

ABSTRACTS

XXVII Annual Research and Education Forum University of Puerto Rico Medical Sciences Campus

ABSTRACTS SECTION

I. Poster Presentation

- R-001** **Development of a Control Release System Using Cellulose Base Excipient.** B.Valle, E.S.Ghaly. Department of Pharmaceutical Science, School of Pharmacy, Medical Science Campus, University of Puerto Rico.

Oral controlled drug delivery systems offer temporal and spatial control over the release of drug and represent the most popular form of drug delivery systems for the obvious advantages of oral route of administration. The purpose of this study was to develop a control release system using cellulose as base excipient and to evaluate the effects of hydroxypropyl methylcellulose (HPMC) on the release behavior of Theophylline (TPL) from a tablet system. Using three different batches of HPMC, two different formulations with different percentages of HPMC 15% and 30 % and TPL 40% were prepared and compressed by using direct compression technique. The characterization of the batches was performed using different techniques such as Thermogravimetric Analysis (TGA), Differential Scanning Calorimetry (DSC) and X-ray Diffraction (XRD). The TGA results did not show difference between the batches one transition peak at 368°C, however the DSC results indicated that only one batch showed one thermal transition peak at 204.13°C. The XRD results showed two broad peaks in all batches tested, indicating that these materials were amorphous. Tests as Dissolution for drug release, Assay and disintegration were performed to tablets from the two different formulations. The formulation of 30% HPMC showed a better control release since after 6 hours 40-46% of drug was released while formulation containing 15% HPMC gave 70-80% drug release at 6 hours of testing dissolution. It can be concluded that the drug release from cellulose based excipient depends on the level of HPMC in the formulation and that HPMC exhibit control over the drug release.

- R-002** **The Effect of Poloxamers on the Release of Theophylline Tablets Prepared by Direct Compression** Y.M. Gonzalez, E.S. Ghaly. Industrial Pharmacy Department, School of Pharmacy.

Controlled release dosage forms are designed to deliver drug at the rate required to achieve and maintain a

constant drug level in the blood. Poloxamers are widely used in the pharmaceutical industry in many applications. It is known that poloxamers have the ability to form gels due to their thermoreversible gelling characteristics. The use of poloxamers to formulate controlled release dosage forms have not been studied yet. The purpose of this research is to investigate the effects of poloxamers on the release rate of theophylline and to evaluate their potential as new polymer candidates to produce controlled release dosage forms. Theophylline 30% w/w was used as the model drug, Poloxamer (50%, and 69%), magnesium stearate 1% and lactose fast flo quantity sufficient up to 100%. Theophylline tablets were prepared by direct compression at a target weight of 400 mg and target hardness of 7-9 Kp. Several formulations were studied in order to determine the effects of poloxamers on the dissolution profile of the tablets. Tablets containing mixtures of poloxamer with carbopol or methocel in a 1:1 ratio and at different level of combined polymer (30% and 50%) as well as tablets containing poloxamer alone were evaluated. The percent drug release from tablets containing only 50% poloxamer was 80% at 6 hours, while formulation containing combined poloxamer and methocel at 50% gave 50% drug release and formulation containing combined poloxamer and carbopol gave 30%. Drug release. The use of poloxamer alone and poloxamer combined with methocel or carbopol successfully produced controlled release matrices of theophylline.

- R-003** **Bioanalytical method Validation: a GCMS Method to Determine Lupanine in Urine.** V. Lopez, M. Antoun. Pharmaceutical Sciences Department, School of Pharmacy, Medical Sciences Campus, University of Puerto Rico.

Lupinus termis (Forsskal) is cultivated in Sudan. In traditional medicine, the seeds are reputed to have hypoglycemic activity, as well as beneficial effects in dermatological disorders. The efficacy of an alcoholic extract of the seeds, in the treatment of chronic hand and foot eczema, has been confirmed in two published clinical trials performed outside the USA. As part of an ongoing study to evaluate the toxicology of the alkaloids present in the lupin seeds, a rapid GCMS method, for identification and quantitation of lupanine in urine has been established. There is interest in establishing a protocol to validate the analytical methods developed in the Natural Products Laboratory. At this stage of the project, the aim is the evaluation of the analytical methods and instrument performance, in determining lupin alkaloids concentrations in urine. In the field of analytical chemistry,

determination of a non-regulated or regulated compound in a biological matrix is a modality of bioanalytical method. A guidance document for Industry named Bioanalytical Method Validation was posted as late as 2001 by FDA. The task of establish an analytical method to determine lupanine in urine, using as guidance a document from a regulatory agency, produce a decision making situation that results in a learning experience, no matter if the project is developed in an industrial pharmaceutical R&D facility or at an academic laboratory. The ultimate matter in this investigation research is to establish a validated analytical method for the determination of lupin alkaloids in urine, using as reference, guidance documentation from FDA.

R- 004 **A Quantitative in Vitro Evaluation of Occlusal Wear of a Composite Resin.** T. Somohano¹, M.R. Pintado², R. DeLong². School of Dentistry, University of Puerto Rico¹; Minnesota Dental Research Center for Biomaterials and Bio-mechanics, University of Minnesota².

A variety of methods have been suggested over the course of the years to determine wear of posterior composite restorations. The objective of this in vitro study was to quantitatively evaluate the occlusal wear of a posterior composite resin. A close loop DC servo-motors profilometer that produces a direct inverted occlusal profile by contact with a null-point stylus with the surface of the enamel or that of the composite restoration was employed. The magnitude, shape and location of loss in occlusal contour are recorded in a computerized program. The data is analyzed by superimposing 'before' and 'after' images using a mathematical fitting routine. Results indicated a gradual loss of material, with the majority of it happening during the first 6 months with an average loss of 29.6 μm and a standard deviation of 9.4 μm . The values for the two years in most of the cases are near double the first 6 months. The profiling-digitizing method provides a systematic approach and more importantly a quantitative value.

R- 005 **Effects of Processing Conditions on Properties of an Interpenetrating Phase Ceramic.** R.A. Ortiz Rodríguez, R. Giordano. Boston University Goldman, School of Dentistry.

The aim of this investigation was to compare the biaxial flexural strength of resin infused feldspathic porcelain mixture blocks processed at different pressures. The importance of this investigation was to obtain a precise processing condition that clearly improves the properties

of porcelain used to fabricate ceramic crowns. Thirtyeight specimens were made by compressing 6.50 gm of feldspathic porcelain mixture into a cylinder (with a diameter of 14.6mm and a length of 23mm). The specimens were sintered in a belt furnace at different temperature at different speeds. The blocks were infiltrated with a silane solution, achieved by the intrusion of the solution into the interior of the porcelain block through capillary action and then infiltrated with resin under vacuum pressure. The resin used was a 50:50 mixture of a Diurethane dimethacrylate and Tri (ethylene glycol) dimethacrylate 95%, with a .3 weight % Benzoyl Peroxide. The blocks were sealed in polyethylene bags with excess resin and heat cured under pressure, at pressures ranging from 10ksi to 20ksi (2830psi-5650psi). After curing, they were sectioned with a precision saw, into five slices with thicknesses of approximately 1.5 mm and diameters of 14.6 mm. Each slice of the different blocks was individually tested for biaxial flexural strength using the Instron 4202 (with a load of 1 kN). The biaxial flexural strengths of the specimens tested were essentially in the same range, with only about a 5% difference between the highest and lowest values of strength. We conclude that the effect of pressure on the porcelain is statistically insignificant.

R- 006 **Long Term Effects in OVX Female Mice Reproductive-Related Behaviors During Withdrawal of Anabolic Androgenic Steroids.** A. Díaz-Meléndez¹, J. Parrilla², J.C. Jorge³, J.L. Barreto-Estrada³. Natural Sciences Department, University of Puerto Rico, Rio Piedras Campus.

It is clear that exposure to anabolic androgenic steroids (AAS) are known to disrupt endocrine function and alters sexual behavior. Previous experiments done by our group have shown that the sex partner greatly influence the sexual response of AAS-exposed female mice during a mating encounter. However, these studies were performed in gonadally-intact female mice. In this study we aimed to establish the effect of AAS in ovariectomized (OVX) primed females when paired with males. Females were ovariectomized and systemically exposed to 17 α -945;-methyltestosterone (7.5 mg/kg) for two weeks. Sexual encounters between pair of animals were allowed after the first week of AAS withdrawal for 10 minutes. Parameters related to sexual behavior were scored. We found that males displayed a significant decrease in the frequency of mounts to AAS-exposed females, when compared to mating encounters with control females. Moreover, we found a tendency to decrease in the lordosis

strength of AAS-exposed females when allowed to mate with a male. The behavior of females under androgen exposure was accompanied by a significant increase in the number of aggressive related behaviors. A modulation in the lordotic response of AAS -exposed females was observed. Anogenital investigations were not affected. Our experiments suggest that AAS effects in reproductive behavior 1) is not a direct consequence of endocrine disruption and 2) have a long term effect as observed during sexual encounters after AAS withdrawal. Supported by MBRS-RISE (GM61838), (1R25-GM066250), RCMi (G12RR03051), NIH-MRISP (MH048190) and NCRR-NIH (P20RR016470). R006.

R-007 Do the Anabolic Androgenic Steroids 17 α -945; -methyltestosterone and Nandrolone Affect ETOH Consumption in Adult and Pubertal Mice?. N. Rodríguez¹, A.J. Suarez¹, J. Parilla², J. Barreto-Estrada², J.C. Jorge³. Natural Sciences Department, University of Puerto Rico.

Alcohol addiction is a progressive chronic disease, considered to be a major social and medical problem throughout the world. Initiation of alcohol and anabolic androgenic steroids (AAS) use during the adolescence has unique consequences on the development of addiction in adulthood. In this study we have compared ethanol consumption between adult and pubertal male mice respectively, and we also hypothesize that AAS misuse can modulate the consumption of other drug abuse substances such as ethanol. C57B1/6 mice were systemically exposed to 17- α -945; methyltestosterone or nandrolone (7.5mg/kg) and administered for a two-week period through an osmotic pump. During the second week of AAS exposure the mice were given the choice to drink from a bottle with water or ethanol solution (two-bottle test). Animals were exposed to an increasing concentration of ETOH (2%-4%-8%-12%) and during the 3 week withdrawal period the mice were again exposed to the two-bottle test with 12% of ethanol. We observed a significant increase in 4%, 8%, and 12% ethanol consumption between adults and pubertal animals. This same trend was observed at all three withdrawal trials. We showed no evident data in this study to determine whether AAS tested adult and pubertal mice affect the

ethanol consumption but it is suggested that ethanol consumption in pubertal mice will have a long term effect as adults. Support for this research provided by MBRS-RISE (GM61838), (1R25-GM06625-01A2), NIH-COBRE (RR15565), RCMi (G12RR03051) NIH-MRISP (MH048190), NCRR-NIH (P20RR016470).

R-008 Serotonin Modulates Dendritic Calcium Influx in a Subpopulation of Spinal Interneurons of the Mammalian Locomotor Network. M. Díaz-Ríos, D.A. Dombeck, W.W. Webb, R. Harris-Warrick Department of Anatomy, School of Medicine.

Commissural interneurons (CINs) help coordinate the left-right alternating bursting activity indicative of locomotion in the mouse spinal cord. Serotonin appears to play an active role in the induction of fictive locomotion in the isolated spinal cord, but the cellular targets and mechanisms of its actions are not understood. We investigated the possible role of 5-HT in modifying the locomotor network via modulation of dendritic calcium currents. Using a combination of two-photon microscopy and the patch clamp technique, we studied identified CINs located in the upper lumbar region of the neonatal mouse spinal cord. A calcium sensitive indicator dye (calcium green dextran) was introduced through the patch pipette to measure the dendritic fluorescence response, at specific regions within the dendrites of CINs. We found that 5-HT evoked significant reductions in dendritic calcium influx in approximately 40% of the CINs studied. We also detected differential effects of 5-HT at different hot spots within the dendritic arbor of the same neuron; 5-HT could decrease voltage-sensitive calcium influx at one site, with no effect at a nearby site. The 5-HT-evoked decreases in dendritic calcium influx were coupled with increases in neuronal excitability and input resistance of CINs. Voltage clamp studies on CINs suggest a 5-HT-evoked reduction of calcium currents leading to a reduction in calcium-activated potassium currents as a possible mechanism explaining these results. These experiments suggest that dendritic calcium currents may be targets of 5-HT modulation during fictive locomotion in the neonatal mouse.

- R- 009** **Transcriptional Activation of ISRGs but not Cytokines Genes after Primary Infection of Rhesus Macaques with Dengue Virus Type1.** C.A. Sariol*, L. Rosado, P. Pantoja, K. Abel, L. Giavedoni, I.V. Rodriguez, L. White, M. Martínez, J. Muñoz-Jordan, T. Arana, E. Kraiselburd. Unit of Comparison Medicine, School of Medicine.

Although dengue is the second most important tropical, viral disease, the mechanisms of dengue virus-induced immune responses and pathology are poorly understood. Possible mechanisms include antibody-dependent enhancement (ADE), cytokine-mediated immunopathology, and virus strain virulence. To better understand dengue virus pathogenesis, four rhesus macaques were infected with D1 (WP74) and two were mock infected. Serum samples were collected on days one, three and five after infection. Cytokines were measured using these samples. B cells and macrophages were isolated by magnetic beads from PBMC obtained 5 days post infection. Real time PCR was performed with these samples. Micro array RNA analysis was done using rhesus macaques Gene Chips Arrays. During primary dengue virus infection a dramatic induction of innate immune responses was observed. Upregulation of IFN-stimulated response genes (ISRGs) was not followed by the concurrent increase of interferon expression. Rhesus macaques did not show an increase of transcriptional activity of either Th1 (i.e., IL12, IL-2) or Th2 (IL10, IL4, IL6) cytokine genes nor of TNFA/TNFB genes. A low level transcriptional activity of IL-10 and IL8 genes was detected. These data reveals key components of the innate immune response developed during primary dengue virus infection.

- R- 010** **Effect of Cytokines on the Expression of the Insulin Receptor in Peripheral Blood Mononuclear Cells.** L. Del Valle, A. Schwartz, E. Fernández-Repollet. Department of Pharmacology, School of Medicine.

Several cytokines have been involved in the pathogenesis of diabetes mellitus. Important roles for IL-2, IL-4, IL-6, IL-10, IFN- α -947; and TNF- α -945; had been identified during the development and progression of this disease. Since cytokine levels are typically too low in freshly-prepared cells as well as in unstimulated peripheral blood, T lymphocytes in vitro mitogen stimulation is required to induce cytokine gene expression. Well known stimulants, phorbol myristate acetate (PMA) and Ionomycin (Iono)

are used. In order to evaluate the effects of cytokines on the expression of insulin receptor, 1×10^6 peripheral blood mononuclear cells (PBMC's) were cultured in RPMI medium containing different concentrations of PMA (10-30ng/ml) and Iono (0.2-2 μ g/ml). After 24 hours of incubation at 37°C, the cells were centrifuged and the supernatant was collected and analyzed using a Human Th1/Th2 Cytokine Cytometric Bead Array-II Kit (BD Biosciences) and flow cytometry techniques. Our initial data demonstrate changes in the concentrations of selected cytokines (IL-2, IL-4, IL-6, IL-10, IFN- α -947; and TNF- α -945;) after exposition of PBMC's to different concentrations of PMA and Iono. A direct correlation between the mitogen concentration and cytokine expression was also obtained. In conclusion, this preliminary data demonstrate that PMA and Iono stimulate the secretion of selected cytokines from PBMC's after a 24 hour period. Further studies are being conducted to correlate the profile of secreted cytokines with the expression of the insulin receptor on these cells. This work is supported in part by NIH Grants No.G12-RR-03051.

- R- 011** **Identification of CD4+ T-Cell Epitopes from Fasciola Hepatica 11.5k a Saposin-like Protein, A Vaccine Candidate.** A.M. Espino*, D. Torres, C. Jiménez, J. Quetell, A. Morales, B. Delgado, A. Department of Microbiology, School of Medicine.

Osuna The protein termed FhSAP-2 is a novel F. hepatica antigen expressed at early stage of infection. A previous vaccination study demonstrated that FhSAP-2 induces in rabbits significant levels of protection to a live challenge infection with F. hepatica metacercariae. A structural analysis of FhSAP-2 has shown that it contains 6 conserved cysteine residues arranged within 5 amphipathic α -945;-helical domains and 7 hydrophobic residues at positions strictly conserved that might form T-cells epitopes. In this study we mapped the CD4+ T-cell epitopes using a panel of 18-overlapping peptides that encompassed the full-length 101 amino acids of FhSAP-2. The capacity of peptides of inducing Th1 and Th2 response in vitro was measured using cell proliferation assay, cytokine assays, flow cytometry and isotyping of antibodies in peptide-sensitized BALB/c mice. The results showed the presence of five continuous T-cell epitopes spanning amino acid residues 16SFDVPSKQT25, 26IDIDIDLCDICTNTMDV40, 41IKKMLADQTVEEHIG55, 71CIEFVQQEVD80, 81YIDHVDQHN90. Peptides containing residues 16-25; 41-55 and 81-90 drove the highest levels of IL-4 as well as

of IgE and IgG1 antibodies. Peptides containing residues 26-40 and 71-80 drove the highest levels of IFN α -947; and IL-2 as well as the highest levels of IgG2 antibodies. Therefore, it was considered that residues 26-40 and 71-80 are functional Th1-type epitopes. Th1 epitopes could be useful for the development of effective vaccines which can trigger acquired immunity against *F. hepatica*.

R- 012
Optimization of the Expression in E. Coli of a Member of the Fasciola Hepatica Ferritin-like Protein Family using Two Different Expression Vectors. J. Quetell, F. Rivera, A.M. Espino. Department of Microbiology, School of Medicine.

F. hepatica is the causative agent of liver fluke disease or fascioliasis. The disease, which primarily infects sheep and cattle, results in a global annual economic loss of approximately 3 billion dollars. We recently identified the cDNA encoding a polypeptide of 158-amino acid residues, which exhibit a high structural homology with several ferritin-like proteins from different origin. For this reason this novel polypeptide of 21kDa was termed FhFrr. Because during its migration through liver parenchyma *F. hepatica* feed of blood, this molecule may be essential for parasite's metabolism and its survival into the mammalian host. A vaccine directed to block Fe-transporter protein could kill the parasite before establishment in the bile ducts. Therefore, it could constitute an important target for developing of a vaccine against *F. hepatica*. Herein we describe the optimization of expression of FhFrr in *E. coli* using two different systems of expression, which constitute a fundamental step before the purification of this protein be accomplished. One of the expression systems is the Glutathione S-Transferase (GST) Gene Fusion System, which is an integrated system for the expression and purification of GST-fusion proteins. Another is a system based on the pBAD/His plasmids, which is designed for regulated of dose-dependant (His)₆-fusion protein expression. We described the optimal conditions of temperature, size of inoculums and aeration that made possible the expression of this protein in soluble form or in form of body inclusions.

R- 013
Analysis of the Ephexin Expression and the Possible Role on SCI. O.R. Rosas, J.D. Figueroa, A.I. Torrado, J. D. Miranda. Department of Physiology, School of Medicine.

The central nervous system has the capacity to regenerate, but the microenvironment generated after spinal cord injury (SCI) is repulsive. We know that this occurs because the presence of the inhibitory factors in the CNS. One example of the inhibitory molecules is the Eph receptors and their ligands the Ephrins. Once they are activated, they mediate alteration in the cytoskeleton thru the protein Ephexin, a member of the family of guanine nucleotide exchange factor. When Eph receptors are not activated by Ephrins, Ephexin catalyzes guanine nucleotide exchange for RhoA, Cdc42 and Rac1. However, when the Eph receptor activation takes place, Ephexin preferentially activates RhoA. RhoA stimulates actin-myosin contractility and stress fiber formation resulting in growth cone collapse. At the moment, is unknown about the function of the Ephexin protein after SCI. To determine the role of this protein after trauma, laminectomy at thoracic level (T10) were performed, followed by a contusion using the NYU impactor device. Preliminary studies, using real time PCR, in our laboratory, demonstrated an up-regulation of Ephexin-mRNA at 7 days post-injury (DPI). At 14 DPI returned to basal levels, but at more chronic stage (28 DPI) mRNA levels were down-regulated by 2 folds. Now, we are trying to identify the temporal profile of Ephexin, at the protein level, using the Western Blot analysis after SCI. Future experiments, will include the identification of the regions in the spinal cord that express the Ephexin protein and also the cell phenotype that express it. Supported by SNRP (NS39405), SCORE (2SO66M8224), and RCMI (G12RR03051).

R- 014
Stress Interacts with Testosterone to Modulate Cocaine-induced Locomotor Sensitization. R. Menéndez-Delmeestre, A.C. Segarra. RISE, Deanship for Academic Affairs.

Previous studies have shown that sex steroids modulate cocaine-induced locomotor activity. Estrogen increases cocaine-induced locomotor activity in the female rat, however, the role of testosterone is still unclear. This study was designed to investigate the role of testosterone in cocaine-induced behavioral sensitization. Adult male rats (300-320g) were gonadectomized, half received empty (GDX) implants and the other half received testosterone propionate filled (GDX-T) implants. A week later, basal locomotor activity was measured. A daily cocaine (15

mg/kg) or saline (0.9%) injection was given for five consecutive days, followed by a 14 day drug-free period. On day 20, all animals received a cocaine injection, resulting in GDX and GDX-T animals exposed acutely or chronically to cocaine. GDX-T animals exposed chronically to cocaine sensitized by day 5 but the sensitization did not persist after the withdrawal period. GDX animals exposed chronically to cocaine did not sensitize by day 5 due to the high locomotor activity on day 1 of injection. This is opposite to previous results obtained in the laboratory, and could be explained by the heat stress these animals suffered during delivery, which resulted in the death of 6 animals. These results suggest that the effect of stress on cocaine-induced locomotor activity may depend on plasma testosterone levels.

R- 015
Identification of B Cell Epitopes from the House Dust Mite *Blomia Tropicalis*. K. de Jesús¹, F. López-Malpica², A.M. Díaz¹. UPR 1School of Medicine Department of Microbiology; and UPR 2School of Medicine Department of Internal Medicine.

Blo t 1, an allergen from *Blomia tropicalis* (Bt), plays a major role as a triggering factor for asthma and allergies. The aim of this study is to evaluate the IgE response to rBlo t 1 and the peptides derived from its sequence to identify its B cell epitopes. Eleven synthetic peptides corresponding to the deduced amino acid sequence of Blo t 1 were synthesized. Peptides α -945; and α -946; has a similar distribution α -945; helix (aa 50-56) and α -946; sheet (aa 151-156) motifs as human cathepsin L. Peripheral blood was obtained from adult patients of asthma, and/or allergic rhinitis and positive skin prick test to mite extracts. Sera from individuals with negative skin prick test to mite were used as negative control. The identification of IgE epitopes was performed by ELISA using rBlo t 1 and human serum. ELISA inhibition was performed by prior overnight adsorption of sera with 200 μ g/ml of peptide. The results show that peptides α -945; and α -946; are strong inhibitors of the binding of IgE to rBlo t 1, therefore representing B cell epitopes from the protein Blo t 1. The lack of inhibition by peptide 1 (N-terminal aa), peptide 4 (middle portion of the molecule) show that these regions from Blo t 1 does not have important IgE epitopes. Results from inhibition by peptide 9 shows that C-terminal aa from Blo 1 may have significant IgE epitopes. Although the human IgE antibodies are shown to be polyclonal, this study reveal that only limited portions of Blo t 1 were

recognized by antibodies. This study was approved by IRB and sponsored by EARDA, MBRS-SCORE and the Biomedical Sciences Associate Deanship from the School of Medicine.

R- 016
Differential Expression of 5HT Receptors in the CNS of the Prawn in the Context of Agonistic Behavior. D. Reyes, N. Vázquez, N.M. Rivera, E.A. Ruiz, A. Kohn, L. Moroz, M.A. Sosa. Department of Anatomy, School of Medicine & Institute of Neurobiology, UPR RCM, Department of Social Sciences, UPR Cayey, UF Whitney Marine Biosciences Laboratory.

The freshwater prawn is a tropical crustacean whose adults progress through three morphotypes that correspond to levels in a hierarchy of dominance. Males with small claws (SC) are submissive, followed by more aggressive yellow clawed males (YC), and ultimately by the most dominant blue clawed males (BC). We wish to understand the role played by biogenic amines in the mechanisms underlying aggressive behavior and the establishment of dominance hierarchies. We have cloned two prawn serotonin receptors and have used real-time PCR to compare their relative expression in the CNS of the three male morphotypes. The 5HTmac1 receptor is 380 amino acids long and shows highest homology to lobster, crayfish and black tiger shrimp 5HT receptors. The 5HTmac2 receptor is 752 amino acids long and showed highest homology to a lobster 5HT receptor, and more distant relationships with insect 5HT receptors. In thoracic ganglia, the SC showed significantly higher expression of both receptors as compared with BC and YC. In abdominal ganglia, higher expression of both receptors was observed in BC as compared to YC and SC. No significant differences were observed in the brain. These results are consistent with the idea that 5TH receptors may play different roles in different regions of the CNS and at different growth stages. High levels of 5HT receptors in SC may be the starting point in a system designed to allow recording of interactive experiences as the animal navigates its social environment. Supported by: NIH/MBRS S06GM008224, NIH/MRISP MH48190, NIH/RCMI G12RR03051, NIH R01 NS39103.

R- 017 **Cloning, Distribution and Differential Expression of a Tyramine/Octopamine Receptor in the Central Nervous System of the Freshwater Prawn in the Context of Agonistic Behavior.** N.Vázquez, D. Reyes, N.M. Rivera, E.A. Ruiz, A.B. Kohn, L. Moroz, M.A. Sosa. Department of Anatomy, UPR School of Medicine & Institute of Neurobiology, UPR RCM, Department of Social Sciences, UPR Cayey, UF Whitney Laboratory for Marine Biosciences.

The freshwater prawn *M. rosenbergii* is a tropical crustacean with characteristics similar to the lobster and crayfish. Adult males develop through three morphological types (small [SC], yellow [YC] and blue claws [BC]). Each morphotype represents a level in the dominance hierarchy of a group, BC males being the most dominant. We are interested in understanding the role played by biogenic amines in the mechanisms underlying aggressive behavior and the establishment of dominance hierarchies in this type of prawn. We have cloned and sequenced a prawn Tyr/Oct receptor (Tyrmac1) and determined its distribution in the CNS. This receptor is 458 amino acids long and is most homologous (64%) to the Oct receptor of the tobacco budworm, and is closely related to other insect Tyr/Oct receptors. Tyrmac1 receptor immunoreactivity was observed as extensive punctate staining within the neuropil and on the membrane of groups of neurons in all ganglia throughout the CNS. Results from real-time PCR experiments showed the Tyrmac1 receptor is more highly expressed in thoracic ganglia of SC males as compared with the BC and YC males, with a similar trend being observed in the brain. No significant difference in expression was observed in abdominal ganglia. These results may be indicative of a relationship between receptor expression and the mechanism underlying the regulation of submissive behavior and the determination of social status. Supported by: NIH/MBRS S06GM008224, NIH/MRISP MH48190, NIH/RCMI G12RR03051, NIH R01 NS39103

R- 018 **Immunohistochemical Evidence for the Expression and Distribution of the Neuropeptide Y Y4 Receptor in the Circadian System of a Diurnal Rodent.** M. Silva, V. Cartagena, N. Lugo. Department of Anatomy, School of Medicine.

