Borges-Cancel, H. Arroyo, A.M. Alemán-Batista

La Educación en Salud como profesión en Puerto Rico se ubica a partir de la década de los cuarenta. A partir de este momento se comienzan a definir las responsabilidades específicas para este profesional. Se espera que la práctica en el entorno laboral del profesional sea considerada como el reflejo de las áreas de responsabilidad previamente establecidas. Analizar la relación de articulación entre las prácticas diarias del Profesional Especialista en Educación en Salud del Nivel Graduado en el entorno laboral puertorriqueño y las áreas de responsabilidad profesional y competencias establecidas en el documento: Framework for Health Educators 2006. Se realizaron entrevistas a profundidad a quince Educadores(as) en Salud Pública de Puerto Rico en febrero de 2007. Se utilizó el análisis cualitativo mediante planillas y la búsqueda de regularidades recurrentes. Los datos obtenidos revelaron que se están llevando a cabo gran parte de las áreas de responsabilidad

expuestas en el documento. Las prácticas que le producen mayor satisfacción a este Profesional incluyeron: el trabajo con la gente y el ofrecer un servicio completo. Otras prácticas realizadas y que no forman parte de las responsabilidades incluyeron: las actividades clericales, la coordinación de eventos festivos y el trabajo clínico. Sobre la visión de las prácticas futuras del Profesional se manifiesta preocupación sobre la imagen profesional y las instituciones de formación académica. La realización del estudio documentó las prácticas diarias del Educador(a) en Salud desde el entorno laboral puertorriqueño.
Aprobado por IRB 11/09/07 A3740107.

R-119 Cómo Lograr que una Junta Asesora de la Comunidad Dirigida a la Prevención sea Funcional y Exitosa: Nuestra Experiencia en La Escuela de Odontología. Nydia E. Chévez Rodríguez, Augusto Elías

Se expondrán las estrategias utilizadas para la formación y puesta en marcha de la Junta Asesora para la prevención e Investigación del Cáncer Oral (JAPICO) de Puerto Rico. Esta Junta lleva en funcionamiento un año. Su labor ha sido tan exitosa que Miembros de NIH solicitaron autorización para proponerla como modelo a otras instituciones en E.U. de lo que debe ser un modelo real y funcional de una Junta asesora comunitaria. A través de esta presentación se mencionarán los pasos implementados, empezando con los criterios utilizados para la elección de los voluntarios, el acercamiento a éstos y posteriormente la identificación de necesidades y el desarrollo de un plan de acción basado en éstas. Se expondrá sobre la experiencia de los miembros en el desarrollo de este plan, discutiendo en el proceso cuáles han sido los factores claves que han facilitado la alta efectividad de este grupo comunitario. Finalmente se harán recomendaciones, basadas en esta experiencia, de los pasos y elementos que la autora considera son fundamentales y que constituyen un predictor de la eficiencia y efectividad de cualquier Junta comunitaria cuya meta sea funcionar como un colectivo, organizado y claramente dirigido hacia el trabajo de prevención en áreas de la salud.

R-120 Multifaceted mentoring for minority research to address HIV health disparities: local response for global impact. S.E. Rabionet, C. Zorrilla, L. Santiago

In an era of significant biomedical advances for the treatment of HIV, health disparities have persisted. Health disparities are complex and entail diverse challenges, including conducting research close to affected communities. Mentoring minority researchers becomes

and essential element, since they bring perspectives and solutions that might be different from the mainstream. The PR Comprehensive Center for the Study of HIV Disparities (PR-CCHD), implemented a multifaceted mentoring approach. This approach is the understanding that mentoring is a process in which mentors and mentees advance their commitment while inspiring, enabling, and empowering each other. Mentoring goes beyond one-to-one partnerships. The 3 facets of the approach are: a) multi-institutional collaborations, b) cross-disciplinary research teams; and c) continuous competency training. Activities, such as retreats, summer institutes, methodology workshops, abstract marathons, and idea seminars are geared to the acquisition of the competencies needed for conducting research. Strategies foster collaboration, in which mentors with different methodological approaches to health disparities participate. The accomplishments include the formation of 8 interdisciplinary and multi-institutional teams; 90% retention of researchers; 90%-100% attendance in training activities; three-fold increase in researchers; 100% retention of mentors from 15 universities and research centers; and 70% of the researchers developed a career plan. Research outcomes illustrate how each mentoring facet enhances the possibility of local research contributing to global solutions in HIV.

R-121 Faculty Development and Training in Technology for the Creation of Online Content. A. Castro, M. del P. Toral, R. García

Distance learning and emerging computer technologies have offered many promises in education. In higher education the professor must be the client, subject-matter-expert, and instructional designer in the development of online content. The objective is to increase the number of faculty integrating technology into the teaching/learning process through the development of online courses and tutorials. Three different levels of training were developed to train the faculty: General (basic programs and functions); Intermediate (online tutorial development); Advanced (online course development). The faculty trained to create the tutorials in specific areas of contents were preselected, however for the online courses the faculty needs to submit a proposal. For the development of the respective educational content the faculty were supported by an instructional design consultant, and a graphic artist. Fifty nine (59) faculty members were trained. Fifteen (15) online content units in different subjects were designed and developed: eight (8) online courses and seven (7) online tutorials (MATE

1001, FIS1 1001, professional development, and literacy of information). We suggest that through a comprehensive development program it is possible to improve the faculty skills in the integration of modern technology into the instructional delivery methods, increasing the opportunity to improve the academia offerings. Tutorials and/or online courses will be posted in the web and the impact in the student learning will be assessed.

Funded by Title V Program, US Department of Education, through Grant P031S050055.

R-122 Using Electronic Portfolios and Web Logs: Effective Teaching - Learning and Assessment Tools. M. Pacheco, M. del P. Toral, R. García

Information and multimedia technology has been using in all aspects of the modern society, including the education field. Then, institutions of higher education need to offer their faculty the necessary training in emerging tools for the integration of technology in the academic

environment. The objective is to increase the number of faculty and students that use electronics portfolios and web logs as teaching- learning and assessment tools. Strategies: A cycle of four (4) workshops to train the faculty and a specific workshop to train the students of the trained faculty were developed. Seventy-nine (79) faculty members and one hundred ninety (190) students were trained; fifteen (15) faculty members integrated the e-portfolio as an assessment tool in their courses; eight (8) e-portfolios were created; and one hundred percent (100%) of the workshops were evaluated as excellent. In general a new and innovative academic scenario that allows the faculty and their students to actively interacts in the construction of knowledge and the effectively integration of technology in the teaching-learning process. The use of electronic portfolios and web logs as an assessment to for learning in one or more academic programs (faculty and students).

Funded by Title V Program, US Department of Education, through Grant PO31S060003.