Internal time-keeping is controlled by the circadian system. The master clock in mammals resides in the suprachiasmatic nucleus (SCN) of the hypothalamus. Over thirty neuroactive substances have been reported in the circadian system. Neuropeptide Y (NPY) is implicated in the phase shifting of circadian rhythms in the SCN, and also is involved in the regulation of a broad range of homeostatic functions. NPY may activate different subtypes of receptors. Five subtypes have been identified in rat: Y1, Y2, Y4, Y5, and Y6. We used immunohistochemistry to study Y4 receptor expression and distribution throughout the brain of a diurnal mammal, the thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*), with special emphasis on the SCN. Our results show that Y4 receptors are numerous in the SCN, cerebral cortex, preoptic nucleus, nucleus of the stria terminalis, supraoptic nucleus and lateral septal nucleus. The pattern of labeling indicated that most Y4 receptors are located on neuronal cell bodies. In the SCN, neurons displaying Y4 receptors are located in regions previously shown to receive projections from NPY+ cells of the intergeniculate leaflet. The number of neurons exhibiting Y4 receptors decreased from rostral to caudal in the SCN. Neurons with Y4 receptors were also observed throughout the hypothalamus, suggesting possible involvement in control of appetite, sleep and emotions. (Supported by NIMH-MRISP MH-48190.)

R- 019 **Evaluation of Ephrin Ligands Expression after Spinal Cord Injury.** L.C. Arocho, J.D. Figueroa, A.I. Torrado, J.D. Miranda. Department of Physiology, School of Medicine.

Trauma to the spinal cord results in the production of a repulsive environment that inhibits the regeneration of axons. Spinal cord injury triggers the re-expression of inhibitory molecules, such as EphA, that contribute to the impediment of axonal outgrowth. During development, Eph receptors interact with their ligands, the ephrins (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. Based on the evidence that their conjugate EphA receptors are upregulated after injury, it is our interest to study ephrin expression and

their role after SCI as possible regulators of axon regeneration. We hypothesize that ephrin ligands are upregulated after SCI, contributing to the development of a repulsive environment for axonal growth. 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. Results show the presence of ephrin ligands in spinal cord of Sprague Dawley rats. Real Time – PCR studies demonstrate an upregulation of ephrin A1 mRNA and no change of ephrin A2 mRNA levels two days post injury (n=2). To further elucidate the role of ephrin ligands at the mRNA level, their expression profile will be monitored at 4, 7, 14, and 28 days after injury. Also we will include ephrins A3 and A5 in our RT-PCR studies. This study is sponsored by RISE, SNRP, MBRS-SCORE and RCMI.

RAS Inhibition is More Effective than Beta-blockade in Preventing Dilated Cardiomyopathy in the Syrian Cardiomyopathic Hamster (SCH).

R- 020 N. Cruz¹, L. Rosario², E. Arroyo², F. Peña², R. Calderón², L. Báez², J. Vázquez², N. Escobales¹, and M.J. Crespo¹. Departments of ¹Physiology, UPR-School of Medicine, and ²Biology, UPR-Rio Piedras. PO Box 365067. San Juan, Puerto Rico 00936.

Heart failure (HF) is a debilitating disease that involves, in the compensation phase, activation of the renin-angiotensin (RAS) and adrenergic systems. These endocrine compensations, however, lead to worsening of the condition. To evaluate the role of these systems on the development of dilated cardiomyopathy, we treated 1-month-old SCH with enalapril (25mg/kg/d) plus losartan (10mg/kg/d) or carvedilol (1 mg/kg/d) for 5 months. Left ventricular end diastolic- and systolic- volumes (LVEDV and LVESV), ejection fraction (EF), and left ventricular posterior wall thickness (LVPWT) were determined by echocardiography. Results indicate that LVEDV and LVESV decreased 30% and 62%, respectively (P<0.05) during RAS blockade, while EF increased 42% (P<0.05). By contrast, carvedilol only reduced LVESV by 28%

(P<0.05) and increased EF by 18% (P<0.05). While beta-blockade did not prevent posterior wall thickness reduction, RAS inhibition maintained normal wall thickness (0.11 ± 0.01 cm). These results suggest that early suppression of RAS is more effective than beta-blockade in preventing the development of cardiomyopathy in this animal model. Supported by a grant from NIH (2 SO6 GM08224) and RISE Program.

Chronic Administration of Carvedilol Improves Cardiac Function in 6-month-old Syrian Cardiomyopathic Hamsters.

R- 021 L. Rosario², N. Cruz¹, F. Peña², E. Arroyo², R. Calderón², L. Báez², J. Vázquez², and M.J. Crespo¹. Departments of ¹Physiology, UPR-School of Medicine, and ²Biology, UPR-Rio Piedras. POBox 365067. San Juan, Puerto Rico 00936.

Heart failure (HF) is a multifactorial disease that has been linked to activation of the sympathetic system. Beta-blockers improve the status of HF patients, but the precise mechanisms remain unclear. This study evaluates the effect of carvedilol (1mg/kg/day) on cardiac function of 2- and 6-month-old cardiomyopathic hamsters (SCH) after 1 and 5 months of treatment with the drug. Systolic blood pressure (SBP), left ventricular end-systolic and -diastolic volumes (LVESV, LVEDV), ejection fraction (EF), cardiac output index (COI), heart rate (HR), and posterior wall thickness (LVPWT) were evaluated. In 2-month-old SCH, carvedilol reduced SBP from 108 ± 3 to 77 ± 3 mmHg, (n=5, P<0.05). At this stage, cardiac parameters in SCH were similar to those of controls and were not affected by the drug. In 6-month-old SCH, carvedilol decreased SBP from 102± 4 to 90 ± 3 mmHg (n=5, P<0.05), HR (from 363±14 to 324±14 bpm, n=5, P<0.05), and LVESV (from 0.18±0.01 to 0.13±0.01 ml/100 g BW, n=5, P<0.05), and increased EF and COI by 14%, and 23% respectively (n=5, P<0.05). The drug did not modify LVEDV and LVPWT. Carvedilol significantly improves cardiac function in 6-month-old SCH, but it does not fully prevent ventricular dilatation. Thus, overactivation of the sympathetic system is not likely to be a determining factor in the etiology of dilated cardiomyopathy in this animal model. Supported by NIH Grant 2 SO6 GM08224 MBRS-SCORE and RISE Program.

Plexin-B1 Signaling in Endothelial Cells Induces Formation of Focal Adhesion Complexes and Stress Fiber Polymerization: a role for Pyk2.

R- 022 L. Negrón, J. Basile, J. Silvio. School of Dentistry.

Gutkind Angiogenesis is the growth and development of new blood vessels associated with tumor progression and metastasis. Head and Neck Squamous Cell Carcinoma (HNSCC) is involved in signaling to preexisting nearby blood vessels to maintain tumor growth. Semaphorin 4D is a signaling protein that regulates cell motility, axonal growth guidance, directional migration, and chemotaxis and together with several factors, tumor progression. Plexin B-1 has been shown to be the receptor for Semaphorin 4D and important in HNSCC progression. Plexin-B1, which is devoid of intrinsic tyrosine kinase activity, activates Pyk2, which is an essential signaling component, along with integrins in the pro-angiogenic process observed intumor growth. A standard PCR for Pyk2 was conducted to obtain this protein for amplification, using EcoRI/NotI and ScaI as our selected restriction enzymes for cloning into the expression vector pCMV. The diagnostic digestions for pCEFL CFP Pyk2 and pCEFL HA Pyk2, both demonstrated the existence of the insert and transfection into 293T cells yielded positive Western Blot expression. Immunofluorescence results suggested that Sema4D treatment of endothelial cells induces stress fiber polymerization and formation of focal adhesion complexes containing paxillin. Additional experiments should be done to show that Pyk2 represents an important part of the focal adhesion signaling complex and is important in endothelial cell migration observed HNSCC-induced angiogenesis.

Characterization of *Lucina pectinata* Hemoglobin III Gene And cDNA-Derived Amino Acid Sequence.

R- 023 L. Rivera, J. López, C. L. Cadilla. Department of Biochemistry, University of Puerto Rico, Sciences Medical Campus and Department of Chemistry, University of Puerto Rico, Mayaguez Campus.

Lucina pectinata is a mollusk that inhabits in the sulfide-rich sediments off the coast of Puerto Rico. The ctenidias of *L. pectinata* express three hemoglobins (HbI, HbII, HbIII) with different physico-chemical properties. In this study, we describe the characterization of the hemoglobin III cDNA of *L. pectinata*. An initial 342-bp cDNA clone encoding 114 amino acid residues of Hb III was amplified from total RNA by reverse transcriptase-polymerase chain reaction (RT-PCR) using degenerative oligonucleotides.

This cDNA clone confirmed the sequence reported in the PIR database with a difference of a single amino acid (asn72 instead of asp72). Gene-specific primers derived from the Hb III-partial cDNA sequence were used for obtaining the 5' and 3' ends of the cDNA by RACE. Three variants with differences in the length of the 5' UTR were isolated. We estimate that the length of the 3' UTR is 171 bases and the 5' UTR may vary in length from 117 to 45 bases. The sequence of one of these putative HbIII mRNAs was determined by end to end RT-PCRs. The 5' RACE results suggest the presence of mRNAs similar to that for HbIII in this clam. We used the genome walking method, with the DNA Walking Speedup kit (Seegene) to obtain information about unknown sequences (introns) adjacent to known sequences (exons in the cDNA). Our data confirm the presence of introns after 2nd base of the codon codifying to Asp33 (B12.2) and before Asp110 (G7). The presence of additional introns needs to be evaluated. This research was funded in part by NCCR RCMI grant G12RR03051 and MBRS RISE grant R25GM61838.

Perinatal Stress Alters the Behavioral Response to Cocaine

R- 024 N. Lugo-Escobar, G. Alvarado, R. Medina, C. Luque, A.C. Segarra Department of Physiology, School of Medicine.

Recent studies suggest an association between childhood stress and a greater propensity to develop addictive behavior. However, few studies have examined if early environmental enrichment affects subsequent behavioral responsivity to drugs of abuse. In this study, we investigated if an enriched environment during prenatal and postnatal development alters motivational aspects of addictive behavior in juvenile males and females rats. Pregnant Sprague Dawley rats were housed in a non-enriched, normal housing, or enriched environment. At birth, pups were housed in the same environment as their mothers. At PD 24, pups were weaned and subjected to a daily injection of saline or cocaine (15 mg/kg,i.p.) for 5 days, followed by 7 drug free days. A challenge injection of saline or cocaine (15 mg/kg,i.p.) was given on day 13. Locomotor activity was recorded on days 1, 5, and 13. An enriched environment during both prenatal and early postnatal development decreases behavioral sensitization to cocaine in male and females rats. Plasma corticosterone levels were measured to determine if differences in response to cocaine between the groups were due stress. This data suggest that environmental enrichment during perinatal development modulates the propensity to develop addictive behavior later in life.

R-025
Expression Changes of P2Y2 and P2Y6 Nucleotide Receptors. J.O. García, Y. Angleró, A.Cruz, E.E Aquino, F.A. González, W.I. Silva. Department of Physiology, School of Medicine.

Nucleotide receptors, which are activated by ATP, UTP and their metabolites, can induce a diversity of physiological responses in most tissues. Numerous studies provide evidence for roles of nucleotide signaling in the nervous system. Nevertheless, little is known about nucleotide receptors function during glial differentiation. Using C6 glioma cells as model system, we studied the expression of four P2Y receptor subtypes: P2Y1, P2Y2, P2Y6, and P2Y12, during cellular differentiation. A nucleotide receptors time course analysis was prepared using real-time RT-PCR and immunoblotting. In addition, sucrose density gradient cells fractionation with Na₂CO₃ was executed for P2Y2 and P2Y6. Also, laser scanning confocal microscopy was utilized to determine the P2Y receptors expression. Time course analysis results indicate that P2Y2 receptors are gradually down-regulated opposed to P2Y6 which shows a slightly up-regulation during cell differentiation into an astrocyte-like phenotype. P2Y2 and P2Y6 receptors were detected between fractions 3-5, which are characterized to be caveolar microdomains fractions. Indirect immunofluorescence analysis of P2Y2 receptors and caveolin-1 in undifferentiated cells shows co-localization of them in plasmalemma caveolae; a result confirmed using C6 glioma cells transfected with a cav1-EGFP chimera. Differential pattern of nucleotide receptors expression may be correlated to astrogliosis process observed during physiological and pathophysiological responses in the nervous system. Supported by NIH GM08102, NIH SCORE GM08224, and NIHRISE GM61838.

R-026
Multiplicity of Expression of FXYD Proteins in Mammalian Cells. S. Specht 2, E. Arystarkhova 1, C. Donnet1, A. Muñoz-Matta 2 Department of Physiology, School of Medicine.

Functional properties of Na,K-ATPase can be modified by association with FXYD proteins, expressed in a tissue-specific manner. Here we show that expression of FXYDs in cell lines does not necessarily parallel the expression pattern of FXYDs in the tissue(s) the cells originate from. FXYD1 was abundant in renal cell lines of proximal tubule origin (NRK-52E, LLC-PK1, and OK cells). Authenticity of FXYD1 as a part of Na,K-ATPase in NRK-52E cells was demonstrated by copurification, coimmuno-precipitation

and co-localization. Induction of FXYD2 by hypertonicity (500 mOsm with NaCl for 48 h or adaptation to 700 mOsm) correlated with down-regulation of FXYD1 at mRNA and protein levels. The response to hypertonicity entailed first, dephosphorylation of FXYD1 at Ser 68 (1-5 hours), and second, induction of FXYD2a and decrease in FXYD1 with longer exposure. FXYD1 was completely replaced with FXYD2a in cells adapted to 700 mOsm and showed a significantly decreased sodium affinity. Thus dephosphorylation of FXYD1 followed by exchange of regulatory subunits is utilized to make a smooth transition of properties of Na,K-ATPase. We also observed expression of mRNA for multiple FXYDs in the human neuroblastoma SH-SY5Y. Expression was responsive to physiologic stimuli. The data imply that FXYDs are obligatory rather than auxiliary components of Na,K-ATPase, and their interchangeability underlies responses of Na,KATPase to cellular stress. Supported in part by grants HL036271 and NS45083 (KJS), DK443351 (CSIBD for EA), G12RR03051 and G11HD046326 (SC).

R-027
BDNF Silencing by RNAi Reduces the Survival Effect of FGF-2 Treatment After Axotomy of Retinal Ganglion Cells M. Duprey-Díaz, I. Soto, J.M. Blagburn and R.E. Blanco. Institute of Neurobiology, Deanship for Academic Affairs.

We have previously shown that application of basic fibroblast growth factor (FGF-2) to the optic nerve after axotomy promotes the survival of retinal ganglion cells (RGCs) in the frog, *Rana pipiens*. The purpose of this study was to investigate if FGF-2 application to the optic nerve has long term effects on BDNF and TrkB expression that could account for its survival effect after axotomy. In situ hybridization and real time PCR were performed to assess the changes in expression of BDNF and TrkB mRNAs over this long-term survival period. To prevent the upregulation of BDNF in RGCs, siRNA was applied to the optic nerve after axotomy. In retinas the optic nerves of which were treated with FGF-2, a large increase in the number of BDNF-immunopositive RGCs was observed 6 weeks after axotomy compared to the retinas with PBS-treated nerves. FGF-2 application to the nerve increased the staining intensity of both BDNF and TrkB in RGCs. In situ hybridization of the retinas showed that the changes in BDNF mRNA were mainly observed in RGCs and that the intensity of staining was increased in retinas with FGF-2-treated nerves. Real time PCR showed that siRNA blocked the upregulation of BDNF caused by FGF 2 application after axotomy. Ganglion cell survival at six weeks was also reduced. Our results suggest that FGF-2

treatment prolongs the upregulation of BDNF in frog RGCs after axotomy during the period of optic nerve regeneration. The upregulation of BDNF clearly plays an important role in the survival and regenerative capabilities of frog RGCs. This work was supported by NIH grant S06 GM008224.

R- 028
Relationship Between Weight Status, Demographic Characteristics, Chronic Diseases and Chronic Diseases Risk Factors, Among Female Patients Seen at the OB-GYN Clinic of the Center of Excellence in Women's Health of the Medical Sciences Campus of the University of Puerto Rico. I. Angleró, R. Touger-Decker, L. Byham-Gray, J. O'Sullivan-Maillet, P. Rothpletz-Puglia, M. Department of Graduated Programs, School of Health Professions.

Wien Objectives: To develop a profile of the health status of women seen at the Obstetric and Gynecologic Clinic of the Center of Excellence in Women's Health, from April 1 to June 2, 2006. To discuss the relationship between weight status and demographic characteristics, chronic diseases and chronic disease risk factors. Study design: A retrospective exploratory study using unduplicated medical records of 203 subjects to document weight, height, BMI, age, exercise habits, smoking history, laboratory values blood pressure values and chronic diseases diagnoses recorded. Results: Subjects overweight/obese were significantly older (t value = -2.316, p=0.022), with a mean age of 51.79 years. The mean weight was 154.96 pounds (median = 149.75, SD = 37.74, range = 84-289 pounds) and mean BMI was 27.20 (median = 25.85, SD = 6.60, range = 13.96-54.29). Those with type 2 diagnosis (n=16) were significantly more likely (t test value = -2.294, p=0.023) and those with hypertension (n=46) were significantly more likely (t test value = -2.091, p=0.038) to have a higher BMI than those without the diagnoses. The subjects who were overweight/obese (n=119) had a significantly higher systolic (t test value = -5.793, p=0.000) and diastolic pressure (t test value = -5.542, p=0.000) than the under/normal weight subjects. Conclusion: The findings demonstrate the prevalence of overweight / obesity in the sample and its relationship with chronic diseases. The need to document height and weight, laboratory and blood pressure values, is underscored due to the high incidence of overweight and obesity and diagnoses of chronic diseases found in the Clinic.

Outcomes of a Community Pharmacy Based Asthma Demonstration Program. W. Marrero 1; H.A. Monsanto 2. 1 Department of Pharmacy Practice, School of Pharmacy, University of Puerto Rico; 2 Medical Department, Merck, Sharp & Dohme (I.A.) Corp, Carolina, Puerto Rico.

R- 029

The objective of this program was to establish a community pharmacy-based pharmaceutical care model to serve patients with asthma and evaluate its impact patient outcomes. A practitioner-educator model was implemented whereby the School of Pharmacy assigned a clinical pharmacy faculty member to a community pharmacy which provided the resources to establish the program. The process of care was based on guidelines published by NAEPP which consists of several visits to the practitioner for assessment and follow-up. Patients with diagnosis of persistent asthma confirmed by physician who were actively using a short-acting bronchodilator qualified for the program. Fourteen patients were enrolled in the program. Seven patients completed the program. Patients made an average of 10.6 visits to the pharmacist. All asthma symptoms (cough, wheezing, chest tightness, shortness of breath, activity level, waking up at night) improved from baseline. Average number of asthma attacks, medications, absences from work/school and episodes of sleeplessness also went down from baseline. There were improvements in asthma-related quality of life for all dimensions from baseline to the 2nd administration of the Asthma Quality of Life Questionnaire (short version) but not to the 3rd administration. Although patient knowledge about asthma did not improve over the study period, there were improvements in the minimum score and less variability in the scores among participants. In conclusion, a pharmacist conducted asthma care program is effective in improving clinical and humanistic outcomes.

Most Common Post Operative Emergency Complications of Bariatric Surgery Patients. O. Corujo-Vázquez, M. Sahai, J.A. González-Sánchez, Emergency Medicine Department, UPR School of Medicine.

R- 030

Morbid obesity prevalence is reaching epidemic proportions. Long term weight loss can be achieved by bariatric surgery. This surgery also has a positive impact in the reduction of obesity related comorbid conditions. The purpose of this study is to determine the most common post operative emergency complications of

bariatric surgery patients. This retrospective study was performed in the UPR Hospital in Carolina. Patients with the diagnosis of morbid obesity that had bariatric surgery as treatment were identified. 283 patients met the criteria. Personal information and pre op BMI from these patients was collected. An experimental group of patients was selected that had record of a visit to the Emergency Department(ED) after the surgery. This pool of patient records was further evaluated. These data was statistically analyzed with the SPSS Program. Although the same profile of gender and BMI was obtained between the population that had the surgery and the sample that visited the ED, the group of patients between 50-59 years old was more likely to visit the ED. No correlation was found between a longer post operative length of stay and an increased probability of visiting the ED. Of the population, 5% had to visit the ED within a three month period. The most common post operative complications were: Abdominal Pain (46.2%), Emesis (38.5%), and Dehydration (30.8%). Other less frequent complications were nausea, DVT, pneumonia, dizziness, gastritis, infected wound and upper GI bleeding. Major post-operative complications were due to non-compliant patients and in most cases were avoidable. Minor complications are due to surgery perse.

R- 031
Toll-like Receptor 9 (TLR-9) Polymorphisms and CARD15/NOD-2 Mutations in Hispanics with Crohn's Disease. F. Gregory, R.E. Mera, P.J. Nieves, E.A. Torres, University of Puerto Rico School of Medicine, San Juan PR Ling Mei, H. Yang, K. Taylor, J. Rotter. Cedars-Sinai Medical Center, Department of Internal Medicine , School of Medicine.

Los Angeles, California Crohn's disease CD exhibits phenotypic heterogeneity. NOD2/CARD15 was the first novel susceptibility gene described for CD. Thus, the importance of the innate immune genes in the development of CD is indicated. TLR-9 is a toll-like intracellular receptor that recognizes muramyl dipeptide motifs derived from bacterial peptidoglycan, acts on the innate mucosal response and controls the immune response to bacterial infections. The aim of this study was to evaluate the association of CARD15 and other innate immune genes including TLR-2, 4, and 9 and CARD 8 with CD and describe possible phenotypic associations within CD patients. We report here preliminary results for CARD15 and TLR-9. 113 CD patients and 107 ethnically matched controls were recruited. Variants of CARD15 and TLR 9 were genotyped and evaluated for association with CD

and disease behavior, location and IBD-related surgery. The presence of at least one CARD15 variant was observed in 18.7% of CD as compared to 9.4% of controls $p=0.049$. The presence of any CARD15 mutation was borderline positively associated with small bowel disease $p=0.06$ and negatively associated with perianal involvement 4% vs 34.7%, $P=0.0001$. An allele of TLR9-2848A/G was more frequent in subjects with CD related surgery than those without surgery (54% vs 35%, $p=0.007$). CARD15 was found to be more prevalent in CD as compared to ethnically matched controls. The association of variants of both CARD15 and TLR-9 with specific disease behavior or location supports the influence of genetic variants on clinical expression of the disease. Supported by grants: NIDDK U01DK62413 RCRII-IP20RR11126.

R- 032
Recombinant Human Granulocyte-Macrophage Colony Stimulating Factor as an Alternative Therapy for Fistulizing Crohn's Disease. P. Magno, C.E. Jiménez, Z. Ortiz, E.A. Torres. Department of Gastroenterology , School of Medicine.

The management of patients with fistulizing Crohn's Disease(CD) remains a clinical challenge. Studies have suggested that treatment of CD patients with recombinant human granulocyte-macrophage colony stimulating factor(rhGM-CSF) may attenuate severity of CD and may induce disease remission. We evaluated the safety and effectiveness of sargramostim, a rhGM-CSF in CD patients with fistulizing disease who have not responded to conventional therapy or who have developed adverse events to infliximab. CD patients with any presentation of fistulizing disease, diagnosed by standard clinical, endoscopic, radiological and histological criteria with an incomplete response to first line therapy and/or history of adverse events from infliximab therapy were enrolled. Sargramostim, 6 $\mu\text{g}/\text{kg}$ subcutaneously was prescribed daily for eight weeks. Biochemical, hematological, and clinical side effects were monitored. Three patients were recruited at the UPR IBD outpatient clinic. Two patients completed treatment and one had early termination after a delayed hypersensitivity reaction. There was no clinical or radiological evidence of improvement of fistulizing disease in any patient. No other major clinical, hematological or metabolic side effects were noted. Sargramostim therapy was ineffective in our three patients with active fistulizing CD who have failed or are intolerant to conventional medical therapy. A larger, placebo-controlled study with particular attention to patients with fistulizing CD should be

performed, perhaps with sargramostim as first-line therapy. This study was approved by our institutional IRB and supported with grant from Berlex, Inc.

Risk Factors Associated with Development of Necrotizing Enterocolitis in Very Low Birth Weight

R- 033 **Infants.** N. Claudio, N. Vélez, L. García, I. García, J. Rivera, M. Valcarcel. Department of Pediatrics, Neonatology Section, School of Medicine.

Necrotizing enterocolitis (NEC) is the most common gastrointestinal medical and/or surgical emergency occurring in neonates. Although NEC may develop in low-risk newborns, most cases occur in premature patients with very low birth weight (VLBW). Objective: To analyze risk factors associated with development of NEC in VLBW infants. Methods: We included all VLBW infants admitted to the neonatal intensive care unit from January 1999 until December 2003. The data was obtained through medical record review. Results: A total of 877 patients were included in the study. Forty two percent (42%) developed NEC, of which 71.6% had stage I (early NEC), 17.6% had stage II, and 10.8% stage III (perforated NEC). The risk factors associated with stage II and stage III of NEC are lower gestational age ($p=0.0004$), absence of trophic feedings ($p=0.0016$), lower 5-minute APGAR Score ($p=0.0001$); gram-negative sepsis ($p=0.022$), fungal sepsis ($p=0.014$), and respiratory distress syndrome (RDS) ($p=0.0148$). No association was found with birth weight, age when feedings were begun, male sex, patent ductus arteriosus, use of indomethacin, and method of feedings (bolus versus drip). Infants with early stages of NEC were more likely to survive ($p=0.0000$). Conclusions: This study confirms previous findings reported in literature showing lower gestational age, lower APGAR Scores, and complications such as RDS as increasing the risk of development of NEC in VLBW infants. Enforced measures of infection control and manipulation of enteric micro flora with the use of probiotics in VLBW infants may be of impact in reducing occurrence of NEC.

Effect of Sucrose on Urease Activity in Plaque and Saliva. E. Toro*, N. Gonzales, C. Rivera-Miranda, A. Elias-Boneta, E. Morou-Bermúdez. University of Puerto Rico School of Dentistry and University of Puerto Rico Clinical Research Center, San Juan, PR.

R- 034

Purpose: Urease activity in plaque and saliva generates ammonia and it is believed to inhibit caries formation. The purpose of this study was to determine whether the levels of urease activity in plaque and in saliva of children increase in vivo following sucrose exposure. Methods: Dental plaque and saliva samples were collected from 20 children ages 4 to 12 years during fasting and 30 min following rinsing with a 10% sucrose solution. Urease activity levels were measured using a biochemical assay. Caries levels were measured using Fiber-Optic Trans-Illumination (FOTI) with Ekstrand's visual criteria. Results: a significant increase in plaque urease activity after sugar exposure was observed only in subjects with baseline urease activity levels $\alpha-8804; 4.0$ micromoles urea/min/mg protein ($P=0.011$), while salivary urease activity increased mostly in subjects with baseline urease levels $\alpha-8804; 0.2$ micromoles urea/min/mg protein ($P=0.069$). The percent difference in salivary urease activity between the pre- and post rinse values showed a negative correlation with baseline values ($\rho=-0.56, P=0.012$). No significant correlation was found between caries levels and the percent difference in urease activity of either plaque or saliva. Conclusions: The results of this study suggest that children with low baseline urease levels are more likely to experience an increase in urease levels during a cariogenic challenge. This may reflect differences in the depth of acidification caused by the sucrose solution in subjects with different baseline urease activity levels. These observations support a role for urease activity as a natural caries inhibiting mechanism.

Prospective Study on Single Versus Combination Antibiotic Therapy for the Treatment of Pandrug Resistant Acinetobacter Baumannii Infections. M.M. González-Ramos, J. Bertran-Pasarell, C. Sánchez-Sergenton, R. Amador-Miranda. Department of Internal Medicine, School of Medicine.

R- 035

The incidence of nosocomial infections secondary to *Acinetobacter baumannii* has been increasing in many hospital settings. Its potential to develop resistance to currently available antibiotics has frequently led to the

use of polymyxin B (PB) as the only option for treatment. Animal models indicate that PB in combination with imipenem (IMP) and rifampin (RIF) can have a synergistic effect. The purpose was to evaluate if combination therapy with PB/IMP or with PB/IMP/RIF was superior to single therapy with PB for the treatment of infections caused by pan-drug resistant *A. baumannii* (PDRAB). This is a prospective, on-going, randomized, open label study. Patients enrolled had pneumonia, bacteremia, UTI, or CNS infection secondary to PDRAB. Patients were randomized to receive single therapy (PB), double therapy (PB/IMP), or triple therapy (PB/IMP/RIF). Eighteen patients enrolled: 8 with bacteremia, 6 with pneumonia, 3 with UTI, and 1 with CNS infection. Age ranged between 19 and 81 years; 56% were males. Therapy was discontinued in 3 patients due to serious side-effects or change in antibiotic treatment. From the remaining 15 patients: 4 received single therapy with PB, 5 received PB/IMP, and 6 received PB/IMP/RIF. Survival at the 28th day was evidenced in 3 of 4 patients (75%) from the PB group, 3 of 5 patients (60%) from the PB/IMP group, and in 3 of 6 patients (50%) from the PB/IMP/RIF group. Although this series might not be large enough, preliminary results suggest that response to double or triple therapy against PDRAB is not superior to single therapy with PB.

R-036 Evaluation of Distribution, Risk Factors, Antifungal Therapy, and Outcome in *Candida* spp Blood Cultures from Puerto Rico Medical Center from May 2005 to April 2006. A. Conde, J. Bertrán-Pasarell, H.M. Guiot University Hospital, School of Medicine.

Nosocomial bloodstream infections are an important cause of morbidity and mortality in hospitalized patients. In our institution, Puerto Rico Medical Center, its distribution specially candidemia has not been documented. The purpose of this study is to evaluate retrospectively our center *Candida* spp distribution and a subgroup of adult patients with candidemia to determine risk factors, antifungal therapy, and outcome. Yeast reported blood culture from May 2005 to April 2006 were analyzed and record reviewed. The data evidenced 227 blood cultures reported as yeast representing 90 patients. The identification of yeast reported blood culture revealed that *C.parapsilosis* was the most common specie with 46% follow by *C.albicans* with 30%, also General Medicine ward had 30% of the cases. The records from those 90 patients were requested but only 28 records from the adult portion were obtained. Record review evidenced an

average age of 56.25, average APACHE score of 15.36, average quantity of antibiotics 4.9, average days from admission to positive culture 20.9. Most common associated factors were central catheter (75%), foley (64%), and mechanical ventilation (75%). Antifungal therapy was also observed: 43% received suboptimal therapy and 50% required change in antifungal therapy. 64% (16/28) of evaluated case has death as outcome, of those 10 received suboptimal therapy and 12 received fluconazole as therapy. 36% (12/28) were discharged home stable, of those 7 received optimal therapy and 7 received fluconazole as therapy, 4/7 required change to other antifungal agent.

R-037 MTHFR Mutations in Children with Congenital Heart Disease and Their Mothers. G. Leavitt¹, L. García¹, I. García¹, S. Arce¹, J. Renta², C.L. Cadilla². UPR School of Medicine, Department of Pediatrics, Neonatology Section and the Department of Biochemistry. San Juan, PR.

The role of folic acid in the prevention of congenital heart disease (CHD) has been proposed by its association to the C677T mutation in the methylenetetrahydrofolate reductase (MTHFR) gene. Some studies have reported a reduced incidence of CHD with maternal periconceptional use of multivitamins. The objective of this study is to identify common mutations in the MTHFR gene in children with CHD and their mothers. Methods: Children with an isolated structural CHD receiving medical care at the University Pediatric Hospital were included in this study. Exclusion criteria included children with CHD associated to genetic syndromes. Exclusion criteria for mothers included diabetes, use of antiepileptic drugs, and conditions associated with food intolerance. The DNA analysis for the most common mutation in the MTHFR gene (677 C α -8594;T) was performed using PCR amplification of the affected region and restriction enzyme digestion. To compare the proportion of the genetic mutations Pearson chi-square was used. Results: The study group included 25 mothers, 27 affected children, and 110 controls. The prevalence of the TT mutation was higher in mothers (24%) than in controls (8.4%) (p=0.0241). Homozygosity for the TT mutation was observed in 15% of the affected children. Conclusions: The higher prevalence of this mutation in mothers of children with CHD confirms the possible role of folic acid in the prevention of CHD. Due to the relation of this enzyme to folate metabolism, current folate recommendations for women in childbearing age in Puerto Rico to reduce neural tube defects may need to be extended to the prevention of CHD.

R-038 **Descriptive Study of Hepatotoxicity Associated with Highly Active Antiretroviral Therapy in Pediatric Patients.** J.A. Rojas, K Torres. Pharm D, School of Medicine.

Hepatotoxicity associated with highly active antiretroviral therapy (HAART) is a well described phenomenon, and it has been reported to range from 2% to 18%. There is limited information however, on its incidence in our pediatric HIV infected patients. The objective of our study was to describe the incidence hepatic toxicity related to highly active antiretroviral therapy in pediatric patients with AIDS. A retrospective medical record review was performed of patients receiving HAART at the Pediatric AIDS Clinic of the Medical Sciences Campus, UPR. Alanine aminotransferase and aspartate aminotransferase levels were recorded, and The National Institute for Allergy and Infectious Diseases Division of AIDS criteria was utilized for defining hepatotoxicity and its severity (grade 1-4) in children. Seventy-six records of patients who were receiving HAART were evaluated. The age of the patients ranged from 1 yr to 21 yrs, and there were 40 boys and 36 girls. HAART associated hepatotoxicity was observed in 33 (43.4%) patients. Grade 1 hepatotoxicity was the most commonly manifested, and it was developed by 30 of 76 patients, or 39.5% of all patients evaluated, and it represents 90.9% of all patients who developed liver enzyme elevations. One patient developed grade 2 hepatotoxicity, one grade 3 and one grade 4 hepatotoxicity. These results suggest that the incidence of hepatotoxicity in these HIV infected pediatric patients is relatively high compared to that reported in the literature, and the most frequent type is Grade 1.

R-039 **Platelet Count as a Predictive Factor of HIV associated Cognitive Impairment.** R. Juarbe¹, R. Mayo¹, R. Hechavarría^{1,2}, E. Maldonado¹, L. Meléndez^{1,3}, A. Nath⁴, V. Wojna^{1,5}. ¹NeuroAIDS SNRP, Departments of ²Physical and Rehabilitation Medicine, ³Microbiology, ⁵Internal Medicine, Neurology Section, UPR, MSC, San Juan, PR and ⁴Department of Neurology, Johns Hopkins University, Baltimore, MD.

HIV infection may present with hematologic manifestations such as thrombocytopenia. Anemia was associated with HIV dementia in the pre-HAART era. Recently SIV CNS disease was shown to be associated with a decline in platelets. The purpose of this study is to evaluate the correlation of platelet count and cognitive function in HIV-positive women. We evaluated 64 women

from our Longitudinal Cohort who signed an IRB approved informed consent; 30 HIV-positive and 34 controls. Cognitive impairment was determined using the Memorial Sloan Kettering Scale (MSK). Hemoglobin and platelet counts of the first 3 visits were analyzed. Statistical analysis included parametric and no parametric tests. The HIV-positive group was stratified according to the MSK into stable MSK 0.5 (n=12), stable MSK α -8805;1 (n=12), and chronic active group (n=6) defined as MSK progression from 0 to 0.5. The HIV-positive women mean (SD) age 37 (6.5), CD4 count 339.32 (202.11), log plasma viral load 3.17 (1.10), and CSF viral load 2.06 (0.61). The control group mean age was 34 (6.9). No significant differences were observed between hemoglobin or platelets counts among HIV-positive women stratified by cognitive function and controls. We observed a correlation between lower hemoglobin and higher plasma viral load (p=.022) and a significant difference in platelet count at visit 3 among women with MSK 0.5 and those with chronic active disease being lower in the later group (p=.037). Platelet count decline could be a predictive biomarker for the development of HIV-associated cognitive impairment. NIH: S11NS046278, U54NS43011, P20RR11126.

R-040 **Fungal Corneal Ulcers among Contact Lens Users in Puerto Rico.** H. Mayol, C. Santos, L. Rivera, A. Guardiola, J. Santiago, E. Camacho. Department of Ophthalmology, School of Medicine.

Purpose: To analyze 33 patients who developed Fusarium corneal ulcers related to soft contact lenses use. Method: Questionnaires were filled out by 33 patients who contracted corneal ulcers while wearing contact lenses and had cultures taken, from October, 2005 to July, 2006, to identify risk factors involved. Results: Twenty two of the ulcers were culture positive for Fusarium, 1 for Aspergillus, 1 for Penicillium and 9 had no growth. All patients were clinically treated as fungal ulcers with topical, systemic, intracorneal and intraocular antifungal agents as necessary. 27 of the patients reported to be using ReNu MoistureLoc® and 6 said to be using ReNu Multiplus® when they developed the symptoms. All of the treated ulcers were cured and not one eye needed enucleation or evisceration. There was not a single patient who developed posterior segment involvement and should recover good vision after surgery. Conclusions: An association with a particular brand of contact lens cleaning solution was associated with the increase in keratitis caused by fungi but mostly Fusarium species.

R- 041 Rhabdoid Tumor of the Kidney Presenting in a Child with Renal Agenesis. K.L. Rivera-Roman, M.S. Correa-Rivas. Department of Pathology, School of Medicine.

Rhabdoid tumor of the kidney is a highly aggressive tumor presenting early in infancy with a poor survival rate. We present the case of an 11-month-old girl with multiple congenital anomalies and normal karyotype who presented with gross hematuria since 8 months old prior to her hospital admission. Abdominopelvic computerized tomography scan and renal sonogram showed an absent right kidney and an echogenic, heterogenous mass in the upper pole of the left kidney. The patient was taken to surgery and a total nephrectomy was performed. The pathologic diagnosis was that of a rhabdoid tumor. We discuss the clinicopathologic presentation of this rare highly malignant tumor of infancy and childhood.

R- 042 Post Traumatic Stress Disorder in Children: Two Cases Reports. G.A. Franco Yambó, K.G. Martínez. D Child Psychiatric Program, School of Medicine.

Post Traumatic Stress Disorder is a common psychiatric condition in childhood and adolescence. PTSD's clinical presentation in childhood is extraordinarily heterogeneous. The 2 cases that I will present have been diagnosed with PTSD, but their clinical presentation is different. The 1st case is a 10 year-old boy that presents the features of PTSD described in Diagnostic and Statistical Manual of Mental Disorders- IV TR. He was exposed to an accident 6 months ago, he suffered electrical burns in both retina without loss of vision. After the trauma, the boy has been presenting intrusive memories, flashbacks, recurrent nightmares, refusal to discuss the trauma, inability to recall important aspects, diminished interest in activities, sleep disturbance and irritability. He receive psychotherapy and pharmacotherapy with a SSRI's and an atypical antipsychotic. The other case is a 7 years old boy patient who suffered physical abuse, negligence, and a suspicion of sexual abuse by his mother. He presents irritability, temper tantrums, regressive behavior, aggressiveness and sleep disturbances. Multiple medications have been tried in appropriate doses but symptoms have persisted. Actually his treatment consists of psychotherapy and pharmacotherapy with an adrenergic agonist, and an atypical antipsychotic. Diagnosis of PTSD in children is a challenge, because this disorder could present with a variety of symptoms and manifestations. Reevaluation of diagnostic criteria for PTSD should be done with the purpose of incorporate new criteria for PTSD in the next DSM.

R- 043 Cerebellar Syndromes in HIV infected Patients: New Manifestations of the HAART era. A Case Report. J. Arias¹, J. Rivera², D. Santiago², A. Ortiz², V. Wojna³. School of Medicine¹, and Department of Internal Medicine² and Neurology Section³, University of Puerto Rico, Medical Sciences Campus.

A typical presentations of opportunistic CNS infections are seen with increasing frequency in the HIV-infected population. Neurological disorders in these patients may turn out to be diagnostic and therapeutic challenges. We describe the case of a 37 year-old woman diagnosed with HIV 14 years ago who complained of dysarthria and gait unbalance since two weeks prior to evaluation. She discontinued antiretroviral therapy (HAART) one year ago and referred a recent CD4 T-lymphocyte count of 22. Her physical examination revealed nystagmus, wide-based gait, right hand disidiadochokinesia and dysmetria. Cognitive function was normal. Brain MRI showed a non enhancing single right cerebellar lesion without mass effect. Despite reinstatement of HAART, the patient developed progressive gait ataxia over the next two weeks. Follow up brain MRI showed interval changes of the lesion associated edema. Progressive Multifocal Encephalopathy (PML) was confirmed by JC virus PCR analysis. The patient was discharged home on her previous antiretroviral regimen with scheduled outpatient follow up. This is a rare case of PML infection showing exclusive involvement of the cerebellum. Alternative diagnoses must be excluded early in the course of illness through serologic and CSF studies. PCR analysis is crucial, especially when the biopsy of the lesion is not feasible. Worsening of clinical and radiological findings after institution of HAART suggested the possibility of an over imposed immune reconstitution inflammatory syndrome (IRIS). Although corticosteroids have been used, their role in the management of IRIS remains controversial.

R- 044 Prolactinoma with Extensive Amyloid Deposits: A Case Report. M. Rivera*, L. Jiménez†, S. Ferrá*, L. Colón*, E. Carro†. From the Departments of *Pathology and Laboratory Medicine and †Neurosurgery, University of Puerto Rico, Medical Sciences Campus, San Juan, Puerto Rico.

Prolactinomas are among the most common adenomas of the pituitary gland and have been thoroughly characterized. Prolactinomas with extensive spherical

amyloid deposition are rare and few cases have been reported. We present the case of a 48 year old man with a two month history of progressive blurred vision. Physical examination revealed a left homonymous hemianopsia. Laboratory studies were remarkable for hyperprolactinemia (prolactin levels 16,980 ng/ml) and magnetic resonance imaging (MRI) revealed a mass arising from the pituitary gland that compressed the optic chiasm. After treatment with Parlodel® for three months, prolactin levels decreased but there was no improvement in the clinical or imaging findings and a right fronto-temporal craniotomy with microsurgical subtotal resection of the tumor was performed without complications. The light microscopy, immunohistochemical, and electron microscopy characteristics of the tumor are discussed and a review of the literature is performed. To our knowledge, this is the first case of a prolactinoma with extensive amyloid deposition reported at our Institution.

R- 045
Anti-U in a Sickle Cell Trait Pregnant Patient: Case Report. M. García¹, C. Climent¹, I. Vázquez², A.N. Moctezuma². Department of Pathology and Laboratory Medicine, University of Puerto Rico, Medical Sciences Campus¹ and Clinical Laboratory ASEM².

A 32-year old black female with sickle cell trait, G2P1A0, is admitted to the hospital for labor. She had a 39 week gestational age, no prenatal care and no history of systemic illness, intravenous drug abuse or previous transfusions. Her hemoglobin was 13.8 g/dL. As part of her pre surgical protocol, a type and screen was ordered. The patient was group B, Rh negative with a positive indirect antibody test. The antibody reacted with all the reagent cells of the panel except autologous cells, indicating the presence of an alloantibody against a high frequency RBC antigen. The phenotype of the patient was significant for S-s-. At this time anti-U was suspected and the sample was sent to a reference laboratory that confirmed anti-U specificity. The baby RBC's phenotype was identical to the mother and the direct antiglobulin test was negative, excluding the possibility of hemolytic disease of newborn. Anti-U is a rare red blood cell antibody that has been found exclusively in blacks. The U antigen belongs to the MNS complex system of over 40 antigens carried on two glycoprotein molecules. The antibodies to S, s and U antigens are capable of causing hemolytic transfusion reactions and hemolytic disease of the newborn. Red cells that lack S and s may be negative for a high incidence antigen U, and persons

who lack U make anti-U after sensitization. The frequency of S-s-U- phenotype among black population is less than 1% and has not been described in Caucasians. Whenever an antibody against a high frequency RBC antigen is identified on black pregnant women, anti-U must be rule-out.

R- 046
Precursor T cell Lymphoblastic Lymphoma Presenting Clinically as Meningitis. M. García¹, Román Vélez¹, G. Colón². Department of Pathology and Laboratory Medicine, University of Puerto Rico, Medical Sciences Campus¹ and Department of Hematology and Oncology, University Pediatric Hospital².

Lymphoma is the third most common childhood malignancy, and non-Hodgkin lymphoma (NHL) accounts for approximately 7% of cancers in children. Precursor T-Lymphoblastic Lymphoma (PTLL) represents one third of pediatric NHL and comprises 85-90% of lymphoblastic lymphomas. It typically presents with high leukocyte count and a large mediastinal mass. Pleural effusions are common. We present a case of a 4 year old male with history of bronchial asthma that was admitted due to persistent headache and vomiting. Physical examination revealed cervical and axillary lymphadenopathy, respiratory distress, rales and decreased right lung sounds. CT scan and Chest X-ray showed an anterior mediastinal mass with bilateral pleural effusions. Cerebrospinal and pleural fluid samples were positive for blasts. These cells were immunophenotyped by Flow cytometry with positive markers for CD8, CD7, CD3 and CD2 compatible with T cell Lymphoblastic lymphoma/leukemia. This diagnosis was confirmed by immunoperoxidase stains of axillary lymph node biopsy, showing positive staining for the precursor cell marker TdT (terminal deoxynucleotidyl-transferase) as well T cell markers. A bone marrow biopsy performed was negative for lymphomatous involvement and peripheral blood smear revealed no evidence of leukemia. In conclusion, this patient presented with a Stage IV Precursor T-cell Lymphoma with a clinical picture of meningitis due to central nervous system involvement, an unusual presentation for this malignancy.

R- 047
Mature Cystic Teratoma of the Fallopian Tube: Two Case Reports. K.L. Rivera Roman, L. Rivera López, R. Vélez Rosario, M. Marcos Martínez. Department of Pathology, School of Medicine.

Mature cystic teratomas of the ovary make up almost 20% of all ovarian neoplasms, but these tumors are rarely found in the fallopian tube. Only about 50 cases have been reported in the literature to this date and most of them are found incidentally. We present two cases, the first cases to be described in Puerto Rico of fallopian tube teratomas. The first case is of a 71 year old female with a complex right adnexal mass diagnosed by contrast tomography scan who underwent surgery. During an intraoperative consult for the adnexal mass, the pathologic diagnosis of mucinous cystadenoma of the ovary and mature cystic teratoma of the fallopian tube was given. The second case is of a 35 year old female who underwent cesarian section and bilateral salpingo-oophorectomy due to satisfied parity. During surgery, an incidental cyst of the left fallopian tube was identified and resected. The diagnosis of mature cystic teratoma was given. We discuss the clinopathologic presentation of this rare localization of cystic teratoma.

R- 048
Empowerment and Education: Skills for Self-management and Control in Patients with Type 2 Diabetes Mellitus. O. D. Lorenzi-Peña, M. Santiago-Cabrera, R. Pérez-Perdomo. Department of Biostatistics and Epidemiology, Medical Sciences Campus, University of Puerto Rico.

People who learn to manage their diabetes can reduce complications and live a healthier and longer life. The objective of the Diabetes Empowerment Education Program in Puerto Rico (DEEPPR) was to implement and evaluate the effectiveness of an educational program for the self-management and control of diabetes. Type 2 Diabetes Mellitus patients from Loíza and Gurabo health care facilities were eligible. The 4-week educational cycle was carried out in 8 sessions (2 hours each). The curriculum designed by the University of Illinois at Chicago, provides empowerment skills and knowledge about glucose monitoring, exercise, nutrition, complications, medications and psychosocial issues. Pre and post-test data were collected and analyzed to determine the impact of the educational sessions on the health, knowledge, diabetes-related emotional adjustment and lifestyle. Follow up data was collected after 3 months.

Patient recruitment will end by April 2007. A total 34 participants were recruited between December 2005 and June 2006. Based on preliminary findings the age of the participants ranged between 43 and 75 years (mean = 58 ± 9 years) and 79% were females. Glycosylated hemoglobin (HbA1c) test results fluctuated between 7% and 15% (mean = 10 ± 2). About 21% of these patients had hospitalizations related with diabetes. Almost 82% reported high blood pressure and 70% reported hypercholesterolemia. After the end of each educational cycle their knowledge towards diabetes increases by 30% ($p < 0.0001$). Patients reported that the information discussed in the classes will be very useful to their daily life.

R- 049
A Web Enhanced and Ability Based Course on Antimicrobial Pharmacodynamics. W. T. Maldonado, C. Ortiz, A. Castro. School of Pharmacy and Office of Informatics and Educational Resources, Medical Sciences Campus, University of Puerto Rico.

The wealth of information in the healthcare disciplines makes it necessary to facilitate student learning by incorporating web-based strategies and tools. Our objective is to describe the design and implementation of a web enhanced and abilities based course on antimicrobial pharmacodynamics utilizing the Blackboard© platform. The platform was utilized to design the course which is offered to second professional year doctor of pharmacy students. In this course, the students develop the conceptual framework of the pharmacodynamics of antimicrobials and its application to pharmacy. The course also contributes to the development of the problem solving, pharmaceutical care, self-learning, and critical thinking abilities. The course is offered utilizing a combination of classroom activities as well as several online activities. The students have access to a substantial number of bibliographic resources from the current scientific literature which can be accessed in a timely manner, according to the course calendar and topics developed. The evaluation of the course by the students reflects a high degree of satisfaction with the course. The students also agree that the course design contributes to their academic achievement as well as to their technological proficiency. The results suggest that the online course platform utilized in the course represents an additional tool that contributes to the integration of conceptual knowledge from the disciplines with the development of the professional and general abilities. This

project was supported in part by Title V Grant PO31S010027.

R-050
A Research Agenda to Address Oral Health Disparities in Hispanics: An Update. R. Canizares, C. Cacho, F. Ramos Gómez. School of Dentistry, Medical Sciences Campus.

The Hispanic population has become the largest minority group in the United States, resulting in an increase in oral health care demands. Addressing research needs and promoting collaboration on Latino oral health issues is important. The Hispanic Dental Association and the Research Center of the University of Puerto Rico, School of Dentistry, San Juan, convened a workshop of health care providers and other experts to examine the current state of Hispanic oral health research and identify gaps in existing data and research methods. Participants were asked to break out into small groups to discuss research priorities. The literature review discussed in this workshop was updated and focused on social and behavioral determinants. The updated publications were organized in reference tables. The participants discussed the following research areas: population-based studies, social and behavioral sciences, health promotion and communications, gene environment interactions, and research training and workforce development. Participants emphasized the importance of understanding variation among subgroups within the Hispanic population in the development of future studies. Among the most significant findings of the symposium was that collaborative research should focus in behavioral determinants to address the growing oral health needs of the Hispanic population.

R-051
Community Board to Promote Early Detection and Reduce Oral Cancer Incidence in Puerto Rico. P. Del Pilar-Alvarado, M.V. Arroyo-Malavé, C.J. Buxó Martínez, A. Elías-Boneta. Research Center, School of Dentistry, Medical Sciences Campus, University of Puerto Rico.

Puerto Rico has one of the highest incidence and prevalence of oral cancer in the world. In 2002, the Globocan reported a 12.2/100,000 incidence in Puerto Rican men. The lack of information about risk factors, signs and symptoms and few oral cancer screenings shows the need for health promotion in oral cancer prevention and early detection. Regular examinations of the oral cavity are essential for early detection of oral cancerous and precancerous conditions to improve early diagnosis and

for successful treatment. The aim of this board is to promote oral health literacy for early detection in Puerto Ricans. The board was established to highlight the importance of cancer screening and educate the community through mass media campaign to reduce risk behavior (smoking/alcohol). Activities include: creation and distribution of educational materials, establishment of collaborations with agencies and industries, and promotion of regular oral cancer screening. On June 2006, board was constituted by community representatives as an effort from the UPRSD Research Center and NYU: RAAHP Center funded by the U54 from NIDCR. Members were selected by a health educator to represent all segments of the population and is constituted by ex/active smokers, community leaders, patient/survivor of oral cancer, college and high school students. A Professional Advocacy Group was created as consultants including epidemiologists, dentists, health insurance and oral health industry members. Board meets monthly to suggest activities and develop a strategic plan. Recommendations are given semi-annually to an Advisory Board from NYU.

R-052
Validez Predictiva de Criterios de admisión al Programa de Doctorado en Farmacia de la Universidad de Puerto Rico. X. Acevedo, I. Aldarondo, J. Pérez, R. García. Escuela de Farmacia, Universidad de Puerto Rico.

Se analizó la relación de los criterios de admisión al programa de Doctorado en Farmacia de la Escuela de Farmacia de la UPR y la ejecutoria académica (promedio en el primer año profesional) para cuatro grupos de candidatos admitidos (2001 a 2004-n = 177). Se utilizó la metodología estadística de regresión y correlación múltiple. Se encontró el modelo que mejor explica el comportamiento de la variable dependiente ($r^2=0.360$) incluyó el promedio de entrada (GPA), y las puntuaciones de Biología y Química del examen de admisión (PCAT). Se encontró una alta correlación ($r=0.450$, $p < 0.01$) entre estos dos últimos predictores (posible efecto de multicolinealidad) por lo que no puede precisarse la magnitud de su efecto en la variable dependiente, aunque sí es clara la influencia de ambos predictores. Los resultados sugieren el éxito en el primer año profesional se explica por otros factores no incluidos en el estudio. Los hallazgos sobre la significación estadística de las variables estudiadas concuerdan con estudios previos tanto en Puerto Rico como en los Estados Unidos.

Impact of a Health Education and Promotion Course on Pharmacy Students.

R- 053

B. Soto-Torres¹, B. I. Ortíz². ¹Department of Pharma-ceutical and Administrative Sciences; and ²Department of Pharmacy Practice, College of Pharmacy-Ponce, Nova Southeastern University.

There is sufficient evidence-based literature on pharmacists' roles in public health and health promotion. Due to the increased need for public health skills among pharmacists, a new health education and promotion course was developed at a pharmacy college in Ponce, PR. The objective of the study was to evaluate the impact of this new health education and promotion course on pharmacy students. IRB approval was obtained from the Office of Grants and Contracts. A questionnaire was administered to 16 (100% participation) students enrolled in the course. Descriptive analysis was performed using SPSS. Participants had an average age of 25 years. The majority of participants consisted of Hispanic females, had a bachelor's degree, single, in their second year of pharmacy, and identified community pharmacy as their main area of interest for employment after graduation. Participants had an average of 2 years of professional experience. The most and least relevant course topics identified were the Pharmacists' Role in Treatment Adherence and Behavior Change and Grant Writing, respectively. A 7-item satisfaction scale had a coefficient alpha of 0.91. Audiovisual support obtained the highest satisfaction score and instructional approaches the lowest. Most participants reported that the course had prepared them well to design a health education and promotion program. The results suggest that although participants focused their interests in traditional pharmacists' roles instead of public health skills, they felt moderately satisfied with the course and would recommend it to other students. Source of funding: None.

**University of Puerto Rico
Emergency Medicine Program
Impact Throughout the Country.**

R- 054

D.L. Ruiz, B. González, J.A. González-Sánchez. Department of Emergency Medicine, School of Medicine.

Objectives: Determine distribution, job description and board certification status of the UPREMP graduates. **Methods:** A telephone survey of all UPREMP graduates since 1995 to 2005, asking for the following information: practitioner or non practitioner, working place, job description, and board certification status. In cases in which the person can not be reached by phone the last

information available at the EM department was used to fill the survey. Board certification verified with The American Board of Medical Specialist web site. Worksheets were used to organize data and then analyze it statistically with Excel 2003. Results: Of the 83 graduates 65% are males and 35% are women, 64% are board certified, 34% not and 2% pending to take part II. Of the women graduates 75% are board certified meanwhile only 59% of male graduates are board certified. Sixty four percent of the graduates stayed in Puerto Rico and 35% moved to the states. The distribution of graduates among PR districts was as follows: San Juan 21%, Bayamón 17%, Arecibo 0%, Mayaguez 3%, Ponce, 23%, Guayama 5%, Humacao 9% and Carolina 19%. The job description among graduates was: 49% full time Emergency Room Staff, 4% part time ER staff, 27% academic faculty, 10% directors, 1% associate directors, 7% non practitioners. Conclusion: From our study we can conclude that the vast majority of UPREMP stay in PR after graduation however the vast majority work in four of the eight PR senatorial districts. Further studies are needed to determine the reasons that graduates have to move to the states and to work mostly in four PR senatorial districts.

Oral Cancer Self Exam as Preventive and Educational Tool for Oral Cancer in Puerto Rico.

R- 055

C.J. Buxó-Martínez^{1,2}; J.C. Cabrera¹; A. Elías-Boneta¹. ¹Research Center, School of Dentistry, Medical Sciences Campus, University of Puerto Rico; and ²Department of Environmental Health, Graduate School of Public Health, Medical Sciences Campus, University of Puerto Rico.

The incidence of oral cancer in Puerto Rico was 14.7/100,000 for 2002; one of the highest of the world. This type of cancer primarily occurs from exposure to behavioral risk factors such as alcohol, tobacco and a diet low in fruits and vegetables. The aim of this study is to address the need to detect oral cancer in Puerto Rico in early stages of diagnosis using the oral cancer self exam as prevention tool. Volunteer health professionals from the UPRSD Research Center were trained in the oral cancer self exam using educational material. The oral cancer self exam is an evaluation of the oral cavity and soft tissues performed by a person in front of a mirror for five minutes to detect white/red lesions, patches, change in texture/color, and inflammation. The exam is a self evaluation of the head, neck, cheeks, floor of mouth, palate and tongue. An elderly community in Caguas was selected by

convenience for this pilot project to educate them in oral cancer self exam. Dentists evaluated and guided patients to do the exam. Elders were trained by health professionals using oral cancer self exam video and printed educational material of images in different stages and types of lesions. Elders performed the exam and findings agreed with the remarks from Dentists. No oral cancer lesion was detected and the self exam was effectively assimilated in this group. Further interventions in other parts of Puerto Rico are recommended including high risk groups, follow up training, and education to other health professionals.

R- 056
Factors Associated to the Prevalence of Antibodies to Hepatitis C Virus in Chronic Hemodialysis Patients in a Sample of Centers in Puerto Rico, 2005. M. Soto¹, C. Pérez¹, E. Suárez¹, E. Torres², R. Burgos². (1) UPR, Graduate School of Public Health, Department of Biostatistics and Epidemiology; (2) UPR, School of Medicine, Department of Medicine.

Limited information about the epidemiology of hepatitis C virus (HCV) infection is available in chronic hemodialysis (HD) patients in Puerto Rico. We assessed the factors associated to the prevalence of antibodies to HCV (anti-HCV) in a sample of eight dialysis centers in Puerto Rico. A systematic sampling design was employed to select a sample of 150 HD patients 21 years and older during 2005. A total of 110 (81.5%) of 135 eligible patients completed a face to face interview that gathered data on demographics and self-reported risk behaviors followed by a clinical record review. Variables that were marginally or significantly associated with anti-HCV ($p < 0.10$) in the bivariate analyses were considered for inclusion into the multiple logistic regression model to estimate the adjusted prevalence odds ratio (POR). The study protocol was approved by IRB. Bivariate analysis revealed that age (POR=3.65, $p=0.05$), blood transfusions prior to 1992 (POR=5.13, $p=0.05$), tattooing practices (POR=13.29, $p=0.04$), and illegal drug use (POR=4.53, $p=0.01$) were associated with anti-HCV. Multivariate analysis revealed that blood transfusions prior to 1992 (POR=11.05; $p=0.04$) and age (POR=5.40; $p=0.06$) remained significantly associated with anti-HCV after adjusting for tattooing practices, illegal drug use and dialysis center. The present study showed that the profile of risk factors for the HD population was similar to the profile of risk factors reported in the general population. The findings underscore the need for decreasing the spread of HCV in Puerto Rico.

R- 057
Prevalence of Sub-clinical Effects of Mercury Exposure among Electrical Power Generation Workers in Puerto Rico. M. Santiago Cabrera*, R. Pérez-Perdomo*, S. Jiang†, SM Levin†. *University of Puerto Rico, Medical Sciences Campus, Graduate School of Public Health, Department of Biostatistics and Epidemiology; †Mount Sinai School of Medicine.

The objective of this study was to estimate the prevalence of sub-clinical effects of mercury exposure among active and retired workers whose jobs entailed likely exposure to metallic mercury vapor in the electrical power plants in Puerto Rico. Instrument shop workers, laboratory technicians, and operations workers were eligible. A history of prior neurological illness and/or renal disease was obtained. A cutaneous vibration sensitivity assessment, administered by a trained technician utilizing a Vibratron II calibrated instrument, and laboratory testing (blood Hg and urinary α -946;-2-microglobulin) were performed. Two hundred seventy-one workers with a history of employment in jobs tasks entailing likely exposure to mercury vapor underwent evaluation for effects of mercury exposure. The mean vibration sensitivity threshold score among the 165 exposed participants (non-diabetic) was 1.14 vibration units and 0.96 vibration units for the 32 controls ($p=0.04$ by the Wilcoxon Two-Sample Test). Eleven percent of the urine α -946;-2-microglobulin levels exceeded the upper limit of normal (154 $\mu\text{g/L}$), well above the expected 2.5% in the general population. A statistically significant relationship between elevated α -946;-2-microglobulin levels and frank proteinuria was clearly demonstrated. Evidence of sub-clinical neurological and renal dysfunction was detected among workers with a history of occupational exposure to mercury in power plants. Periodic monitoring for early evidence of renal dysfunction, with assays for urinary α -946;-2-microglobulin and total urine protein levels, is warranted among these workers.

R- 058
Attitudes, Beliefs and Dietary Supplement use among Gym-members in Puerto Rico. M.E. Rojas, B.I. Ortiz, B. Soto-Torres. Nova Southeastern University College of Pharmacy-Ponce, P.R., Department of Pharmacy Practice, School of Pharmacy, Nova Southeastern University.

Dietary supplements are widely used to loose weight, enhance athletic performance and increase energy.

Consumer knowledge and awareness about the effectiveness, safety, and misleading claims of dietary supplements remain an important health issue. The purpose of this study was to assess attitudes, beliefs, and the use of dietary supplements among gym members. A convenience sample of adults > 18 years old was surveyed using a validated 29-item questionnaire. Results were analyzed using SPSS V 13. This study was approved by the NSU-IRB. Overall response rate was 70%. The most common types of workout reported: cardiovascular (73%), weight lifting (59%), and strength training (53%). Current use of dietary supplements was reported by 68% and included: vitamins, creatine, glutamine, and chromium picolinate. Among participants, 70% believed that dietary supplements do not have drug interactions, are safe (68%), and effective (58%). Seventy-two percent (72%) reported that they had never requested information about dietary supplements from pharmacists or physicians (57%). Findings suggest a lack of knowledge about dietary supplements in this group. Significant misconceptions and an unsafe level of confidence in the safety, efficacy, and interaction profile of dietary supplements were identified. The fact that healthcare professionals are not considered as the preferred source of information is a matter of concern. As the experts on drugs and related products, pharmacists can play a vital role in the development of educational and assessment plans targeted towards the appropriate use of dietary supplements in this population.

A Case Control Study of Dental Implants in Older Men. M. Martínez, E. Krall, C. Leone. School of Dentistry, Medical Sciences Campus, University of Puerto Rico and Goldman School of Dental Medicine, Epidemiology Division, Boston University.

R- 059

Purpose: Describe the oral and general health of men who have received dental implants and compare them to men without implants. Characteristics were analyzed to determine if men who get implants differ with respect to oral health and hygiene, general health, and health habits. The subjects were men who participate in the Veteran Administration Dental Longitudinal Study, a closed-panel prospective study of oral health and aging. Follow-up data of 766 individuals was revised to identify those with dental implants. After all men with implants were identified, a control group was selected and matched to the implant group on age, teeth remaining, and presence of fixed or removable partial dentures. Dental x-rays of all implants up to the latest dental examination were reviewed

to determine if the implant had remained since placed, had been lost or replaced. The data of the implants group was compared with the data of the control group to determine differences between them. Presence of oral factors evaluated: root canal treatments (RCT), sound teeth, mobility, plaque, calculus, bleeding on probing, pockets >3mm, and any mesial or any distal bone loss >20% at baseline. Results: 10 patients with implants were found for a total of 19 implants. The data with significant values where that of the RCT with a chi-square of 5.762. The odds ratio was 12.0; the possibility of a patient with implants to have RCT is 12 times greater than the controls. Although the odds ratio indicates that the individuals with implants are more susceptible to present the other oral factors analyzed, the values were not statistically significant. NIH/NIDCR DE07268.

Depression in the Elderly: Endocrinologic Conditions as a Risk Factor. J.R. Rodríguez-Gómez, R.J. Rodríguez-Benítez. Department of Geriatric, School of Medicine.

R- 060

The present study funded by an NIH Grant # 1 R24 MD00152-01, explore the relation between depression and endocrinologic conditions, including diabetes mellitus Type 2 (DMT2). Depression is a prevalent clinical condition in the Puerto Rican elderly population (Rodríguez & Alsina, 1994). Endocrinologic conditions became a serious problem within the elderly. The greatest increases in numbers of total cases of diabetes in industrialized countries are occurring among elderly people. This is due to the ageing of the overall population as well as a greater absolute increase in the prevalence of DMT2 among elderly people than among young people. Four hundred and ten (410) Puerto Rican men and women aged 65 years and older constituted the sample. Participants were drawn probabilistically from all the residents in elderly independent living residential housing projects in Puerto Rico. A sociodemographic questionnaire and The Beck Depressive Inventory-II (BDI-II) was administered. The relationship between endocrinological diseases including diabetes and depressive symptomatology was found statistical significant between both of them Chi square (1) = 6.16, p = .01. Moreover, of the 410 research subjects, 99 subjects report that suffer from an endocrinological disease in the last 6 months. Of those, 25.3% (n=25), report depressive symptoms. Using a logistic regression analysis, we found that subjects who present endocrinological problems including have practically, twice the risk, to suffer depressive symptomatology OR = 1.99; IC% (1.14, 3.47)

than persons who do not present endocrinological conditions.

R- 061 **Antimicrobial Resistance Patterns in Bacterial Indicators of Water Quality Isolated from Isla de Cabra Beach in Toa Baja.** V. Cruz-Soto. Graduate School of Public Health, Medical Sciences Campus, University of Puerto Rico and School of Science and Technology, Turabo University.

Epidemiological studies have been used to determine acceptable population density estimates for microbiological indicators of water quality in recreational bodies of water. This according to the increased risk of morbidity by exposure to waters that exceed said standards (α -8805; 200cfu/100ml for fecal coliforms). Still many risks are not accounted for by this standard practice, one such risk is exposure to bacteria that are multidrug resistant (MDR). In our study we determined the antimicrobial resistance patterns (ARP's) of *E. coli* isolates from the Isla de Cabra beach in Toa Baja. Standard membrane filtration with subsequent culture on selective media was used to recover bacteria from water and estimate population density. Isolated colonies that stained gram negative and tested oxidase negative were later identified with the Biolog-Microlog α -61650; ID system. The ARP's were determined for isolates confirmed as *E. coli* with 95-100% ID probability (N=6). Antimicrobial susceptibility was determined by disk diffusion assays for ampicillin, kanamycin, neomycin, streptomycin and vancomycin. Population density estimates for fecal coliforms were reported within limits (α -61500; 200cfu/100ml). All *E. coli* isolates were determined to be MDR. Environmental isolates were: 100% resistant to ampicillin and vancomycin; 50% resistant to kanamycin; 66% resistant to streptomycin and; 33% resistant to neomycin. The fact that MDR bacteria were found in recreational waters meeting water quality standards suggests that additional unaccounted risks are present. Indicators that

incorporate ARP's should be further studied. Funded by IAUPR-CECIA and PR-LSAMP.

R- 062 **Determinación de la Calidad Microbiológica de Aguas Embotelladas de Consumo en Puerto Rico Mediante la Determinación del Contaje Heterotrófico y el Contaje de Coliformes.** Fecales J. Norat, R. Vargas, E. Negrón- Martínez. Graduate School of Public Health.

El consumo de la agua embotellada está aumentando a un ritmo de 15% por año. El objetivo principal de este estudio fue determinar la calidad microbiológica de la agua embotellada de consumo en Puerto Rico. Fueron escogidas 10 marcas de plantas embotelladoras de agua, 5 producidas localmente y 5 del exterior. Se utilizó la técnica de filtración por membrana para medir la concentración de los coliformes fecales y el contaje heterotrófico bacteriano, como indicadores de la calidad microbiológica del agua. Diez lotes distintos de cada marca de agua embotellada fueron analizados usando tres medios de cultivo, para un total de 300 análisis. Los contajes heterotróficos fueron analizados usando dos medios de cultivo diferentes, el medio estándar mHPC y R2A, como medio experimental. La concentración de coliformes fecales fue medida usando mFC. En ninguna de las muestras de agua analizadas se encontró coliformes fecales. El promedio de contaje heterotrófico de las embotelladoras locales fue de 32.2 CFU/100mL mientras que las marcas del exterior arrojaron un promedio de 114.73 CFU/100mL. De estas el contaje más alto obtenido fue de 3,500 CFU/100mL. Al realizar un ANOVA entre los contajes heterotróficos de las 10 marcas se encontró diferencia estadísticamente significativa, entre marcas ($p=0.044$). No se encontró diferencia estadísticamente significativa al comparar los resultados de ambos medios de cultivo, (prueba Hotelling $p=0.903$). La diferencia entre los contajes de las marcas locales y las del exterior puede ser consecuencia de un aumento en el contaje heterotrófico de las marcas del exterior debido a un mayor tiempo de almacenaje.

- R- 063** **La Promoción del Uso del Tren Urbano Entre Usuarios del Recinto de Ciencias Médicas: Determinantes Físicos y Sociales de la Seguridad Peatonal.** M. Bustillo, M. Bonkosky, M. Lebrón, E. Padilla, M.I. Rodríguez, B. Sandoz, G. Santiago, L. Valentín, D. Vázquez. Department of Social Sciences, Graduate School of Public Health.

Este cartel discute cómo la investigación cualitativa y el conocimiento adquirido por medio de ésta puede ser utilizada para guiar la elaboración de estrategias de promoción de una conducta socialmente beneficiosa. Se describe un ejercicio etnográfico llevado a cabo como requisito del curso Ambiente Social de la Unidad de Ciencias Sociales de la Escuela Graduada de Salud Pública. Por espacio de tres meses, se recorrió el entorno público comprendido entre la estación del Centro Médico hasta el edificio principal del RCM con el objetivo de identificar sistemáticamente y describir los determinantes físicos y sociales que intervendrían en la promoción del uso del TU entre docentes, estudiantes y empleados del RCM. De esta manera se pretende reducir la necesidad de estacionamientos, se incentiva la actividad física y, de una vez, se rescatan los espacios sociales que nos circundan. El cartel explora de manera específica los aspectos de seguridad peatonal en el entorno bajo estudio y discute las posibles estrategias modificar los riesgos a accidentes y lesiones.

- R- 064** **Visualization of White Matter Fiber Tract Anatomy by Diffusion Tensor Imaging at 3 Tesla.** E. Colen¹, D. Nieves², A. Algaze^{3, 5}, E. Colón³, V. Wojna¹, 4 ¹NeuroAIDS Program, UPR, MSC, San Juan, PR, ²UPR School of Medicine, Departments of ³Radiology and ⁴Internal Medicine, Neurology Section, UPR, MSC, San Juan, PR and ⁵UPR Bayamón Department of Physics, Bayamón, PR.

Diffusion tensor imaging (DTI) is a magnetic resonance imaging (MRI) technique that can be used to characterize the orientational properties of the diffusion process of water molecules in the brain. DTI is capable of probing the integrity of tissue microstructure by assessing the degree to which water diffusion is restricted by a compartment, measured by a parameter known as "diffusion anisotropy". DTI is also capable of determining the preferential direction of water diffusion. Given that

the mobility of water is restricted along white matter (WM) tracts, DTI permits the generation of WM tract maps. Our aim is to present how DTI permits detailed visualization of WM fiber tracts, provides information regarding fiber direction, allows more detail of tissue microstructure, and how this can be clinically applied. Images were acquired on a 3T MRI using an echo-planar gradient echo sequence, covering the entire brain, and with a resolution of 2.4x1.8x4mm. DTI was successfully implemented, allowing demarcation of WM fiber bundles and generation of diffusion anisotropy measurements. An atlas of the principal WM fiber bundles was constructed. DTI will allow probing WM integrity on a micro scale and investigate its correlation with behavioral and cognitive deficits caused by degenerative diseases. Additionally, WM tractography through DTI has the potential to improve our understanding of WM anatomy and allows investigating the effects of brain lesions and trauma on WM fiber bundles. NIH P20RR11126, S11NS046278, U54NS43011; the UPR, MSC Chancellor's Office; RCM G12-03051; Somascan, Inc., and Philips Medical Systems (MRI).

- R- 065** **Detection of Spatial Fluctuations of Fecal Pollution in Tropical Marine Waters Using PCR-based Assays.** M. Bonkosky¹, B. Sandoz¹, E.A. Hernández-Delgado², Iraida Robledo³, and J. Norat-Ramírez¹. ¹University of Puerto Rico, Medical Sciences Campus, Graduate School of Public Health, Department of Environmental Health; ²University of Puerto Rico, Department of Biology, Coral Reef Research Group, ³UPR-MSC, Microbiology Department.

Fecal contamination of coastal waters is a major cause of concern in tropical countries due to gastrointestinal, ear and respiratory diseases. These are transmitted through direct contact of bathers with recreational coastal waters contaminated with pathogens of fecal origin. Conventional methods used to monitor microbial water quality cannot be used to discriminate between different sources of fecal pollution. Specific *Bacteroides* 16S rDNA PCR-based assays for human (HF183, HF134) and general *Bacteroides-Prevotella* (GB32) were used to test for the presence of specific groups of fecal contaminants across thirteen locations in the western Puerto Rico shelf during June 2005 to June 2006. PCR products were obtained with primers HF183 and GB32. The presence of anaerobic *Bacteroides*-like bacteria in coastal ocean waters (less than 5km offshore), suggests that waters have been

impacted by fecal contamination events. One hundred clones generated with PCR product from primer HF183 were obtained from six different sites (PO, AF, PC, PLOB, PLIB, and PRP) and sequenced to determine the phylogenetic affiliation of PCR products. The sequences of 81 clones were unique and used to develop a phylogenetic tree. Twenty six clones clustered with *B. ovatus* while one was closely related to *B. uniformis*. Both species are normally associated with human feces. These results indicate that Bacteroides PCR-based techniques could be useful tools in the assessment of the spatial trends of fecal pollution sources in tropical marine waters.

R- 066
Factors Influencing Alzheimer Caregivers' Well Being. A. Quiñones; R. Ríos; M.H. Rodríguez; J.N. Caraballo; H. Marín. Behaviorl Science and Research Institute, Dearnship for Accademic Affairs.

Alzheimer is a neurode-generative disease characterized for progressive deterioration of cognitive functions. Up to 16 million will have it by 2050. As the disease progresses the patient requires assistance for personal care. Caregiving is considered a stressful and challenging situation affecting the caregiver's well-being. This study aimed to identify factors influencing informal caregivers' well-being in a Puerto Rican sample using the stress-appraisal model. Data came from a caregivers survey (n= 175) during the 2004 Alzheimer's Caregiver Day. Descriptive, inferential and multivariate analyses were performed including Lineal Regression analysis, Path analysis and Structural Equation Modeling. Caregiver's well-being mean level was moderate (subscales: basic needs mean= 24.9, SD=7.6; Activities of Daily Living scale mean= 24.8, SD=7.7). Primary stressors showed an indirect effect on well-being mediated by caregivers' burden. A perceived strong social support reduces burden. Number of hours providing informal care was inversely related to the use of formal services. Service utilization was a positive predictor of well-being, while burden had a negative effect. In addition, some demographic factors influenced the fulfillment of caregivers' basic needs. Findings suggest the need to consider caregivers' personal characteristics, and availability of services to understand factors influencing their well-being. To improve caregivers' quality of life it is essential to formulate strategies to deal with patients' behavioral problems, as well as to know the barriers of caregivers' services use.

Implementation of Functional Magnetic Resonance Imaging of the Human Brain at 3T. D. Nieves¹, E. Colen² A. Algaze^{3,5}, E. Colón³, V. Wojna^{2,4}. 1UPR School of Medicine, San Juan , PR, 2 NeuroAIDS Program, UPR, MSC, San Juan, PR, Departments of 3 Radiology and 4Internal Medicine, Neurology Section Radiology, UPR, MSC, San Juan, PR and 5UPR Bayamón Department of Physics, Bayamón, PR.

R- 067
Purpose/Background: Functional Magnetic Resonance Imaging (fMRI) relies on the Blood Oxygenation Level Dependent (BOLD) contrast, which detects MRI signal changes due to localized variations in cortical blood oxygenation during the execution of a task. The purpose of this study was to implement the fMRI technique for generating cortical activation maps. Methods: Whole-brain fMRI images were acquired on a 3T MRI scanner using an echo-planar gradient echo sequence with a resolution of 2.9 mm x 2.9 mm x 3 mm. The stimulus paradigm consisted of 4 consecutive "off-on" epochs (30 s "off" and 30 s "on"). The "off" period consisted of rest. During the "on" periods, volunteers were instructed to perform a bilateral self-paced finger tapping as a motor task using an auditory cue. fMRI data were analyzed using the general linear model method. Results/Conclusion: The fMRI technique was successfully implemented. An activation atlas was constructed for the self-paced finger tapping motor task. fMRI provides a noninvasive method for acquiring cortical activation maps, useful for investigating the correlation of cortical activation patterns and disease progression of neurodegenerative illnesses. NIH P20RR11126, S11NS046278, U54NS43011; the UPR, MSC Chancellor's Office; RCM1 G12-03051;, Somascan, Inc., and Philips Medical Systems(MRI).

Immunolocalization of Retinoic Acid Receptors in the Visual System of the Frog Rana Pipiens: Changes after Optic Nerve Injury. W. Rivera, M. Duprey-Díaz and R.E. Blanco. Institute of Neurobiology and Department of Anatomy, Medical Sciences Campus, University of Puerto Rico.

R- 068
Retinoic acid (RA) is an important signaling molecule and mediator of vitamin A function. It is thought to be involved in the regulation of neuronal differentiation and visual pattern formation. The effects of RA are due mostly to the regulation of gene transcription, mediated through

binding to retinoic acid receptors (RARs). The objective of this study is to determine the presence of the subtypes of RARs in the frog visual system and to describe the changes that occur during regeneration. Antibodies for the receptors were tested in retina, optic nerve and optic tectum of control *Rana pipiens* and of experimental animals whose optic nerves has been severed. In control retinas the retinoic acid receptors RAR α -945; and α -946; were present in cells of the INL and GCL. After optic nerve cut, there was a general increase in the immunostaining of all RARs in the regenerating retinas. In the control optic tectum, moderate to low staining for both RAR α -945; and RAR α -946; was present mainly in cells of layers 9, 8, 6, 4, 2 and 1. RAR α -945; and α -946; immunoreactivities were increased in these layers after axotomy and during regeneration. In the control optic nerve, RARs were observed in the optic nerve head proximal to the retina, whereas more intense staining was observed distally. One week after axotomy, there was more RAR immunoreactivity in the nerve stump, particularly near the distal cut end. Nuclear RAR α -945; staining was particularly intense at this time. These results are consistent with the idea that adult visual system neurons may reuse developmental signaling mechanisms in response to axonal injury. This work was supported by NIH grant S06 GM008224.

R- 069
Age dependent Morbidity and Mortality Following a WNV NY99 Strain Infection in Balb/cMiceX, Mercado. Y. Rivera; E. Hunsperger and I. Martínez. Department

of Microbiology, School of Medicine. West Nile virus is a single-stranded RNA flavivirus that causes Dengue-like febrile illness in 20% infected patients and encephalitis or flaccid paralysis in 1% of the cases. Since its introduction in USA on 1999, WNV has caused more than 23,000 human cases. Recently, WNV has spread to Central and South America regions, including Puerto Rico, where WNV specific antibodies were detected in horses and resident birds. However, no human cases have been yet reported in P.R. Therefore, we are interested in studying the effects of sequential DENV and WNV infections in Balb/c mice in order to determine if immune responses against DENV can protect the animals against a WNV challenge. For this purpose, we first need to determine the susceptibility of this mice strain to WNV infection at different ages. Groups of 20 mice at 9, 12 and 15 weeks of age will be inoculated intraperitoneally with WNV. Viral loads in blood and brain were monitored. Antibody responses will also be measured by indirect immunofluorescence and neutralization tests. We

observed that 9-weeks old mice presented high susceptibility to WNV infection, where 20% and 30% of the mice survived for 28 days after inoculation with 103 or 104 pfu of WNV. Morbidity was observed in all the animals before death, including ruffed coat and weight loss, but not paralysis. This result may suggest that the WNV did not reach the brain but this assumption will be corroborated with real time PCR analysis. Results from experiments with older mice (12 and 15 weeks old) will also be presented.

R- 070
Administration of Buprenorphine Does Not Affect Gene Expression and Functional Locomotor Recovery after Spinal Cord Injury. J.M. Santiago, M.M. González, A. Cruz; A. Torrado, P. Kalyan-Masih, W.I. Silva, J.D. Miranda. Dept. Physiology, University of Puerto Rico, Medical Sciences Campus, San Juan Puerto Rico 00936.

Chronic neuropathic pain (CNP) is a common and devastating symptom that affects many spinally injured patients. The presence of CNP demands treatment with analgesics. However, there is some controversy about the effects of the analgesic treatment besides alleviation of pain. Some of them are changes in the gene expression or effects in apoptosis cascades after the administration of analgesics, like Buprenorphine. In this project, the effect of Buprenorphine at the gene level was assessed using the microarray technique in animals with spinal cord injury (SCI). Rats were injured at the T10 thoracic level using the NYU impactor device. Half of them received Buprenorphine for 3 consecutive days and the other half were untreated. Microarray analysis (n=3) were performed and analyzed using the genetraffic and the results were verified by Real Time RT-PCR. Genes studied were grouped in four categories of function: regeneration, apoptosis, second messengers, and pain related genes. Additional experiments were performed to observe the effect of the Buprenorphine at the electrophysiological and behavioral level at 7 and 14 DPI. The results showed that rats treated with Buprenorphine showed no significant difference at the genetic, electrophysiological, and locomotor recovery level when compared to the control group at any of the timepoints tested, for any genes that were studied. These results suggest that rats with SCI can receive Buprenorphine as part of the post-operative care without affecting the results of the experiments being evaluated. Supported by the RISE (68138), SNRP (NS39405), SCORE (2SO66M8224), and RCMI (G12RR03051).

The Role of Nitric Oxide in the Salbutamol Induced Bronchomotor Response of Isolated "In Vitro" Rat Tracheas.

R- 071

O. Cantres-Fonseca, F. Montalvo, G. Santos, M Vega, J. Carmona, C. Del Valle, D. Dexter, G. Department of Internal Medicine, School of Medicine.

Santacana Asthmatic patients and those using beta-2 adrenoceptor agonist salbutamol (SA), exhibit higher levels of NO in exhaled air. Studies in our laboratory, using carbachol (Cch) precontracted rat tracheas show that bronchodilation induced by SA decreases in presence of NO synthesis inhibitor L-NG-nitro-arginine-methyl-ester (L-NAME). To establish the role of NO in the mechanism of action of SA, we studied the effect of SA on the contraction of the isolated rat trachea (RT) under electrical field or KCl stimulation. Using a Grass FT.03 tension transducer, the response to SA on the CCh induced contraction of intact and epithelium denuded RTs was evaluated in the presence and absence of L-NAME. Intact RTs were stimulated with EFS using increments in voltage in the presence of SA and L-NAME. Finally, KCl was used to induce contraction in the presence and absence of SA and/or L-NAME. KCL stimulation was repeated in the presence of atropine. Results show that SA induces a relaxation of the CCh contracted RT that is significantly reduced in presence of L-NAME. SA reduced the contraction elicited by EFS. This effect was reversed in the presence of L-NAME where a significant and paradoxical increase in contractile response to EFS was observed. The KCL induced contraction was not affected by either SA or L-NAME except in presence of atropine where a significant relaxant effect was induced by SA. The experiments suggest that NO has a significant role in the mechanism of action of SA. The paradoxical increase in contraction elicited by SA in the presence of L-NAME during EFS stimulation suggests that neural NO is involved in this effect.

Regulation of CNS Alpha and Beta Estrogen Receptors by Estradiol.

R- 072

L. Mosquera, A. Torrado, L. Arocho, A. Segarra, J. Miranda. Department of Physiology, School of Medicine.

Estrogen hormones mediate transcriptional activation after binding to its intracellular receptors. In vivo and in vitro studies of brain trauma, neurodegenerative diseases, and cognitive function have reported positive effects with estradiol treatment. The neuroprotection and cognitive enhancement conferred by estradiol has been associated to an increase expression of estrogen receptors. Estrogen

receptors (ER) have been identified in several areas of the adult brain and spinal cord. In this study we will examine the regulatory effect of several doses of estradiol on the expression of ER alpha and beta in the brain and spinal cord. For this purpose we treated adult female Sprague Dawley rats with 3, 4 and 5mg estradiol via 2 mechanisms of hormone delivery: silastic tubing and pellets. The two control groups contained cholesterol pellet or empty silastic tubing. The body weight of all rats was monitored for 4 weeks. Removal of endogenous estradiol resulted in increased body weight. Blood was extracted weekly and estradiol plasma concentrations were measured. Results showed a proportional relationship between the dose of estradiol given and the plasma concentration. While 3mg produced high physiological levels of estradiol, 4mg and 5mg produced supraphysiological levels. Silastic tubing seems to be more stable mechanism of delivery. We will study estradiol role in the regulation of CNS ER alpha and beta by evaluating their expression at the protein level through Immunohistochemistry studies. Understanding estradiol dependent regulation of ER expression could explain gender differences in pathophysiology.

Inhibition of Human Breast Cancer Cells (MCF-7) Proliferation by Tunicamycin.

R- 073

U. Trujillo-Rodríguez, J. Caldero-Colón, D.K. Banerjee. Department of Biochemistry, School of Medicine, Medical Sciences Campus, University of Puerto Rico, San Juan, PR 00936-5067, USA.

Breast cancer is diagnosed in one out of eight women in industrialized nations. The etiology of the disease is complex and requires neovascularization for the growth of a malignant tumor. Our laboratory has observed recently that tunicamycin, (a) an antibiotic, (b) a glucosamine-containing pyrimidine nucleoside, and (c) a protein N-glycosylation inhibitor reduces angiogenesis significantly. This was due to an induction of unfolded protein response-mediated cell cycle arrest and apoptosis. The objective of our present study was to test the hypothesis that tunicamycin inhibits MCF-7 cell proliferation. MCF-7 cells were synchronized by serum deprivation for 48 hours, and treated with tunicamycin (0-10 μ g/ml) for 24 hours. The cell morphology was monitored by light microscopy. The cell growth was reduced only 20-30% at 0.1 μ g/ml and 1.0 μ g/ml of tunicamycin, respectively but the inhibition was >70% at 10 μ g/ml of tunicamycin. There was no indication of the cell cycle arrest. Total Bcl-2 expression

was increased in the presence of 10 α -956;g/ml and 0.1 α -956;g/ml of tunicamycin as well as at “zero time”. Bax expression was not detected but a high level expression of Bax, Bad and p53 was detected at low tunicamycin concentration. There was no detectable expression of either caspase 3 or 9. Therefore, we conclude that tunicamycin-mediated MCF-7 cells death may not be due to an induction of apoptosis. Flow cytometric evaluation of the cell cycle also supported such conclusion. Supported by grants from NIH U54-CA096297 and the Susan G. Komen Breast Cancer Foundation BCTR58206.

R-074 Cystatin B in HIV-1 Infected Placental Macrophages is Associated with Viral Restriction. C. Luciano-Montalvo, J. Anderson, P. Ciborowsky, H. Gendelman, L. Meléndez. Department of Microbiology, School of Medicine.

Mononuclear phagocytes are vehicles for dissemination for HIV infection. However, Placental macrophages (PM) may have a role in disease protection as they showed limited HIV infection. The objective of this study was to identify cytosolic proteins related to this restriction. In vitro HIV-1 infected PM and monocyte-derived macrophages (MDM) lysates were profiled using surface enhanced laser desorption ionization time-of-flight (SELDI-TOF) to determine protein differences between the macrophage populations. Differentially expressed proteins were isolated by one dimensional sodium-dodecyl sulfate-polyacrylamide gel electrophoresis (1D SDS-PAGE), followed by liquid chromatography tandem mass spectrometry (LC-MS/MS). Twenty six proteins were differentially expressed by SELDI-TOF profiling between HIV infected MDM and PM; and 21 proteins between uninfected MDM and PM. Following sequencing with the LC-MS/MS we identified 4 proteins that corresponded to the SELDI-TOF profiles. These were identified as Cystatin B, protein S-100 beta, fatty acid binding protein and the 10kDa heat shock protein. Cystatin B was down-regulated in HIV-1-infected PM compared to MDM. Western blot analysis of Cystatin B was used to validate SELDI-TOF. Results showed that both macrophage populations differ in Cystatin B proteins levels. Cystatin B up-regulates nitric oxide (NO), which is required for HIV replication levels. This study demonstrates that decreased levels of Cystatin B in PM are associated with lower levels of HIV infection. Ongoing studies will determine if this inhibition is mediated by signaling associated with NO production.

Unfolded Protein Response Downregulates Matrigel Invasion of Capillary Endothelial Cells. M.F. Montiel-Gonzalez; U. Trujillo-Rodriguez; M.T. Milan-Munioz; S. Saha; D.K. Banerjee. Department of Biochemistry, School of Medicine, Medical Sciences Campus, University of Puerto Rico, San Juan, PR 00936-5067, USA.

R-075

Angiogenesis is a ‘key’ to tumor growth and invasion. A large number of cytokines accelerate the process of angiogenesis by helping to control a switch in the angiogenic phenotype which enhances glycosylation of asparagine-linked (N-linked) glycoproteins. Our objective has been to understand the molecular basis of the angiogenic process so that appropriate glyco-therapeutics could be developed against breast cancer. Using an antibiotic and a protein N-glycosylation inhibitor tunicamycin our laboratory has recently observed that a non-transformed capillary endothelial cell line when treated with tunicamycin the cell cycle was arrested in G1 and developed apoptosis by inducing unfolded protein response (upr). In addition, there was reduced expression of matrix metalloproteinase-1 (MMP1) in tunicamycin-treated cells. To test the hypothesis that tunicamycin inhibits endothelial cell invasion, a synchronized culture of capillary endothelial cells was seeded on growth factor reduced Matrigel coated plates and examined after 24 hours. We have used the conditioned media from MCF-7 human breast cancer cells as a chemoattractant. The results indicated that tunicamycin (1 α -956;g/ml) inhibited the cell migration through the Matrigel. Supported by grants from NIH U54-CA096297 and the Susan G. Komen Breast Cancer Foundation BCTR58206.

Cross-protection by Catalasepositive Actinomyces Naeslundii Against Hydrogen Peroxide Damage to Catalase-negative Streptococcus Mutans. I. Rivera Ramos¹, R. Marquis². School of Dentistry, Medical Sciences Campus, University of Puerto Rico¹, Department of Microbiology and Immunology, School of Medicine and Dentistry, University of Rochester².

R-076

Hydrogen peroxide is used in various dental products such as toothpastes and tooth whitening products but its potential as an antimicrobial/anticaries agent is not well defined. Streptococcus mutans, one of the major cariogenic bacteria in dental plaque, is highly sensitive to hydrogen peroxide because it lacks catalase. In the

mouth it can be protected by catalase-positive organisms, such as *Actinomyces naeslundii*, against killing by hydrogen peroxide. For my experiments, the objectives were to determine if catalase-positive *A. naeslundii* ATCC 10246 in suspensions or biofilms can protect catalase-negative *S. mutans* against oxidative damage caused by hydrogen peroxide and to determine if catalase inhibitors reduce this protective action. Biofilms containing both *A. naeslundii* and *S. mutans* were exposed to hydrogen peroxide, both with and without catalase inhibitors such as sodium azide. Inhibition of catalase was found to abolish the protective action of *A. naeslundii* for *S. mutans* exposed to lethal levels of hydrogen peroxide. The net conclusions are that the protective action of *A. naeslundii* is due to catalase and that catalase inhibitors are effective in enhancing peroxide damage of *S. mutans* in mixed biofilms. This work was supported by award 5T32DE007202 from the U. S. National Institute of Dental and Craniofacial Research.

R- 077
Cardiac Thick Filaments from cMyBP-C Knockout Mice: Evidence for a Change in Density at One Crossbridge Level in the Absence of cMyBP-C. R.W. Kensler¹, S. Harris². University of Puerto Rico Medical School, Department of Anatomy, San Juan, PR, USA and University of Washington², Department of Bioengineering, Seattle, WA, USA.

The Fourier transforms of cardiac thick filaments isolated from cMyBP-C knockout mice differ from the transforms of thick filaments from wildtype hearts in the weakness or absence of the “forbidden” meridionals on the 2nd, 4th, 5th, and 8th layer lines. This could result either from the crossbridges assuming a more helical arrangement in the absence of cMyBP-C or if the density associated with cMyBP-C directly contributes to the reflections and in its absence the reflections are weakened. Measurements of the spacing between crossbridge levels has suggested that the myosin heads do not assume a more helical arrangement in the absence of cMyBP-C. In support of the second possibility, plots of the axial density along the filament appear to show differences in the relative density at the crossbridge levels in the absence of cMyBP-C. Consistent with this, evidence from differential filtering of the Fourier transforms of the wildtype filaments to include or exclude the “forbidden” meridional reflections provides evidence that enhanced density at one of the crossbridge levels contributes to the “forbidden” meridional reflections. This additional density is likely due to cMyBP-C. This work was supported by a NIH

MBRS grant S06 GM08224 and in part by funding from NIH Institutional RCMI grant G12RR-03051 to RWK; and AHA 0130557Z and NIH HL65497 to SH.

R- 078
Upregulation of P2Y2 Nucleotide Receptor after Spinal Cord Injury and its Relation to the Expression of GFAP. A.E. Rodríguez¹, A. Torrado¹, J.D. Figueroa, F.A. González², J.D. Miranda¹. Department of Physiology, School of Medicine.

Spinal cord injury (SCI) initiates cellular and molecular changes at the lesion site that result in a non-favorable environment for axonal regeneration. It has been suggested that the glial reaction to injury generates a physical and chemical barrier for neurite outgrowth. The mechanism that triggers this response is unknown, but the release of nucleotides like ATP has been linked to this hypertrophic state of glia cells. Molecular biology strategies were used to analyze the expression of P2Y2 receptors in rats injured at the T10 level using the NYU impactor device. Analysis of P2Y2 gene using standardized RT-PCR showed a two-fold increase in P2Y2 expression after 2 days post-injury (DPI) returning to basal levels by 14 DPI. Immunohistochemical (IMH) studies in sham animals demonstrated low levels of P2Y2 receptor expression, which increased after injury. Behavioral analysis was used to monitor functional recovery after intrathecal infusion of nucleotide antagonists (suramin & PPADS), and some locomotor recovery was observed. Moreover, the IMH for reactive astrocytes (GFAP) was reduced in the treated animals around the lesion cavity. 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. Supported by NIH-MRISP (2R2MH48190-14), NIH-SNRP (NS39405), MBRS-SCORE (S06-GM008224), MBRS-RISE (GM-68138), PR-EPSCOR (EPS-9874782), and the Associated Deanship of Biomedical Sciences and Graduate Studies of the UPR School of Medicine.

R- 079
Effect of Reactive Oxygen Species (ROS) on the Contraction of Rat Airway Smooth Muscle in Conditions of Low Temperature. E. Madera, L. Acosta, I. Torres, C. Del Valle, G. Santacana. Department of Physiology, School of Medicine.

Low temperature in the airways is a trigger for airway hyperactivity and asthma. Cold induced contraction (CIC) of the airways has been demonstrated in animal models and humans. It is also known that ROS are generated during asthma. Although the physiological mechanisms of CIC in the airways have been studied, no relation has been established between CIC and ROS. We have studied how exposure to ROS cause changes to the acetylcholine (Ach) and potassium chloride (KCl) induced contraction of the isolated "in vitro" rat trachea (RT) at 37°C and 18°C respectively. RTs incubated in Krebs Ringer Buffer were stimulated with Ach (10^{-7} to 10^{-4}), and 80mM KCl at 37°C and 18°C in the presence and absence of hydrogen peroxide (H₂O₂) (10^{-4} M to 10^{-6} M). Tension was recorded using a Grass FT.03 transducer/ IP7 amplifier system. Response curves for Ach were calculated for the EC₅₀ and E_{max} values. Results show that low temperature increases the sensitivity of RT to Ach (EC₅₀ 6.4×10^{-6} (37°C) vs 2.1×10^{-6} (18°C)). This increased sensitivity is enhanced in the presence of H₂O₂ (EC₅₀ 2.6×10^{-6} vs 1.7×10^{-6}). Moreover H₂O₂ decreased the maximal contractile response of RT to Ach at 37°C and 18°C with some increments in sensitivity. At high H₂O₂ concentrations the contractile response to 80mM KCl was enhanced. These results indicate that ROS can increase the sensitivity of RT to Ach and KCl stimulation. This increase is enhanced at low temperature suggesting that ROS is linked to the mechanism of CIC in the airways.

R- 080 **Comparison of Transcription Profiles of myo1 and chs2 Mutants in Budding Yeast Saccharomyces Cerevisiae.** J.F. Rodríguez-Quiñones, J.R. Rodríguez-Medina. Department of Biochemistry, School of Medicine.

The *Saccharomyces cerevisiae* MYO1 gene encodes the myosin type II heavy chain, a protein required for normal cytokinesis in budding yeast. The CHS2 gene encodes chitin synthase II, an enzyme that catalyzes the transfer of N-acetylglucosamine to chitin and is essential for chitin synthesis in the primary septum during cytokinesis. MYO1 and CHS2 deficient strains share several phenotypes such as: abnormal cytokinesis, formation of attached cells, abnormal budding patterns, delocalized chitin deposition in the cell wall and a requirement of Chs3p expression for normal growth. The purpose of this study is to compare the transcriptional profiles of these two similar mutants in order to identify genes that could be differentially expressed in response to abnormal cytokinesis. A transcriptional profile was generated for both mutants using yeast oligonucleotide microarrays.

A total of 172 genes of different categories were differentially expressed in both strains. The categories most represented in common for both profiles were: protein biosynthesis, metabolism and stress response. Notable similarities were found among down regulated genes coding for protein biosynthesis functions and RAS1. Our preliminary transcriptional analysis shows that SLT2 transcription may be activated in the myo1, but not in the chs2 mutant. Therefore these mutant strains may activate the stress response by different pathways. This work was supported by a PHS grant MBRS-SCORE (S06GM008224) with partial support from RCMI (G12RR-03051) and MBRS-RISE (R25-GM61838).

R-081 **Detection of Na/HCO₃ Co-Transporter Isoforms in Salivary Glands.** N. Rodríguez., A. Srivestava. Rochester University.

The Na HCO₃ Co - Transporter is present on the membrane of the acinar cells of the salivary glands and appears to be important for secretion of saliva. Two isoforms of the Co - transporter have been known to exist in the kidney; pNbc1 and the kNbc1. The goal of this study was to determine which of the two isoforms are present in the mouse salivary glands. For that purpose RNA was extracted from mouse, parotid, submandibular and sublingual glands, and analyzed by RT - PCR using primers specific for each of the two isoforms. Kidney RNA was used as a positive control. Only the pNbc1 isoform was detected by this method in the salivary gland, while both isoforms were present in the kidney RNA. Subsequently protein was extracted from mouse submandibular glands and was analyzed by Western Blot using a pNbc1 specific anti - body. This analysis indicated that the size of the submandibular gland pNbc1 is 121 KD. In conclusion, mouse salivary glands express only the pNbc1 isoform of the Na/HCO₃ Co - transporter. The size of the submandibular gland Na/HCO₃ Co - transporter is 121 KD.

R-082 **Activation of Group II Metabotropic Glutamate Receptor Produces an Anxiogenic-like Response in Ovariectomized Female Rats.** B.M. Vázquez-Fuentes¹, J. Ríos-Pilier², K. Quiñones-Laracuate², J. Capó-Rodríguez³, N.L. Pérez-Acevedo⁴. Department of Anatomy, School of Medicine.

Metabotropic glutamate receptors (mGluRs) are coupled with G-protein and modulate ion channels via secondary messengers. These receptors are found in the basolateral

amygdala (BLA), which is associated with anxiety. We investigated whether BLA infusion of (2S,1'S,2'S)-2-(carboxycyclopropyl) glycine (LCCG-I), a group II mGluR agonist, modulates anxiety. Since females are more susceptible than males to develop anxiety disorders (Kendler et al., 2001), we hypothesized that female hormones may play a vital role in anxiety-related behaviors. Two concentrations of LCCG-I were tested (1 and 10 α -956;M) in ovariectomized females (OVX), half-received estrogen replacement (OVX-EB). One week after brain cannulation and ovariectomy surgeries animals were tested in the Elevated Plus-Maze (EPM). The time spent and the number of entries into the open arms were recorded. Risk assessment behaviors (RABs) were analyzed during 5 minutes in the EPM. LCCG-I (10 α -956;M) decreased the open time and open entries in OVX rats, but not OVX-EB ($p < 0.05$ Two-Way Anova). LCCG-I modulates some RABs at 1 α -956;M, but not at 10 α -956;M in OVX female rats ($p < 0.05$ Two-Way Anova). We found that 10 α -956;M but not 1 α -956;M LCCG-I exerts an anxiogenic-like response in exploratory based anxiety. The study of Group II mGluRs would benefit the development of future treatments for affective disorders such as Post-Traumatic Stress Disorder. Quiñones-Laracuenta K and Ríos-Pilier J were supported, and Vázquez-Fuentes BM is supported by MBRS-RISE Program (RISE GM61838). This project is supported by RCMII Program (G12RR03051), NIMH MRISP (MH48190) and COBRE (RR15565).

R-083 The Role of Nitric Oxide in the Salbutamol Induced Bronchomotor Response of Isolated "In Vitro" Rat.

Tracheas F. Montalvo, O. Cantres Fonseca, G. Santos, M. Vega, J. Carmona, C. del Valle, C. Caceres, D. Dexter, G. Santacana. Department of Pulmonary Medicine, School of Medicine.

Increased levels of NO are known to reduce α -946;2 adrenoceptor agonist induced bronchodilation. The α -946;2 adrenoceptor agonist salbutamol (SA) increases exhaled NO in asthmatics. Less bronchodilation is induced by SA in carbachol (CCh) contracted rat tracheas (RT) when the NO synthesis inhibitor L-NG-nitro-arginine-methyl-ester (L-NAME) is present. These observations point toward a role for NO in the effects of SA. To further study this role we have investigated the effect of SA on the contraction of the isolated rat trachea (RT) under carbachol (CCh) electrical field (EFS) or KCl stimulation.

For this study RTs incubated in Krebs Ringer Bicarbonate Buffer at 37 α -9702; C and connected to a Grass FT.03 tension transducer/ IP7 amplifier pair were used. The response to SA on the CCh (10-8 to 10-5), EFS or KCl (80mM) induced contraction of RTs was evaluated in the presence and absence of L-NAME. KCL stimulation was also repeated in the presence of the muscarinic receptor inhibitor atropine (1 μ M). The results show that SA lowered the CCh contractile response of RT. This effect was reduced in the presence of L-NAME. SA also reduced the contraction by EFS but in the presence of L-NAME a paradoxical increase in the contractile response to EFS was observed. The KCL induced contraction was not affected by either SA or L-NAME except in the presence of atropine where a significant relaxant effect was induced by SA. The experiments strongly suggest a role for NO in the mechanism of action of SA with possible involvement of neural derived NO.

Hyperpolarization Activated Cation Current (I_h) is Present in the Ventral Tegmental Area.

R-084

M.E. Vélez, J.D. Figueroa, J. Farrington, R. Vázquez, J. Miranda, C. Jiménez-Rivera. Department of Physiology, School of Medicine.

The dopaminergic projections from the Ventral Tegmental Area (VTA) to the nucleus accumbens and other limbic structures, termed the mesolimbic dopamine system, is critically involved in reward processing, behavioral reinforcement, and addictive behaviors. A prominent feature of dopaminergic neurons from the VTA is that they possess a hyperpolarized-activated cation current (I_h), known to contribute to various physiological properties and functions in the brain, including neuronal pacemaker activity and setting of resting membrane potential. The I_h current is a ubiquitous voltage dependent current generated by Hyperpolarization-activated Cyclic-Nucleotide-gated nonselective cation channels and its biophysical properties depend on the expression profiles of the underlying Hyperpolarization-activated channels (HCN1-4). Previous studies suggest an important role of I_h in the reinforcing actions of abuse substances like ethanol. Since cocaine is also a potent drug of abuse, our studies will determine if the I_h plays a role in cocaine addiction. Western Blot analysis was used to determine the presence of the HCN2, known to critically determine the resting membrane potential, affecting normal rhythmicity of neurons, in the VTA. Brain slices (200 μ m) from adult Sprague Dawley rats were micropunched to extract the VTA area following Palkovits' guides to

microdissection. It was found that HCN2 is present in the VTA region. Further studies will search for differences in Ih current in a rat model of cocaine addiction. (Support contributed by NINDS (RCMI) SNRP Program NS 39408 and GM-08224 to C.A.J.R.).

R- 085 **Pregnane X Receptor and the Major Histocompatibility Complex Class II Genes in Human HT-1080, BEAS-2B, HepG2 and A431 Cell Lines Models E.** Fuentes-Mattei, L. Quattrochi; J. Barwick, P. Guzelian, B.D. Jiménez. Department of Biochemistry, Medical Sciences Campus, University of Puerto Rico; Department of Medical Toxicology, University of Colorado Health Sciences Center; Center for Environmental and Toxicological Research, Medical Sciences Campus, University of Puerto Rico.

Several studies have shown that the Pregnane X Receptor (PXR) acts as a sensor to a broad range of natural and synthetic xenobiotics. Adding to this classical response, we have shown that PCN (a rodents PXR activator) induces mRNA and protein levels of Major Histocompatibility Complex class II (MHC-II) genes in primary rat hepatocytes. The transcriptional mechanism by PXR is associated with the recruitment of the histone acetyltransferase, steroid receptor co-activator 1 (SRC-1), which had been also shown to be a co-activator of MHC-II genes. These findings triggered further research on the role of PXR on the regulation of genes involved in the immune response. To investigate further the PXR involvement in the transcriptional regulation of MHC-II genes, we performed a series of time course and dose response experiments in various cell lines using rifampicin. Human HT-1080, BEAS-2B, HepG2 and A431 cells were treated with the PXR activator, rifampicin, and MHC-II mRNA levels evaluated. Preliminary results showed induction of MHC-II genes, and presence of the endogenous human PXR-1 transcript in HT-1080 cells. PXR-1 mRNA levels is increased after treatment with Interferon gamma. HLA-DR α mRNA expression was also found to be induced in BEAS-2B and HepG2 cells treated with rifampicin. This research adds a new dimension to a synchronized relationship of immune and detoxification regulation through PXR function as means of a xeno-

protective mechanism, and will significantly add to the current understanding and knowledge of MHC-II gene transcriptional regulation.

R- 086 **A Synthetic Androgen Is Anxiogenic During Puberty.** G.L. Rodríguez-Aguilar¹, M.M. Oyola-Ortiz¹, J.C. Jorge², N.L. Pérez-Acevedo². ¹ Department of General Sciences, Río Piedras Campus, University of Puerto Rico; ² Department of Anatomy, Medical Sciences Campus, University of Puerto Rico.

It is a tenet in the field that androgens induce anxiolysis. In this study, we wanted to investigate its effect during puberty (PN 22 to PN 35) using Sprague Dawley male rats. Animals were injected intraperitoneally using the synthetic anabolic steroid 17 α -945;-methyltestosterone (17 α -945;-meT) at two different concentrations (1mg/kg and 10 mg/kg). The elevated plus maze (EPM) was used to analyze behavior 30 minutes after systemic injection of either the vehicle or 17 α -945;-meT. Also, risk assessment behaviors were analyzed during the EPM. Systemic exposure of 17 α -945;-meT (1 mg/kg) reduces the percent entries and percent time when tested in the EPM ($p < 0.05$, One Way ANOVA). Higher concentrations of 17 α -945;-meT did not produce any changes during this behavioral task. 17 α -945;-meT (1 mg/kg) significantly increases the number of stretched attended posture when analyzed the RABs in the EPM ($p < 0.05$, One Way ANOVA). These results suggest that 17 α -945;-meT at dose of 1 mg/kg but not at higher concentrations produces an anxiogenic effect in pubertal male rats. Our data suggest that developmental processes may regulate the anxiolytic profile of androgens. Rodríguez Aguiar GL is supported by MBRS-RISE Program (RISE GM61838). This project is supported by RCMI Program (G12RR03051), NIMHMRISP (MH48190).

R- 087 **RNA Isolation from Fusobacterium Nucleatum.** C. Paulo F. Department of Microbiology, School of Medicine.

Nucleatum is related to periodontal disease as well as in infections in various organs. It is considered an early colonizer of the dental plaque and acts as a bridge between early and late colonizers. An interesting fact is that

numbers of this bacterium increases as plaque forms. The purpose of this study was to isolate *F. nucleatum* RNA in order to gain knowledge about its cell to cell interaction with other dental biofilm microorganism. The bacteria was cultured in a tripticase soy broth, yeast extract and hemin-menadione media in anaerobic condition for 48-72 hr. in anaerobic conditions. In addition bacteria were plated on blood agar using defibrinated sheep blood. For RNA extraction, the RNeasy Protect Bacteria MiniKit (Quiagen) was used in conjunction with chicken egg white and Ready-Lyse lysozyme lysis. The results of this study indicated that we were able to isolate RNA from *F. nucleatum* using the technique of electrophoresis gel. In conclusion, the method used in this study was feasibly to isolate *F. nucleatum* RNA. This will allow analyze its genome, especially the outer membrane proteins and would help to identify a mechanism. Isolating the RNA from *F. nucleatum* it would be a great advance for the study of cell-cell interactions with other microorganisms in the development and establishment of a biofilm in the oral cavity. If this bridge is not formed it could be possible that this cell-cell interaction between these microorganisms doesn't take place and periodontal disease and other infections related to these bacteria can't be established in the human oral cavity.

R- 088 **Barriers to Successful Breast-feeding During the Post-partum Period.** M. Valentín¹, C. Pichardo¹, K Medina², N. Ortiz², L. García³. UPR School of Medicine¹, Department of Pediatrics², Neonatology Section³. San Juan, PR.

The Healthy People 2010 Objectives include goals of having 75% of mothers' breastfeed their infants in the early postpartum period, and 50% continuing to breastfeed at least 6 months. There are multiple factors which may interfere with the decision to breastfeed in the early post-partum period. Objective: To explore barriers which interfere with a successful breastfeeding experience during the first days after delivery. Methods: A questionnaire was administered to adult women who delivered their babies at the University District Hospital from June to November 2006. Results: One hundred and thirty women participated in the study. Their mean age was 26 years (18-43) and 39% were primipara. Forty-seven percent (47%) breastfed their babies in the hospital. Factors associated to breastfeeding included higher birth weight of infant ($p=0.0010$), being breastfed as infants ($p=0.0497$), finding support in the hospital staff ($p=0.0324$), and availability of the nursery personnel to help them with their concerns about breastfeeding ($p=0.0006$).

Women who breastfed in the hospital were more likely to plan to breastfeed at home ($p=0.0002$). No association was found between breastfeeding and maternal age, education, delivery by cesarean section, orientation during pregnancy, and breastfeeding a previous baby. Conclusions: Support during the early postpartum period is a key factor in the establishment of breastfeeding. Efforts should be directed towards having an obstetric and neonatal staff knowledgeable in breastfeeding techniques and support to increase the number of mothers who continue breastfeeding after discharge.

R- 089 **Guías Anticipatorias Sobre Medidas de Seguridad Ofrecidas a los Padres por los Pediatras Versus Las Campañas de Publicidad.** Y. Pedrogo, M. Martínez. Departamento de Pediatría, Recinto de Ciencias Médicas, Universidad de Puerto Rico.

Es de suma importancia que los pediatras ofrezcan a los padres guías anticipatorias sobre el uso del asiento de seguridad para automóviles y los cascos protectores para bicicleta, debido a que las lesiones no intencionales son la causa principal de muerte en los niños. La Academia Americana de Pediatría ha establecido unas guías anticipatorias sobre el uso del asiento de seguridad. Entidades del Servicio Público y Privadas promueven campañas de publicidad sobre el uso de los cascos protectores y asientos de seguridad para enfatizar la importancia del uso de éstos. Sin embargo, se estiman que alrededor de 23,000 niños al año sufren de trauma a cabeza mientras corren bicicleta y la mayoría no usan los cascos protectores. Los objetivos de este estudio fueron identificar si los padres en Puerto Rico conocen estas guías anticipatorias, como las conocieron y que factores influyen para el seguimiento de las mismas. Se repartió un cuestionario a 400 padres que asistieron a clínicas pediátricas en la comunidad y salas de emergencias pediátricas. La mayor parte de los padres refirieron conocer de estas guías pero no las siguen correctamente e indicaron escucharon sobre estas a través de campañas de publicidad. Estos resultados no fueron estadísticamente significativos ($p < 0.05$). Los pediatras en Puerto Rico deben mejorar la información que ofrecen a los padres sobre estas guías anticipatorias. Debemos promover una política pública que apoye la promoción continua de medidas de prevención que disminuyan la incidencia de lesiones no intencionales en nuestros niños. Este trabajo tuvo aprobación de la Junta de Revisión Institucional.

Nosocomial Blood Stream Infections at the Oncology Unit of the University Hospital, 1995-2004.

R- 090 N. Martínez, J. Santana, A. López. Department of Internal Medicine, School of Medicine.

Background: Nosocomial bloodstream infections represent an increase risk factor for morbidity and mortality among immunocompromised patients hospitalized in Specialized Units. This is a retrospective review of surveillance reports from blood cultures isolated at the Oncology Unit of the University Hospital from 1995 to 2004. This Unit mainly cares for patients with Acute and Chronic Leukemias, Lymphomas, Aplastic Anemia, Myeloma and High Dose Chemotherapy Programs; complicated cases on mechanical ventilation are also cared. Methods: Surveillance and captured monthly reports of cultured isolated bacteria and fungi were evaluated and quantified in total absolute numbers as well as percentages from bloodstream infections observed during the period. Results: Total percent of isolated organisms increased from 19.6% to 37.5%. Gram (+) bacteria increased from 8.5% to 18.7%. Gram (-) bacteria increased from 6.2% to 16.8%. Fungal infections increased from 9.1% to 18.2%. Besides coagulase negative Staphylococci, *S. aureus* and Enterococci prevalence increased from 0.85% to 2.9% and from 0 to 5.1% respectively. Among Gram (-), *P. Aeruginosa* and *Acinetobacter* species increased from 1.2% to 2.1% and from 0.2% to 2.5% respectively. Non albicans *Candida*, *C. tropicalis*, *C. parapsilosis* and *Trichosporium* have steadily increased. Conclusions: In our retrospective study, Gram (+) bacteria *S. aureus* and Enterococci as well as Gram (-) *P. aeruginosa* and *Acinetobacter* species had the greatest increase in prevalence. Non albicans fungal infections are increasing.

Maternal Characteristics of Infants with Withdrawal Syndrome.

R- 091 A. Rivera, I. García, L. García, M. Department of Pediatrics, School of Medicine.

Valcarcel Neonatal Withdrawal Syndrome (NWS) refers to the group of signs and symptoms exhibited by infants with drug dependencies. The cause is maternal substance abuse. Sexually transmitted disease (STD), include more than 20 different infections that are transmitted through body fluids. Illicit drug use in pregnancy is associated with lack of prenatal care (PNC), and significant social and obstetric complications resulting in increased neonatal morbidity. Objective: Describe the characteristics of mothers of infants admitted to the Neonatal Intensive Care Unit (NICU) in the San Juan City Hospital (SJCH),

due to NWS. Method: A retrospective study, including drug-exposed neonates, identified according to mothers drug history, neonates clinical manifestations of abstinence syndrome and/or infants urine toxicology test. Patients were admitted to the NICU of the SJCH during the period of 2004 to July, 2006. Information about infants with NWS was collected from medical records. Results: A total of 25 newborns were included in this study. Only 20% had PNC, 40% had premature babies and 76% were born by vaginal delivery. In this group of infants the most common transmitted disease identified was syphilis (24%). The mean cost for medical services during hospitalization was \$8,766. Conclusions: This study shows that the use of drugs during pregnancy increases the risk of infectious diseases that may affect the newborn especially in a group of mothers with a low rate of PNC. Strategies to reduce pregnancy and congenital infections in this population should include barrier contraceptive methods

Adult Aplastic.

R- 092 E. Aponte, J. Castro, J. Fradera. Department of Oncology and Hematology, School of Medicine.

Aplastic anemia is a rare illness with a worldwide incidence of 1 to 5 cases per 100,000 individuals. The incidence of this disease in Puerto Rico is unknown and there is few data describing this condition. Our hospital receives referral from most of the hospitals of the island, so we understand that our population should provide a portrayal of the epidemiology of this disease in Puerto Rico. We reviewed a total of 9 cases of aplastic anemia diagnosed in our institution from 2000 to 2006. All cases were diagnosed after proper laboratory work up including CBC, bone marrow evaluation, and reticulocyte count. A male preponderance was evidenced (7/9) and the median age was 26 years old with an average of 40 y/o. No exposures to environmental toxins were identified and 1 patient had paroxysmal nocturnal hemoglobinuria. Four patients had cytogenetic analysis from bone marrow samples, and all of these had normal karyotypes. The majority of patients received anti-thymocyte gamma globulin with cyclosporine, methylprednisolone, and filgastrim as treatment. Three patients evidenced cytopenias during our last encounter with them, 2 patients died from complications of the disease, and 4 patients are alive with acceptable blood counts. Although our numbers are limited, this data suggest a good response with anti-thymocyte globulin, cyclosporine, and filgastrim regimen without major non-hematological complications. The purpose of this study is to document our experience and create groundwork for the characterization of aplastic anemia in Puerto Rico.

R- 093 **Survival of Puerto Rican Children with Severe Traumatic Brain Injury.** S. Santana, E. Bezares, R. L. García. Department of Pediatrics. Pediatric Critical Care Section. Medical Sciences Campus. University of Puerto Rico.

Traumatic brain injury (TBI) is a leading cause of death and disability for children of all ages. It remains a significant health problem with an estimated incidence of 100,000 to 200,000 new cases reported each year in the United States. Severe brain injury, defined by a Glasgow Coma Scale (GCS) < 8, carries a higher risk of mortality (9 to 35%). During last decade, multiple studies have been performed to describe the epidemiology of TBI and predictive factors of mortality. Ducrocq et al reported nine year experience in French children with TBI finding 22% mortality; and Injury Severity Score, GCS, and hypotension as independent predictors of death. To study the epidemiology of severe TBI, survival, and causes of death in Puerto Rican children, we performed a five year retrospective study. All patients admitted to the University Pediatric Hospital intensive care unit (ICU) from July 1, 2001 to June 30, 2006 who meet criteria for severe TBI were evaluated. The University Pediatric Hospital is an educational institution with the only level I pediatric ICU in the island that provides care for traumatic disorders. We reviewed the total of patients admitted during this period, patients with severe TBI and their respective mortality rates. Deaths occurring during hospitalization were used to calculate mortality. Data revealed that the cumulative mortality for all ICU admissions was 7.5%, but in the study population was 9.9% (6.1 – 16.7). We found a significantly lower mortality rate. Further studies evaluating management, risk factors, etiology and injury severity score need to be performed to better assess these findings.

R- 094 **A 10 Year Retrospective Study of Dental Prosthesis Placed Over Implants in the University of Puerto Rico, School of Dentistry: Phase I.** C. Martínez, L. Maria. School of Dentistry.

The advance in implant dentistry has provided patients with a more functional and esthetic alternative to the rehabilitation of dentition. A dental implant is device of alloplastic material implanted into the oral tissues beneath the mucosal, periosteal layer and bone to provide retention and support to prostheses. The aims of this investigation are to describe the profile of the patient population seeking implant treatment at the Post Doctoral Program in Prosthodontics, UPR, School of Dentistry, to evaluate different prostheses designs and their most common failures and to evaluate the proportion of complications of fixed and removable prosthesis over implants. A sample of 136 dental records were selected from 1996 from the UPR, School of Dentistry. Demographic data was collected. Implants placed, restored and time elapsed from placement and activation was recorded. The fixed restoration designs used were recorded either as, single tooth, FPD implant retained, and total fixed implant rehabilitation. The removable restoration designs were recorded as ball and caps or bars overdentures. The data was analyzed using descriptive and inferential statistics. Results showed that the majority of the patients seeking implant rehabilitation are middle age women in which single tooth implant restorations was the most common treatment. The majority of the prostheses were activated between 7 and 12 months. The investigation shows that the proportion of complications of removable prosthesis over implants is greater than the fixed implants retained prosthesis (p-value of >0.01).

R- 095
Blood Product Utilization in Critically Ill Children E. Bezares, S. Santana, R. L. García. Critical Care Section, Department of Pediatrics, Medical Sciences Campus, University of Puerto Rico.

Blood product utilization has evolved during the last decade. Due to lack of clinical evidence, there are inconsistencies in transfusion practices, emphasizing the need for better understanding of transfusion therapy in critically ill children. The purpose of this study is to determine the blood product utilization, most common determinants for transfusing, and incidence of adverse reactions in critically ill children. The study was performed by a retrospective chart review of patients admitted to the UPR-Pediatric Hospital Intensive Care Unit (PICU) from December 1, 2004 to May 31, 2005. A total of 229 admissions were reviewed. Most admissions to the PICU were due to CNS, respiratory, and oncology diagnoses with 23.5% being postoperative patients. Overall mortality was 9.2% (n=21). A total of 360 transfusion events were identified in 38% of all admissions (n=87). The transfused population had a higher mortality rate (19.5%) and a Pediatric Risk of Mortality (PRISM) score of 9.8 compared with 7.9 for those patients not transfused. Approximately 15% of critically ill children receive blood transfusions. This contrasts with our findings in which 38% of admitted patients received blood transfusions during the study period. This finding could be related to level one PICU and higher admission rate for post-operative patients, oncology patients and patients with CNS pathology. Blood product transfusion process was found to be safe. Better characterization of at risk population for blood product transfusions and risk factors such as age, need for mechanical ventilation, and primary and secondary diagnosis is needed.

R- 096
Niveles de MDM2 en el Suero de Pacientes de Cáncer de Próstata: Un Mejor Marcador? J.M. Corona*, J.M. Rivera*, J.L. Salgado**, L. Guerrios*** y M. Irizarry-Ramírez**, * Departamento de Biología, Recinto de Río Piedras, ** Departamento Graduado, Programa de Ciencias de Laboratorio Clínico, Colegio de Profesiones Relacionadas con la Salud, *** Escuela de Medicina, Departamento de Urología, Recinto de Ciencias Médicas, Universidad de Puerto Rico.

El cáncer de próstata (PCa) es una de las principales causas de muerte entre la población masculina en Puerto Rico. Estudios epidemiológicos indican que la tasa de

supervivencia en los hispanos es menor a cinco años. La determinación de niveles del antígeno prostático específico (PSA) constituye el marcador de elección para diagnóstico y seguimiento del PCa, teniendo como punto de referencia 2.5 ng/mL en suero. Sin embargo, la baja especificidad y el valor predictivo positivo de 30% de este marcador hacen imperiosa la búsqueda de mejores marcadores. Se ha reportado que el gene MDM2, un regulador del ciclo celular, está sobre expresado en el tejido de la próstata en PCa. Nuestra hipótesis es que la expresión de MDM2 y su nivel en el suero de los pacientes podría constituir un mejor marcador del estadio del PCa en esta población. Se hicieron "Western Blots" de proteínas del suero de pacientes de PCa para determinar la expresión de MDM2, la cual fue cuantificada en unidades arbitrarias de densitometría (uad). Los niveles de la proteína MDM2 se mantuvieron constantes (3×10^3 uad) en pacientes con puntuación de Gleason semejante (3.8 ± 0.5). Los niveles de PSA (ng/ml) variaron en estos pacientes (33.9 ± 8804 ; PSA ± 8804 ; 1) Estos resultados sugieren que MDM2 podría ser un mejor marcador del estadio de la enfermedad. (Apoyo parcial de SCORE S06-GM08224 y del CPRS-RCM) (IRB 8860204).

R- 097
Measurement of the Crown to Rump Length among Normal Fetuses from 12 to 27 Weeks and its Value in the Assessment of Early Growth Disorders. K. Leavitt, A. de la Vega. Department of Obstetrics and Gynecology, University of Puerto Rico, Medical Sciences Campus.

The Crown to Rump length (CRL) has traditionally being used as an accurate measurement for gestational age dating during the first trimester, mainly from 8 to 12 weeks. Its use, however, after 12 weeks is limited due to changes in fetal lie and the scanning limits of many sonographic equipment. New sonographic technologies have permitted a wider scanning range thus permitting measurement of the CRL up to 26-27 weeks. Early, severe growth deficiencies, many of them caused by genetic syndromes may manifest themselves by a shortening of the CRL and this may serve as a diagnostic aid. The aim of this study is to obtain the measurement of the CRL among a normal population with no risk factors for abnormal fetal growth disorders and use of these measurements for the identification of the gestational age. Patients with no identifiable risk factors have been identified and the CRL of each fetus has been taken three times separately and averaged. Exclusion criteria include identifiable fetal anomalies on sonography, hyper-

extension or hyperflexion of the fetus during examination, abnormal amniotic fluid levels, uncertain gestational age, multifetal pregnancies, first-trimester bleeding, uterine anomalies, maternal conditions associated to fetal growth disorders, tobacco, drug or alcohol consumption during pregnancy or other teratogenic exposure. Data obtained is been tabulated according to gestational age and 5th, 50th, and 95th percentiles identified for each week of gestational age and will be tested as a measurement of gestational age among subjects without exclusion criteria and well-known gestational age.

Quality of Life of Children with Asthma and Their Caregivers: Impact of an Educational Intervention in Puerto Rico. L. Ruiz, A. Anderson, A. Quiñonez, A. Campos, E. Acosta, D. Vila, G. Canino. Behavioral Science and Research Institute, Deanship for Academic Affairs.

R- 098 Asthma may affect both children and parental quality of life limiting functioning and provoking feelings of frustration and impotence. CALMA, a recently culturally adapted intervention, was developed to teach caregivers appropriate asthma management, thus, improving family quality of life. The objective of this presentation is to discuss quality of life changes of children with asthma and their caregivers who participated in the study. A randomized controlled clinical trial design was implemented to test CALMA intervention. A total of 221 participants with asthma (5-12 years old) were recruited from Health Reform claims data. After a baseline face-to-face interview (T1) participants were randomly assigned to an experimental group (EG) or control group (CG). GC received educational material by mail and EG received two home visits. Post-tests interview (T2) was administered four months later. Descriptive and inferential analyses were conducted. Mean score for PACQL increased for both groups during the T2 (EG 58.16; CG 53.9) proving statistical findings. Specifically, children in the EG reported less school absences due to asthma, than the CG (α -946;=-.30;p=.05) and lower scores of limited activities were reported in the EG than the CG (α -946;=-.35;p=.0). These results validate positive changes in quality of life of children with asthma and their caregivers who participated in CALMA. Caregivers that participated in the intervention exhibited greater improvements in their quality of life while their children missed less school days and experienced fewer limitations in physical activities. NIH P20 MD000537-03 IRB 03/2/06.

Needs Assessment for the Establishment of a Rapid HIV Test Protocol for Women in Labor Admitted to the University District Hospital. M. Campos, G. Marrero, C. Díaz. Department of Pediatrics, University of Puerto Rico, School of Medicine.

R- 099 Latest recommendations promote the use of rapid HIV tests to determine or confirm HIV status of women in labor. The identification of infected women prior to delivery allows the initiation of treatment strategies proven to reduce perinatal infection. HIV positive patients are delivered by cesarean section and are encouraged not to breastfeed. Our objective is to determine the number of patients that would require rapid HIV screening. We also evaluated the impact that rapid HIV testing would have on delivery and breastfeeding practices. This is a cross sectional study of patients that delivered live born infants at the University District Hospital (UDH) during the months of July 2005 and June 2006. Of a total of 1707 deliveries performed in the UDH, 42 of the patients that delivered were HIV +, and 342 of the deliveries were reported as unknown HIV status at the time of delivery (20%). When we evaluated the breastfeeding tendencies reported by the patients at the time of delivery; of the infants born to women with unknown HIV status, 48 % would be breastfeed either exclusively or partially, and 32 % were either unsure or not reported. Regarding delivery practices, 161 of the deliveries with unknown status were performed vaginally. If required, this could generate an increase in the cesarean section rate. We conclude that this data demonstrates the need to establish a clinical protocol for the use of rapid HIV testing in the population of pregnant women admitted for labor to the UDH. This report validates the expected impact that the current national public policy will have in our population of patients.

Early Diagnosis of Oral Cancer. P. Torres Hernández, F. Bermúdez. School of Dentistry.

R- 100 Oral cancer is the sixth most common malignant tumor affecting the human population. Due to the close proximity of different histological tissues, characteristic of specific head and neck anatomy, these lesions tend to progress very fast to advances stages leading to severe disfigurement from treatment and poor prognosis in long term. For this reason it's important to develop new technology for the detection and diagnosis of lesions before the development of oral cancer. The purpose of the study is to determine the effectiveness of some of these technologies such as: ViziLite Test, Touledine Blue,

and Oral CDx Computer Assisted Oral Brush Analysis Method, compared to standard scalpel biopsy in detecting precancerous and cancerous lesions. The results of Oral CDx Computer Assisted Oral Brush Analysis Method show 82% specificity has been higher than Vizi Lite and Touledine Blue for the detection of precancerous lesions. Scalpel Biopsy has the highest effectiveness in detecting pre-malignant and malignant lesions and continues to be the standard for diagnosis.

R- 101
Ovarian Serous Cystadenoma Associated with Contralateral Fibrothecoma. J.R. De Jesús - Meléndez, J.P. Arce- Espasas, M. J. Marcos - Martínez, L. M. Tormos – Pol. Department of Pathology, School of Medicine.

Ovary tumors are a common neoplasia among woman, of these, 80% are benign and mostly diagnosed during reproductive age. There are three categories for ovarian tumors: Surface epithelial-stromal tumors, Sex cord-stromal tumors and Germ cell tumors. Each classification corresponds to the most probable tissue of origin. We describe an unusual case of a bilateral ovarian neoplasm of different categories in a 29 year old woman consisting of a large fibrothecoma (from the Sex cord-stromal tumors category) in the right ovary and a large serous cystadenoma (from the Surface epithelial-stromal tumors category) in the left ovary. Rare cases of mucinous tumors mixed with teratoma, sex cord stromal tumors or carcinoid tumor in the same mass has been reported. However, we have not found any report of serous cystadenoma associated with a contralateral fibrothecoma (both benign tumors). The surgical specimen consisted of two masses. The right one measured 16.5 cm in greatest dimension, and was a solid, whorled, with bands of white tissue interspersed with areas of yellow coloration. The left one measured 20 cm in greatest dimension and consisted of a uniloculated cyst filled with opaque yellow serous fluid. The microscopic findings confirmed the diagnoses of right fibrothecoma and left serous cystadenoma.

R- 102
Multiple Autoimmune Antibodies to Red Blood Cells, Platelets, Stem Cells, Antiphospholipid Antibody, Lupus Anticoagulant in a Patient Treated Successfully for Non-Hodgkins Lymphoma with a Seventeen Year Medical History. A. López. Department of Internal Medicine, School of Medicine.

Background: Autoimmune Hemolytic Anemia (AHA) is associated to diseases such as Lupus, Rheumatoid Arthritis, Chronic Lymphocytic Leukemia, Hodgkins and Non-Hodgkins Lymphoma, Multiple Myeloma and Aids. Method: Medical records review. Results: 40y/o female with Stage IV Non-Hodgkins Lymphoma diagnosed at Laparotomy for a bleeding gastric ulcer treated with partial gastrectomy and Billroth I, a prolonged PTT, compatible with Lupus Anticoagulant. Bone marrow aspirate was positive for lymphoma. She was treated successfully with eight courses of M-BACOD in 1989. Three years later a Coombs positive AHA, with severe hemolysis was documented. In 1997, 9 years later she developed progressive thrombocytopenia and two years later (1999) became pancytopenic. Acute exacerbations of hemolytic anemia, thrombocytopenia and later pancytopenia were treated successfully with steroids, folic acid and Danazol. In 2004 she was admitted to the hospital with Disseminated H.Z., pancytopenia and abdominal pain. The disseminated Herpes responded to high dose I/V Acyclovir. Her blood counts recovered with high dose steroids and Rituximab. A few days later developed progressive ictericia, intestinal ileus. An abdominal sonogram documented large gallbladder stones with duct dilatation. The assessment of ascending cholangitis was made. A bone marrow biopsy done on 8/12/2004 was later reported as CD-20pos., CD-5neg., CD-10neg., compatible with marginal zone lymphoma. Conclusion: Although this patient was successfully treated for a B-cell StageIV Non-Hodgkins Lymphoma she developed multiple autoimmune disorders and eventually developed active B-cell marginal lymphoma sixteen years later.

R- 103
Vaginal Cuff Carcinoma after Hysterectomy due to High Grade Cervical Dysplasia: A Case Report and Review of Literature. Y.R. Avellanet, V. Barron, S. Umpierre, J. Romaguera. Department of Obstetrics and Gynecology, Medical Sciences Campus, University of Puerto Rico.

HPV infection has been implied as a strong causal agent in cases of in situ and invasive vaginal neoplasia, a rare disease in pre-menopausal. Cervical cancer risk factors such as multiple sexual partners, smoking and age at first intercourse have also been implied in the diagnosis of vaginal neoplasia, suggesting a similar etiology between both cervical and vaginal carcinoma. Status-post hysterectomy after cervical cancer has also been considered a risk factor for vaginal neoplasia. 43 year old female non-smoker, with age at first coitus 20 years, and two lifetime sexual partners, first diagnosed with HGSIL of the cervix and endocervix seven years ago. HPV typing was done at the time which revealed positive for high risk HPV types for which a LEEP procedure was performed as treatment. After a 2 year lesion-free period, recurrence of HGSIL was treated by hysterectomy. The pathology revealed HGSIL with negative margins. Patient was lost to follow-up for a 3 year period after surgery and returned on November 2004 for an evaluation with a chief complaint of postcoital bleeding, when she was diagnosed with vaginal cuff nonkeratinizing squamous cell carcinoma of the vagina. Review of literature suggests that vaginal carcinoma shares the same etiology as cervical carcinoma, infection with HPV. This case is of a premenopausal women without known risk factors and with high-risk HPV typing as the sole risk factor for developing cervical and vaginal neoplasia. The presence of high-risk HPV types appears to be a sufficient and significant risk factor for developing invasive cervical and vaginal carcinoma.

R- 104
Metastatic Adenocarcinoma to Ectopic Testis in a Woman L.M. Tormos Pol, R. Vélez Rosario¹, L.M. Rodríguez Ramos². Department of Pathology and Laboratory Medicine, University of Puerto Rico, Medical Sciences Campus (1) and Centro Citopatológico de Caribe, Hospital Hermanos Meléndez.

A 60 year old female clinically presented an incarcerated right inguinal hernia. A well circumscribed ovoid shaped mass partially covered by adipose tissue and a fragment of fibromembranous tissue was resected from the right inguinal canal. Pathology confirmed the presence of an

adenocarcinoma within a right atrophic testis and a portion of unremarkable spermatic cord. Immunostains were requested and performed at our institution in an attempt to classify the tumor in the ectopic testis. Based on the histologic criteria and immunostain results, the primary tumor was subsequently located radiologically in the right colon and successfully resected. We present this case as an unusual presentation of a metastatic colon adenocarcinoma in an ectopic testis in a woman.

R- 105
Simultaneous Gastric Adenocarcinoma and B-cell Marginal Zone Lymphoma, MALT-Type: A Case Report. J.C. Santa-Rosario¹, R. Vélez-Rosario¹, L.M. Rodríguez-Ramos². Department of Pathology and Laboratory Medicine, School of Medicine, University of Puerto Rico¹, Medical Sciences Campus, San Juan, Puerto Rico. Laboratorio de Patología, Hospital Hermanos Meléndez², Bayamón, Puerto Rico.

The simultaneous association of gastric carcinoma with gastric lymphoma is a rare event. Herein, we report a case with a synchronous primary gastric lymphoma of the mucosa-associated lymphoid tissue (MALT) type and adenocarcinoma of the stomach. A 70-year-old, chronic smoker, female patient with history of chronic gastritis since young adulthood presented with gastric discomfort since four months associated with weight loss. Endoscopy revealed a gastric mass for which a total gastrectomy was performed. Pathologic examination of the specimen confirmed the preoperative diagnosis but, also revealed a diffuse thickening of the mucosa consistent with a lymphoproliferative disorder that was later confirmed by immunohistochemistry to be a B-cell marginal zone lymphoma, MALT-type. The adenocarcinoma presented well-differentiated areas as well as poorly-differentiated areas of signet-ring cell type. Regional lymph nodes from both the lesser and greater curvature revealed macro- and micro metastases. A close association between *H. pylori* infection and gastric malignancies, not only with adenocarcinomas but also with lymphomas has been well-documented in the literature. These epidemiologic and pathologic data about the relation of *H. pylori* infection with gastric adenocarcinoma and primary gastric lymphoma are supported by a recent genetic study by Koehler et al. Puerto Rico (PR) is known to be a high prevalence zone for *H. pylori* infection. Death rate for gastric cancer is higher in PR than the United States and Canada. Knowledge of this type of simultaneous occurrence is crucial since treatment is different in these two diseases.

R- 106
Relapse Thrombotic Thrombocytopenic Purpura in a 32 y/o Diabetic Male with Deficiency of ADAMTS 13 Protease, Treated Successfully with Plasma Infusions. A. Lopéz. Department of Internal Medicine, School of Medicine.

Background: Thrombotic Thrombocytopenic Purpura (TTP) is diagnosed by identifying microangiopathic anemia and thrombocytopenia in a patient with fever, renal failure and neurologic deficits. The deficiency of a protease, ADAMTS 13, which cleaves a specific peptide bond in the Von Willebrand Factor (VWF) units, causes accumulation of these VWF proteins, platelet clumping and micro thrombosis. By providing this protease in Fresh Frozen Plasma the platelet clumping and microangiopathy stops. Methods: The ADAMTS 13 protease was measured in this patient by Elisa technique after recovering from the second episode of TTP, on two different occasions, 0.22u/ml and 0.23u/ml (normal 1.0 + 0.2 u/ml, in active TTP <0.1 u/ml) Plasma mixing studies, detected the presence of ADAMTS 13 inhibitors on both occasions. Results: This 32 y/o diabetic had his first episode of TTP in January 2004 and was treated successfully with Plasmapheresis and steroids requiring four weeks of treatments. He relapsed eighteen months later with microangiopathy, severe thrombocytopenia (2,000/uL) and bleeding. Plasma infusions (1-1.5 liters per day) with high dose steroids were given daily for two weeks with platelet transfusions in the first few days. He has been in remission for six months, now with a protease of 0.22u/ml in 09/22/2005 and 0.23u/ml in 10/06/2005. **Conclusion:** TTP is a fatal disease if not diagnosed and treated promptly. Although plasma exchange by Plasmapheresis has been recommended mainly for volume management, plasma infusions should not be delayed. Platelet transfusions may be given to bleeding patients without adverse consequences.

R- 107
Cardiac Tamponade as the Mechanism of Death in Lung Carcinoma. F.M. Morell-Colberg, M.J. Marcos-Martínez. Department of Pathology, School of Medicine.

A 62-year-old male was admitted to the hospital for evaluation of a 4-cm lung mass found on CT scan after 3-month history of dyspnea. During hospitalization he developed a cardiorespiratory arrest and died two days after the admission. Autopsy finding revealed hemorrhagic pericarditis with 700 ml- hemopericardium and a right lung mass. Microscopic examination confirmed a pulmonary adenocarcinoma with metastasis to hilar lymph nodes and extensive lymphatic vessel

permeation involving alveolar walls, visceral pleura, esophagus and pericardium. The primary cause of death in this patient was pulmonary adenocarcinoma. Hemorrhagic malignant pericarditis was the immediate cause of death and cardiac tamponade was considered the mechanism of death. Malignant pericardial disease is found at autopsy in only 5 to 10 % percent of patients with cancer, most frequently in patients with lung cancer, breast cancer, leukemia and lymphomas. Most patients with pericardial metastasis are asymptomatic. However, the common symptoms are dyspnea (as in our patient), cough, chest pain, orthopnea, and weakness.

R- 108
Cambios en la Postura de un Adulto Joven con Escoliosis no Estructural al Participar en un Programa de Hipoterapia. X. Ramos Velásquez, Z. Varela Vargas. Maestría en Terapia Física, Departamento de Programas Graduados, Colegio de Profesiones Relacionadas con la Salud, Recinto de Ciencias Médicas, UPR.

Estudios indican que la hipoterapia ayuda a mejorar el balance, la coordinación y el control postural mediante la facilitación de las reacciones posturales como respuesta al movimiento pélvico del caminar del caballo. El propósito de este estudio es evaluar la efectividad de un programa de hipoterapia en producir cambios en la postura de adultos jóvenes con escoliosis no estructural. Este es un estudio cuasi- experimental con un diseño de un solo sujeto con medidas repetidas. El estudio consistió de dos fases de 23 sesiones cada una. En cada sesión se evaluó la postura estática utilizando una tabla de evaluación de postura: "Symmetrigaf Posture Chart". El participante fue un sujeto masculino de 21 años de edad, puertorriqueño, con diagnóstico de escoliosis no estructural de origen idiopático. Para analizar los datos se utilizó una prueba T en su versión para un solo sujeto con datos pareados. El análisis estadístico para la evaluación de la postura estática, no demostró diferencias estadísticas significativas (p=0.91). Un análisis descriptivo de la evaluación de la postura estática mostró diferencias entre la fase base y la fase de intervención, observándose una leve mejoría en las desviaciones posturales en el nivel de los hombros, las caderas y en el desplazamiento lateral del cuerpo. Los resultados obtenidos en este estudio podrían apostar una base científica sobre los posibles efectos de este tipo de terapia alternativa para mejorar la postura de adultos jóvenes con escoliosis no estructural. Este estudio fue aprobado por IRB en septiembre 2005.

- R- 109** **University of Puerto Rico (UPR) Medical Students Performance in the Clinical Practice Assessment Examinations.** N. Ortiz, L. García, B. López, Y. Pedrogo. Department of Pediatrics, School of Medicine.

Standards of Liaison Committee on Medical Education focus on assessment of abilities to perform clinical skills. These are history, physical exam, communication skills. UPR School of Medicine provided tests to measure this. Clinical Practice Assessment Examination is offered as formative in second year-CSA. Fourth year students take the Clinical Practice Assessment Examination-CPX as graduation requirement. CSA was incorporated to provide enough time to prepare students for the CPX, improve skills and overcome deficiencies. Evaluation for the exams is made considering the student level. Difficulty level is greater for CPX. It is an integrated exit exam. The goal was to describe the performance of students on CSA and CPX; determine if there is correlation between the performances on both exams. A cross-sectional study was done at the UPR School of Medicine for classes 2004-06. Average scores per skill were analyzed. Statistical correlation between the performance on CSA and CPX was analyzed using t-test. $p < 0.05$ was considered statistically significant. Average score in history, physical exam and communication skills remained similar when CSA and CPX were compared for class. No statistically significant correlation was found when classes were compared in skills. Performance per skill and class were compared between exams. No significant correlation was found. As difficulty level increases from CSA to CPX and performance in CPX remains similar, we conclude that in clinical years, students strengthen skills. Outcome in CSA might provide guides to help students identify deficiencies upon entering clinical years to correct them.

- R- 110** **Programa de Excelencia en el Manejo de VIH/SIDA del Florida/Caribbean AIDS Education Center en Puerto Rico.** M. Parrilla, R. Ríos, D. Gely, Y. Arroyo. Florida/Caribbean AIDS Education Center- Puerto Rico, RCM, UPR.

El Florida/Caribbean AIDS Education and Training Center (F/C-AETC) implantó en el año 2004-2005 el Programa de Excelencia en el Manejo de VIH/SIDA. El mismo ofrece consultoría clínica, adiestramiento y evaluaciones de calidad en servicio en un programa longitudinal. El propósito de este programa es establecer una relación de

consultoría con organizaciones de servicios primarios que atienden poblaciones infectadas con el VIH para asegurar una mejor prestación de cuidado para esta población. Objetivo: Presentar un resumen del proceso y hallazgos principales del programa durante 2004-06. Método: El proceso general incluye el avalúo inicial de organizaciones que ofrecen servicios de cuidado primario, revisión estructurada de una muestra de expedientes por un equipo clínico, reunión de cierre, y desarrollo de plan de adiestramiento. La recopilación de datos se hace con instrumentos desarrollados por la facultad del F/C-AETC. Resultados: Se realizaron un total de 30 revisiones de expedientes en organizaciones que sirven población pediátrica y adulta a través de la isla; constituyendo un total de 1,139.25 horas de intervención de la facultad clínica. De las 30 organizaciones 14 implementaron el plan de adiestramientos. Conclusión: La experiencia durante 2004-06 ha permitido afinar los procesos e instrumentos de recopilación de datos. El programa de Excelencia en el Manejo de VIH/SIDA ofrece una alternativa estructurada y objetiva para determinar la calidad del manejo de la persona con VIH/SIDA proveyendo además la oportunidad de llenar las deficiencias detectadas con un plan de adiestramientos personalizado.

- R- 111** **Contribución de la Escuela Graduada de Salud Pública en la Trayectoria Profesional y Académica de sus Exalumnos a los 12 Meses de Haber Egresado.** R. Bonet, M. Santiago. Decanato de Asuntos Estudiantiles, Recinto de Ciencias Médicas, Universidad de Puerto Rico.

Se ha convertido en una práctica generalizada que las universidades modernas organicen esfuerzos para mantener un vínculo profesional y de colaboración con sus egresados. Se estima que los egresados son una fuente de información valiosa para la institución de procedencia. La Escuela Graduada de Salud Pública (EGSP) como una unidad académica tiene interés en conocer sobre el desarrollo y las necesidades que presentan sus exalumnos. Se efectuó una encuesta telefónica con el propósito de explorar lo siguiente: a) cuántos egresados estaban empleados a los 12 meses luego de haberse graduado; b) como contribuyó la EGSP en la búsqueda, ejecución en el empleo y desarrollo profesional; c) motivaciones profesionales y académicas relacionadas al interés de continuar estudios doctorales; d) la necesidad de personal con preparación doctoral para su área de trabajo; y por último g) la relación que mantienen los egresados con la facultad. El estudio se realizó con egresados para los años académicos 2001-02 al 2003-04.

Se obtuvo información del 25% de una población de 267 egresados. Entre los hallazgos de este estudio se encuentran que el 98.5% de los encuestados informó que estaban empleados en instituciones directamente relacionadas a la salud; un 73.7% indicó que luego de graduarse experimentó cambios en su carrera profesional; el 70.2% indicó que la EGSP les ayudó a alcanzar su puesto actual; mientras que, el 86.2% entiende que la EGSP amplió sus posibilidades de trabajo.

R- 112 Assessment of Evidence Based Medicine Content and Practice in the Doctor of Pharmacy Program. L. Hernández, L.M. Gutierrez.

Evidence based medicine (EBM) is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The mission of the School of Pharmacy is to form the human resources in pharmacy to improve the effective and safe use of medications in individuals and populations. The objectives of this study are to: identify the courses that contribute to the conceptual development of EBM; identify the courses in which the students apply EBM; and analyze the conceptual development and application opportunities of EBM during the Doctor of Pharmacy Program. A questionnaire distributed to the faculty identifies and assesses the courses that provide students opportunity to develop and apply EBM. Several courses provide the opportunity to develop and apply EBM in the Doctor of Pharmacy curriculum. The results contribute to the continuous curricular refinement to promote the use of EBM in pharmacy practice.

R- 113 Impact of Clinical Laboratory Management and Quality Assurance Practice at Puerto Real University Hospital in Spain as part of the "Transatlantic Health Science Consortium". E.M. Albino-Rodríguez, Y. Mangual-Molina, B. Segarra-Vázquez. College of Health-Related Professions, Medical Sciences Campus, University of Puerto Rico.

The Transatlantic Health Science Consortium is a Fund for Improvement of Post Secondary Education project, in which four American and four European institutions exchange students. The Master of Clinical Laboratory Sciences Program of University of Puerto Rico and the University of Cadiz in Spain are partners in this project. In July 2006, two students of the Clinical Laboratory

Science Program spent four weeks in Cadiz. Students were registered at University of Puerto Rico for the Clinical Laboratory Management and Quality Assurance course which was completed at the Microbiology Laboratory at Puerto Real University Hospital in Spain. The main objective of this practice was to compare Clinical Laboratory Regulation and Standards applied to laboratories in the United States and Puerto Rico such as CLIA (Clinical Laboratory Improvement Amendments) to those regulations of the International Standard Organization (ISO-9001) that apply in Europe. As part of our results, we found absence of security action plan, no evidence for personnel competency, partial procedure manuals for bacteriology tests and no standardization of processes in test procedures. Also, they did not have quality control guides such as control documentation, quality assurance and quality assessment plan. After thorough evaluation, areas for improvement were identified, providing the laboratory with new strategies, forms and manuals to improve the quality management system procedures. All the findings and recommendations were presented to the laboratory personnel. After a year, an evaluation will be done to assess the implementation of the guides.

R- 114 Desarrollo Humano, de la Teoría a la Práctica: Integración de los Estudiantes de Medicina de Primer Año a la Comunidad. N. de Jesús, N. Ortiz. Escuela de Medicina, Universidad de Puerto Rico, Recinto de Ciencias Médicas.

Un estudiante de medicina debe adquirir destrezas y conocimientos que le permitan ofrecer un cuidado excelente a sus pacientes. El estado de salud del individuo está influenciado por factores sociales, siendo esta un área que los estudiantes deben dominar. Las agencias acreditadoras están exigiendo que se integre este componente al currículo de medicina. La incorporación total de este elemento en la educación médica en Estados Unidos no ha sido exitosa, en parte, por la falta de escenarios prácticos accesibles y facultad adiestrada para dirigir a los estudiantes en estas experiencias. Se diseñó un proyecto piloto en el curso de Desarrollo Humano para estudiantes de primer año de la Escuela de Medicina-UPR-RCM. El objetivo fue exponer a los estudiantes a situaciones sociales en la comunidad, que fueron aprendidas en el salón de clases. Se seleccionaron

agencias que brindan servicios a personas en diferentes etapas del desarrollo y con particularidades sociales propias de la etapa. Los estudiantes se dividieron al azar en 15 grupos. Cada uno visitó una agencia con un mentor y objetivos establecidos. Luego, compartieron en pleno sus experiencias. La integración a la comunidad de los conceptos básicos sobre las etapas del desarrollo humano fue evaluada como excelente y necesaria por los estudiantes de medicina y la facultad. Experiencias de comunidad se deben integrar en los cuatro años de medicina porque el estudiante obtendrá un cúmulo de experiencias y una visión amplia para poder ofrecer un cuidado de salud óptimo. El seguimiento de estos estudiantes será útil para determinar si esta intervención influye en su carrera profesional.

R- 115 University of Puerto Rico School of Pharmacy Partnership with an Independent Community Pharmacy to Promote Health and Prevent Diseases. F.J. Jiménez-Ramírez, A.G. Marrero-Hernández. Department of Practice in Pharmacy, School of Pharmacy.

Pharmacists are invaluable health care professionals with great accessibility. Community pharmacies have been viewed as the health center to facilitate the correct distribution of prescription drugs. Community pharmacists have the accessibility, knowledge and skills to serve our population as health promoters through pharmaceutical care services and health fairs coordinators. As part of the Doctor of Pharmacy Program elective course entitled Principles of Diabetes Education, the School of Pharmacy, in collaboration with an independent community pharmacy in Lares (Farmacia San José) have the commitment to coordinate an annual health fair called Festival de Salud Lareño. The purpose of this community service is to promote early detection and monitoring of health conditions as diabetes, hypertension, breast cancer and others. The didactic purpose of the activity is to provide the participants an experience to coordinate a health fair, educate a population with health needs and provide community health related services. Around 500 people from Lares benefit every year of the following free services: glucose tests, blood pressure assessment, lipid profile tests, mammograms, eye exams, audition screening assessment, vaccination and blood donation. Students evaluated the course as an effective method to develop 7 out of 10 of the curriculum abilities. Partnership between the School of Pharmacy and an Independent Community Pharmacy has been successful providing community services to the city of Lares and it has been an

outstanding learning experience, which contributes to the development of the majority of the curriculum abilities.

R- 116 Metabolic Syndrome Risk Factors among Adults Living at Selected Towns in Puerto Rico, 2006. C. Morales, K. Quintana, B. Molina, C. Colón, M. Rodríguez, S. Soltero, N. Latoni, K. Casillas, G. Rosado, W. Llanos, A. Laureano, I. Angleró, J. Centeno. Dietetic Internship Program, School of Health Professions.

Objective: to describe metabolic syndrome risks factors in individuals who participate of and governmental program from Río Grande, Canovanas, Luquillo and Loiza. The study design is a cross sectional descriptive using a convenience sample. The dietetic interns surveyed 200 subjects utilizing a questionnaire. Risk factor measured were BMI, waist circumference, socio demographic variables and health history. Results: 197 subjects were evaluated, 156 were female and 41 males. The body mass index mean of the population was 30 for both male and female, which is classified as overweight and/or obesity. Mean waist circumference was 37 inches for the population; females had a mean of 37 and males of 40, an indication of Metabolic Syndrome. Among other risk factors, 47.2% indicated that have chronic diseases, 19.3% had diabetes, 30.5% hypertension, 21.3% hypercholesterolemia and 10.7% heart disease. Conclusion: The findings suggest the prevalence of overweight and/or obesity in the sample and the risk of Metabolic Syndrome. A study of the risk factors will be beneficial to the Puerto Rican population for the education and health promotion.

R- 117 Socio-demographic Profile and Health Status of Patients from the Puerto Rico Epilepsy Comprehensive Program, 2001-2002. L. Rodríguez-Figueroa, M. Santiago-Cabrera, C. J. Buxó-Martínez, and the Public Health Field Laboratory Group, 2002*. University of Puerto Rico, Medical Sciences Campus, Graduate School of Public Health, Department of Biostatistics and Epidemiology.

The objective of the study was to describe the socio-demographic profile and health status of patients that participated in the Puerto Rico Epilepsy Comprehensive Program (PROCEP, in Spanish) of the Adult University Hospital in San Juan, Puerto Rico, during the period of June 2001 to May 2002. A cross-sectional study was performed by reviewing 155 available medical records.

The sample consisted of patient α -8805; 18 years old with untreatable epilepsy. Data was analyzed using descriptive statistics, z Test, Chi-Square Test, and Fisher's Exact Test. Sixty-one percent of the patients were women, almost half (46.1%) reported to be never married, 59.1% resided in the Metropolitan Region, and most (58.0%) had private health insurance. Although 61.8% of the patients reported to be high school graduates, 27.1% of these were unemployed. Median age of onset of epilepsy was significantly higher in women (19 vs. 14 years). About 44.5% of the patients had a diagnosis of partial epilepsy. Most of the patients (56.8%) reported emotional stress as a precipitant factor for seizure. The most common etiologic factor in men was mental retardation (18.3%); in women, it was febrile convulsions (23.1%). The most commonly used medications were: Lamictal, Keppra, and Dilantin. Statistically significant differences were reported in the use of Lamictal and Dilantin by health insurance type. Most results are similar to data reported previously in other studies worldwide. Further analytic epidemiological studies are recommended to evaluate epilepsy in Puerto Rico.

- R- 118** **Childhood Environmental Factors in Hispanic Patients with Inflammatory Bowel Disease: A Case-Control Study.** R. Vendrell¹, A. Cruz¹, Z. Ortiz¹, N. Rabell¹, M. Rivera¹, C. Rivera¹, H.Y. Yang², M. Salas², D. Dutridge², L. Mei², J.I. Rotter², K.D. Taylor², E.A. Torres¹, 1. Department of Medicine, University of Puerto Rico, School of Medicine, San Juan, Puerto Rico 2. Medical Genetics, Cedars Sinai Medical Center, Los Angeles, California.

A relationship between childhood environmental factors and Inflammatory Bowel Disease (IBD) has been postulated. The hygiene hypothesis suggests that multiple childhood infections and poor public hygiene protect from developing Crohn's Disease (CD). The prevalence of IBD appears to be increasing in minorities, including Hispanics. We evaluated the association between childhood environmental factors in Puerto Ricans with IBD and population controls. Childhood epidemiological data from 191 subjects with CD, 132 with Ulcerative Colitis (UC), and 247 controls was obtained from questionnaires completed for a collaborative genetic study between the UPR and Cedars-Sinai Medical Center. The results showed that having running water (OR = 8.20, $p < 0.001$), a toilet inside the home (OR = 6.86, $p < 0.001$), and public sewer (OR = 2.71, $p < 0.001$), were

significantly associated with CD. A similar association was found between subjects with UC and having running water (OR = 4.15, $p < 0.001$), a toilet inside the home (OR = 2.73, $p < 0.001$), and public sewer (OR = 1.77, $p = 0.009$). A significant association was also found between urban living and CD (OR = 1.78, $p = 0.003$). No association was found between breast feeding and IBD. A previous study demonstrated an increasing prevalence of IBD in PR. In the past decades, our public hygiene and health standards have reached those of the industrialized world. This study reveals a negative consequence of the improvement in health standards and an association between modern sanitary conditions and the emergence of IBD. This study is approved by the IRB and sponsored by the NIDDK.

- R- 119** **La Mortalidad de las Personas de Edad Mayor en Puerto Rico: 2000-2004 J. Negrón¹, R.Figueroa².** A.L. Dávila¹. Escuela de Salud Pública, Recinto de Ciencias Médicas, Universidad de Puerto Rico¹; Departamento de Salud de Puerto Rico².

La tasa bruta de mortalidad en Puerto Rico oscila alrededor de 7 por 1000 habitantes desde finales de la década de los ochenta. Cerca de dos terceras partes de las defunciones en Puerto Rico corresponden a la población de 60 años o más. El propósito de este estudio es el de presentar el comportamiento de la mortalidad en este grupo de edad, los patrones de muerte (sexo, estado marital, educación y municipio de residencia) y las principales causas de muerte para los años 2000 a 2004. Para este estudio se analizaron las bases de datos de las defunciones procedentes de las estadísticas vitales del Registro Demográfico del Departamento de Salud de Puerto Rico. Durante este periodo ocurrieron 55,208 muertes de hombres y 51,478 muertes de mujeres de 60 o más. Para el periodo de estudio se observa que la tasa de mortalidad aumenta conforme aumenta la edad; la tasa de 80 años o más es nueve veces mayor que la tasa de 60 a 64 años (60 a 64: 1,143 0/000 y 80 años o más: 9,564 0/000). La principal causa de muerte en el grupo de 60 a 69 años es el cáncer. En los restantes grupos las enfermedades del corazón ocupan el primer lugar. En Orocovis se observa la tasa de mortalidad general más elevada (4,040 0/000). La mortalidad por cáncer en los hombres (1,213 0/000) en Guayama al menos duplica la de las mujeres (498 0/000). Las principales causas de muerte en las personas de 60 años o más se relacionan con las enfermedades crónicas y degenerativas. En los grupos más jóvenes dominan las causas externas y el SIDA.

Patterns of Lifetime Risk of Developing Breast Cancer among Women in Puerto Rico

R- 120 Rico K. J. Ortiz-Ortiz. Central Registry of Cancer of Puerto Rico, Department of Health.

Background:Breast cancer incidence rates in Puerto Rico have increase consistently since 1950. Lifetime risk of developing invasive breast cancer among women in Puerto Rico increased from the period of 1980 to 1984 (4.5%) to the period of 1985 to 1989 (5.4%). Nevertheless, the age-adjusted incidence rates and the lifetime risk of developing invasive breast cancer are lower compared with the United States. **Objective:** The purpose of this study was to update and evaluate estimates of lifetime and age-conditional risk of developing breast cancer among women in Puerto Rico by type of behavior (invasive and total). **Methods:** Incidence rates were obtained from the Puerto Rico Central Cancer Registry in order to estimate the lifetime and age-conditional risk from 1990 to 2002. Data included 17,232 first time diagnosed cases of breast cancer. Lifetime risk of developing breast cancer was computed through a multiple decrement life table using the DevCan program 6.1.1. **Results:** The lifetime risk of developing breast cancer among women in Puerto Rico continued to increase for the last years. In the last period of study (2000-2002) the lifetime risk was 8.9% for all behavior types and 7.8% for invasive. **Conclusions:** Lifetime risk of developing breast cancer among women in Puerto Rico appears to be increasing consistently; however, it is smaller when compared with the United States. It was also observed that the difference in the lifetime risk of developing breast cancer for all types of behavior compared to invasive only have increased for the last years.

Comparación de Tasas de Incidencia Ajustadas por Edad de Cáncer de Próstata en Puerto Rico de 1987 al 2002.

R- 121 J.D. Soto-Díaz. Registro Central de Cáncer de Puerto Rico, Departamento de Salud.

Trasfondo: Durante el periodo de 1989 al 1992 se observó un aumento súbito en la tasa de incidencia ajustada por edad para cáncer de próstata en los Estados Unidos (Hankey, 1999). El cambio en la tendencia de casos nuevos por año para este tipo de cáncer ha sido mayormente atribuido a la implantación del cernimiento con PSA (prostate-specific antigen) (Etzioni, 2002). Esta misma tendencia ha sido observada en PR, no obstante, no se han realizado estudios que evalúen este patrón. **Objetivo:** Analizar los cambios en las tasas de incidencia para cáncer

de próstata en PR entre 1987 al 2002 además de examinar cambios porcentuales anuales. **Metodología:** Se realizó un estudio descriptivo utilizando las tasas de incidencia ajustadas por edad para cáncer de próstata contenidas en la base de datos del Registro de Cáncer de PR y se realizó un análisis de regresión lineal. Cambios porcentuales anuales (APC, por sus siglas en inglés) fueron estimados. **Resultados:** Se exhibieron cambios dramáticos en la incidencia de cáncer de próstata entre 1987 al 2002 en PR. Un total de 27,313 casos fueron diagnosticados durante este periodo. Partiendo del año 1989 la tasa de incidencia ajustada por edad comenzó a aumentar considerablemente mostrando un APC de 27.6. Para el año 1992 la curva alcanzó un pico marcado y luego de este año la tasa de incidencia disminuyó dramáticamente con un APC de -5.4. Del año 2000 al 2002 la tendencia de la curva de incidencia ha sido una de aumento exhibiendo un APC de 15.0. **Conclusiones:** Los resultados encontrados presuponen un efecto de cernimiento que es consistente con la introducción de la prueba de PSA en PR.

II. Oral Presentation

R- 122 **Humoral and Cellular Response to F. hepatica Saposin-like Protein Delivered in Mice as Recombinant or DNA Vaccine.** A. Morales, B. Delgado, J. Quetell, F. Rivera, A.M. Espino. Department of Microbiology, School of Medicine.

The humoral and cellular responses to F. hepatica saposin-like protein (rFhSAP-2) delivered as recombinant or DNA vaccine in BALB/c mice was investigated. Animals received 4 IM doses of DNA vaccine and a protein boost two weeks after the last DNA injection. Other animals only received IM injection with DNA and others was only vaccinated subcutaneously with rFhSAP-2 in adjuvant. A negative control group was vaccinated with empty vector and another one was vaccinated with PBS emulsified in adjuvant. Cell proliferation assay demonstrated that spleen lymphocytes from animals vaccinated with DNA or recombinant protein proliferate significantly after stimulation with protein in vitro. High antibody titers were obtained when sera from vaccinated mice were tested against FhSAP-2. The antibody response elicited in mice vaccinated with rFhSAP-2 induced high levels of IgG1, IgG2 and IgE as well as high levels of IL-10 and IFN α -947; indicating a mixed Th1/Th2 response. Intramuscular vaccination of mice with DNA resulted in a

dominant IFN α -947; as well as IgG2 antibodies indicating a dominant Th1 response. However, animals vaccinated with DNA and boosted with protein shown an immune response similar to described for rFhSAP-2. The results demonstrate that FhSAP-2 can be delivered as DNA vaccine and induces a stronger Th1 response than recombinant protein alone. This could result in an improvement in the immunoprophylactic potential of this candidate vaccine against *F. hepatica*.

Chronic Administration of Carvedilol Improves Cardiac Function in 6-month-old Syrian Cardiomyopathic Hamsters. N. Cruz¹, L. Rosario², E. Arroyo², F. Peña², R. Calderón², L. Báez², J. Vázquez², and M.J. Crespo¹

R- 123

Departments of ¹Physiology, UPR-School of Medicine, and ²Biology, UPR-Rio Piedras. POBox 365067. San Juan, Puerto Rico 00936.

Heart failure (HF) is a multifactorial disease that has been linked to activation of the sympathetic system. Beta-blockers improve the status of HF patients, but the precise mechanisms remain unclear. This study evaluates the effect of carvedilol (1mg/kg/day) on cardiac function of 2- and 6-month-old cardiomyopathic hamsters (SCH) after 1 and 5 months of treatment with the drug. Systolic blood pressure (SBP), left ventricular end-systolic and -diastolic volumes (LVESV, LVEDV), ejection fraction (EF), cardiac output index (COI), heart rate (HR), and posterior wall thickness (LVPWT) were evaluated. In 2-month-old SCH, carvedilol reduced SBP from 108 ± 3 to 77 ± 3 mmHg, ($n=5$, $P<0.05$). At this stage, cardiac parameters in SCH were similar to those of controls and were not affected by the drug. In 6-month-old SCH, carvedilol decreased SBP from 102 ± 4 to 90 ± 3 mmHg ($n=5$, $P<0.05$), HR (from 363 ± 14 to 324 ± 14 bpm, $n=5$, $P<0.05$), and LVESV (from 0.18 ± 0.01 to 0.13 ± 0.01 ml/100 g BW, $n=5$, $P<0.05$), and increased EF and COI by 14%, and 23% respectively ($n=5$, $P<0.05$). The drug did not modify LVEDV and LVPWT. Carvedilol significantly improves cardiac function in 6-month-old SCH, but it does not fully prevent ventricular dilatation. Thus, overactivation of the sympathetic system is not likely to be a determining factor in the etiology of dilated cardiomyopathy in this animal model. Supported by NIH Grant 2 SO6 GM08224 MBRS-SCORE and RISE Program.

Sugar System Measurement. E. Morou, School of Dentistry, Medical Science Campus, University of Puerto Rico.

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There hasn't been an accurate method to determine the influence of dietary sugars on caries experience. This is because dental caries depends on the amount of sugar consumed, consistency of the food, and the frequency of consumption. A sugar system which is based on a 24 hr diet recall has been previously described. The advantage of this system is that it includes the frequency of sugar and the consistency of food. The purpose of the study was to evaluate the validity of a sugar scoring system as an instrument for measuring the influence of dietary sugar in dental caries. The study had data from 88 children, ages 3-12, who participated in two separate caries studies. All subjects answered a 24 hr diet recall and a food frequency questioner. 37 subjects completed a second 24 hr diet recall on a different day. Dental caries were measured by the same examiner using the Fiber-Optics-Trans-Illumination (FOTI) with Ekstrand's criteria. No significant correlation was observed between sugar score and caries levels ($p=0.1$, $P=0.33$) when the sugar score was based on one 24 hr diet recall. However, significant correlation was obtained when the sugar score was based on two separate 24 hr diet recalls done on different days ($p=0.37$, $P=0.026$). The correlation between caries levels and sugar scores was also significant in a sub-set of 35 subjects in which the single 24 hour recall was reviewed by one examiner, on a face-to-face interview ($\alpha=0.61554$; $r=0.33$, $P=0.053$). The sugar scoring system can be a valid method to evaluate the effect of a person's dietary sugar consumption on dental caries when it is based on more than one 24 hr diet recalls.

An Anabolic Steroid Interferes with the Retention Phase of Emotional Memory in Pubertal Male Rats. M.Oyola-Ortíz¹, G. Rodríguez¹, Y. Angleró-Díaz¹, J.C. Jorge², N.L. Pérez-Acevedo².

R- 125

Department of Anatomy, School of Medicine.

The use of Anabolic Androgenic Steroids (AAS) to improve appearance and performance in sports has increased substantially, especially among teenagers. The National Institute of Health reports that AAS misuse have many side effects including liver cancer, high blood pressure, circulatory problems, and sex-specific side effects. We aim to discover how 17 α -61537;-methyltestosterone modulates emotional memory. Male pubertal rats were divided into four groups: 1, 5, 10 kg/mg and vehicle via intraperitoneal injections ($n=45$). The

passive avoidance task behavioral test was performed to study acquisition and retention of emotional memory. During retention, there was a significant reduction in crossover latency in the rats that were administered with the 10 kg/mg dose ($p=0.016$, One-way ANOVA) when compared to vehicle. No significant results were observed with the groups that received the 1 kg/mg or 5 kg/mg dose. No effects were seen during acquisition of the emotional memory. These preliminary results suggest that 17α -61537;- methyltestosterone interferes with the retention phase of emotional memory and that this effect is directly dependent on AAS concentration. Supported by MBRS-RISE (RISE GM61838), RCMI Program (G12RR03051), and NIH-MRISP (MH048190). Experiments were approved by the Institutional Animal Care and Use Committee (IACUC), protocol # 9930106. We are grateful to our laboratory team for their time and effort in helping with this project.

Visual Characterization of Different Adult Human Sensory Neuron Populations. I. Berrios¹, C. Feliciano², D.P. Kuffler¹. UPR School of Medicine, ¹Institute of Neurobiology and ²Section of Neurosurgery.

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Primary sensory neurons are composed of at least 6 different populations, each responding to different sensory stimuli. To control a neuron's response to specific stimuli requires development of appropriate pharmacological agents for that neuron type. This requires first understanding the molecular and biophysical characteristic of the neuron's receptor activation and inactivation. The receptor of pain neurons, VR1, has been isolated and cloned, and can be expressed in different cell types where it can be studied. However, this is not possible for populations of other sensory neurons. Therefore, to study unique sensory neuron populations requires working with randomly selected neuron from mixed sensory neurons. Such studies are slow. We previously reported that 6 populations of adult frog sensory neurons can be identified under light microscope based on morphological characteristics. Here we report that adult human, but not rat sensory neurons, also have 6 easily distinguishable populations, but with different cytoplasmic markers from frog neurons. Using multiple antibodies to receptors, neurotransmitters and membrane components characteristic of different sensory neurons, we are attempting to determine whether the different morphological populations correspond to different physiological populations. If so, studies on specific sensory neuron populations could be easily performed

by visual selection of the neuron type of interest. Preliminary data suggest that the different morphological populations correspond to different physiological populations of neurons. Investigator funded. RCM/UPR IRB and IACUC approved protocols.

Immunodiagnosis of Human and Animal Fascioliasis using Two F. Hepatica Antigens. E.E. Colón, O. Figueroa, F. Rivera,

A.M. Espino. Department of Microbiology, School of Medicine.

R- 127

Fascioliasis represents a recognized unsolved agricultural problem responsible for economic losses estimated around \$3 billion US per year to rural agricultural communities and commercial producers worldwide, including the USA. Recent reports indicate that *F. hepatica* is also a major human pathogen and is increasingly recognized as causing significant human diseases, with 2-4 million people infected with this parasite. The only way to diagnosis *F. hepatica* infections is by finding the fluke eggs in feces or biliary dressage. However, parasitological diagnosis alone is inadequate in the latent period of infection since flukes require a period of at least 3-4 months to attain sexual maturity and release eggs. In addition, in many cases the fluke eggs are often not found in the feces, even after multiple stool examinations. There is a need to improve the diagnosis of human or animal fascioliasis. The ELISA assay is commonly applied for the diagnosis of a large number of parasitic diseases including fascioliasis. Our laboratory has reported the use of ES antigens for the immunodiagnosis. Recently we also reported the biochemical characterization of a novel recombinant antigen termed FhSAP-2 that induces significant levels of protection in rabbits infected with *F. hepatica*. FhSAP-2 is presumably an ES antigen. In the present study describe the standardization of an indirect ELISA and compare the diagnostic value of the ES antigens and FhSAP-2 with sera from humans and animals rabbits infected with *F. hepatica* and other parasites.

Profile of Suicide Attempters Admitted in an Emergency Unit at Puerto Rico. D.

Quiles, MD, C. López, A. Millán. Department of General Psychiatric, School of Medicine.

R- 128

The suicide attempts represent a public health problem. The individual attempting suicide is similar in many aspects, but differ from those who commit suicide. In Latinos the data about suicide attempters is limited. This is an explorative and retrospective study. The data were obtained from the medical consults of all the patients

evaluated at a General Emergency Room in Puerto Rico by the psychiatry service do to suicidal attempt. The consults reviewed were from Jan/2005 to Dec/ 2005. A total of 294 consults were reviewed, 44 were excluded and 250 consults (8 to 74 years of age) were used for analysis. In this study the higher number of suicidal attempts was during July, August and October. In the sociodemographic aspect most were females (male/female ratio of 1:1.6); most of the population was in the 15-24 years age group, was unemployed, without a partner, with high school education and had at least one son. Most reported a mood disorder, denied active psychiatric treatment, denied the use of psychotropic medications, and reported a family history of psychiatric illness and at least one previous suicidal attempt. The most common precipitant identified was the interpersonal problems. The male population was more likely to report unemployment, toxic habits and identify other stressors like medical/psychiatric problems and legal problems. The suicide attempters under study were in many aspects similar to suicide attempters studied in populations other than Latino. Further studies with larger populations are needed.

R- 129 **Vitamin C Pharmacokinetic after Continuous Intravenous.** S.M. Muñiz, J.Duconge, J.R. Miranda-Massari, M.J. González, P.R. Taylor, H.D. Riordan, N.H. Riordan, J.J. Casciari, K. Alliston. School of Public Health and School of Pharmacy.

Recent publications state that intravenous, but not oral ascorbate, can produce concentrations selectively toxic to cancer cells, which has renewed the interest in ascorbate as therapy for cancer. The present study was conducted to perform a pharmacokinetic characterization of intravenous (IV) ascorbate in a cancer patient. One stabilized male 75-years old prostate cancer patient (166 lbs body weight) was intravenously dosed with ascorbate injections using dose-escalation infusion protocols (15 – 65 g). Blood samples for ascorbate quantification were measured using HPLC method with coulometric electrochemical detector. Data analysis was performed following a compartmental approach. Typical plasma ascorbate disposition behavior after IV infusion was observed. It was followed by a relatively rapid mono-exponential decay after stopping infusion (CL, $4.0 - 5.7 \cdot 10^{-4}$ L/hr). The elimination half-life parameters (1 – 2.5 hr) were close to those previously reported by literature (0.5 – 1 hr) for ascorbate at supra-physiological levels (above 70 μ M). Parameters for this subject were independent of

dose, dosing rate, infusion time, and day of infusion. The AUC showed a positive correlation (R=0.9) to the total infused ascorbate amount. Neither time-dependent nor capacity-limited nonlinearity could be postulated, although this kinetic pattern should not be totally ruled out when the dose range gets wider. The significant ascorbate clearance could be assumed as a result of saturation of its reabsorption after renal excretion and its role in re-establishing a reducing internal environment in tumors.

R- 130 **Experience with Early Laser Therapy for Retinopathy of Prematurity.** M. Figueroa, R. Pérez, G. Reyes. Department of Ophthalmology and Neonatal Section of Department of Pediatrics, Medical Sciences Campus, University of Puerto Rico.

Retinopathy of prematurity (ROP) is a retinal disorder of LBW infants, which may lead to blindness. In 2003 a significant reduction of unfavorable outcomes with early treatment of high risk prethreshold ROP was reported. We report the experience of 34 months, (September 2003 to June 2006) of 129 infants of VLBW who required laser ablative therapy. Inborn and out born infants were compared as to birth weight (BW), gestational age (GA), post menstrual age (PMA) of first ophthalmologic evaluation, PMA of laser treatment, sex ratio, and surgery requirement. The mean BW was 923.6 ± 186 g and the GA was 26.8 ± 2 wk. The first screening for ROP was at 34.7 ± 32 weeks and the age of treatment was 37.1 ± 2.5 weeks. Six infants (5%) required surgery. There was no statistical difference between inborn infants and out born infants as to BW, GA, PMA of first evaluation, PMA of laser treatment and the requirement for surgery. There was no difference in BW, GA, and PMA of first evaluation or PMA of treatment between infants who required surgery and those who did not require surgery. We conclude that, using the recommended guidelines, early treatment can be instituted even in infants who are referred from other hospitals. The prevalence of infants who required surgery compares with reports from other populations, although the prevalence of infants requiring treatment is higher than that reported in the literature. Further information on outcome and of factors associated with the development and progression of ROP in our Hispanic population is being investigated. Funded partially by the Council of Developmental Deficiencies of P.R.

Contemporary Treatment Results of Bulky Groin Metastatic Penile Carcinoma Using Radical Lympha-denectomy and Rectus

R- 131 Abdominis Myocutaneous Flap. O. Ortiz-Alvarado, A. Puras-Báez. Department of Surgery, Urology Section, Medical Sciences Campus, University of Puerto Rico.

Destruction of the inguinal groin area from metastatic adenopathy in advance penile carcinoma (PeCA) can create large defects. En block skin removal with node dissection and reconstruction using rectus abdominis myocutaneous flap (RAMF) has been described. We retrospectively reviewed surgery outcomes for cases performed between 2002 and 2006. Six patients with PeCA and inguinal metastasis underwent radical lymphadenectomy. To achieve tumor control, resection of the bulky tumor mass was performed and the defect closed using RAMF. Complications were defined as minor (wound infection, lymphocele, seroma, skin sloughing) and major (thrombosis, tumor recurrence at the flap, skin edge necrosis, flap necrosis and lower extremity lymphoedema). Patients with inguinal node metastasis from PeCA underwent lymph node dissection and reconstruction. Mean patient age was 67. Length of hospital stay was 16 days. No major medical complications occurred. Primary closure using RAMF was achieved in all cases. All patients were discharge with viable flap and good esthetic results. No mortality from the procedure was found. Minor complications such as: seromas (1 patient) and wound infections (1 patient) were found. Late complications included recurrence at the flap skin edge (1 patient) and lower extremity lymphoedema (1 patient). Bulky disease at the inguinal region from metastatic PeCA can be treated successfully with wide surgical resection and primary skin closure using RAMF. In comparison with other types of flaps, this procededure achieve good cosmesis with low morbidity and significantly improvement in patients' quality of life.

Cultural Adaptation of the Clinical Dementia Rating Scale in a Spanish Speaking Population.

R- 132 I. Oquendo-Jiménez, R. Mena, V. Wojna. Department of Pharmaceutical Sciences, Drug Information Center, School of Pharmacy, School of Medicine, MSC, University of Puerto Rico.

Mild cognitive impairment (MCI) may be a risk factor for the progression to Alzheimer's disease (AD). MCI is usually diagnosed by clinical examination and with several instruments in English that integrate information from a reliable collateral source. No such validated culturally

adapted instrument is available for the screening of MCI in PR. We propose in our study to validate the Clinical Dementia Rating (CDR) scale, an informant-based examination that provides an assessment of the patient's cognitive status. It is a six-category with a 5-point severity scale, widely used in clinical trials for the staging of MCI and dementia, new treatments testing, and as a gold standard for the validation of other neuropsychological instruments. To meet the validation goal, the CDR scale was culturally adapted for the Puerto Rican population. A translator revised the Argentinean and US Spanish versions of the CDR in terms of conceptual and linguistic equivalence, cultural context, and colloquialisms. A mini-pilot was conducted with Spanish speaking Puerto Ricans. This group evaluated the revised CDR for clarity, appropriateness, and cultural relevance of the language used in the instrument. The validation of the CDR will be perform in normal subjects as controls, subjects with memory complaints without a diagnosis , and patients with AD after approval by the IRB. The Spanish validation of the CDR serves for an early identification of MCI cases with predisposition for AD and can be used in clinical trials for new drug developments in AD. NIH:R25 RR17589.

The Relationship between Maternal Confidence for Labor and the Perception and Management of Labor Pain.

R- 133 M. Rivera Pagán. Department of Graduate Studies, School of Nursing.

In Puerto Rico, limited data is reported regarding the childbirth process, particularly the perception of labor pain as reported by women themselves and the various influences that affect this experience. The aims were to explore the multiple factors that influence the development of self-efficacy (SE) in pregnant women; explore the influence of SE and coping abilities for labor and childbirth on the perception of labor pain and use of pain management; and compare the relationship between SE for childbirth and age, parity number, attendance to childbirth education classes, and perception of support received during labor. Eighty-five women who delivered a full term viable infant by vaginal delivery within the past 24 to 48 hours were recruited from a hospital in the metropolitan area. Data was obtained from three instruments: The Labour Agency Scale, the Short-Form McGill Pain Questionnaire, and a demographic data sheet. Regarding the childbirth experience, 41% of women reported their pain intensity level as horrible or excruciating while the remaining 59% described it as mild or distressing. Using a visual analogue scale, 52% of the

participants evaluated their overall pain experience as 8, 9, and 10 (10 representing the worst possible pain). The preliminary data suggest that labor pain is not a universally agreed upon experience and is thus perceived differently by each individual.

R- 134
Craniofacial Alteration. Cleft Lip and Palate in Prehispanic Cultures of Central, South America and the Caribbean M.I. Salcedo-Gonzalez, E. Augusto-Bonet. Department of Orthodonty, School of Dentistry.

The objective of this descriptive study was to select and present archeological evidence of Craniofacial Alterations found in ceramics of Central and South America prehispanic populations from 800 BC to 1,492 AD. In these prehispanic cultures Craniofacial Alterations were considered as presage of future events, cosmic influence and represented privileged persons. Prehispanic ceramics from México, El Salvador, Puerto Rico, Colombia, Perú and Brazil display congenital anthropomorphic abnormalities indicating craniofacial asymmetries and syndromes, cleft lip and palate. This analysis describes 39 figures of cranium and face that were selected from 300 archeological samples of ceramic and human remains from The Olmeca, Maya, Azteca, Tumaco and Mochica cultures in México, El Salvador, Puerto Rico, Colombia and Perú. A historical background of the prehispanic population and ceramics from archeological evidence is presented, and the main alterations found in different characters, represented by the figures, are analyzed. The alterations found in the samples show evidence of the following: 49% to orofacial clefts, 49% to asymmetries and 2% to syndromes. Of the figures presenting orofacial clefts, 100% were males, 94% had cleft lip and 6% cleft palate. For the group showing cleft lip, 75% were unilateral, 66% of the unilateral were left and 34% right sided and 25% bilateral cleft. This data concurs with the findings of the World Health Organization which showed a predominance of cleft lip than cleft palate, of unilateral cleft lip than bilateral and predominance of left cleft.

R- 135
Descriptive Epidemiology of Oral and Pharyngeal Cancer on the Island of Puerto Rico. R.M. Wagner, D.E. Morse. Research Center, NYU-Dental College.

Historically, oral and pharyngeal cancer (OPC) incidence in Puerto Rican males has been among the highest in the Western Hemisphere. Until recently, OPC statistics were available only through the early-1990s. The objective of this epidemiological study was to analyze recent incidence

and mortality rates and trends for Puerto Rico and to compare these to similar statistics for US Blacks and Whites. Age-adjusted OPC incidence and mortality rates (2000 US standard population) were obtained via the Puerto Rico Central Cancer Registry (PRCCP) and the Surveillance, Epidemiology and End Results (SEER) Program. Incidence and mortality rates for residents of Puerto Rico (PR) were compared with those of US Blacks and Whites. From 1987 through 2000, age-adjusted OPC incidence rates (AAIRs) and, from 1987 through 2000, OPC mortality rates (AAMRs) were higher among males than females and highest for PR males and US black males. From 1987 to 2000, AAIRs decreased for PR (42%), US black (46%) and US white (25%) males. Over the same time period, AAIRs declined 24%, 10% and 25%, respectively, for PR females and US black and white females. From 1987 to 2000, AAMRs showed a net decrease of 50% for PR males, 30% for US black males and 25% for US white males. Among females, the respective percentage declines were 47%, 36% and 30%. Over 40% of PR oral cancer cases were unstaged, making a meaningful analysis impossible. Overall, the AAIRs and AAMRs for OPC demonstrated a marked decrease between 1987 and 2001, for each of the gender and racial/ethnic groups considered. OPC incidence and mortality trends for PR males are similar to US black males.

R- 136
The Relationship among Cardiovascular Risk Factors, Dietary Patterns, Alcohol Consumption, and Ethnicity among Women Aged 50 Years and Above. E. Pinto¹, C. Rice², D. Weddle¹, G. Rahill³. Department of Dietetics & Nutrition, Florida International University¹; School of Social Welfare, Florida International University², Department of Social Welfare, Florida International University³.

Cardiovascular disease (CVD) is the leading cause of death among women of all race and ethnicities. For postmenopausal women the risk of developing CVD is greater. The objectives of this study are: 1) use cluster analysis to derive diet patterns 2) Examine the association between diet patterns and the presence of major CVD risk factors. Data from the NHANES 2001-02 was used. Women >50 years were selected. The resulting sample size was n=1,313. The following major CVD risk factors were examined: 1) overweight (>24.9 kg/m²) 2) elevated systolic blood pressure (>120 mmHg) and 3) low HDL levels of <50mg/dl. Dietary patterns were derived using cluster analysis using data from the 24 hour diet recall. Logistic regression was used to determine the probability

of having a risk factor according to diet pattern while controlling for race/ethnicity, physical activity, age and smoking. Cluster analysis generated 6 distinct non-overlapping diet patterns labeled as: Pasta & yellow veggies, Sweets, Beef, starches, fruits & milk, Frozen meals, burritos & pizza, Meat dishes and Soft drinks & poultry. Labeled this way for the contribution of these foods to the total energy. Protective factors for low HDL included being non-Hispanic Black (OR: 0.593; CI: 0.435-0.809), alcohol consumption (OR: 0.760; CI: 0.689-0.839) and being assigned to the Sweets diet pattern (OR: 0.268; CI: 0.144-0.498). Consumption of fiber and n-3 fatty acids was inadequate in all clusters, according to the guidelines for CVD prevention. Note: Parts of this abstract were presented in September 2006.

R- 137
Prevalencia de Incontinencia Urinaria y Cómo el Índice de Masa Corporal se Asocia a esta en una Muestra de Mujeres Entre las Edades de 21-64 Años Residentes de la Zona Urbana de Bayamón Durante el Año 2006. M. López, A. Ortiz, R. Vargas. Department of Bioestadistic and Epidemiology, School of Public Health.

La magnitud de la incontinencia urinaria (IU) en mujeres puertorriqueñas entre las edades de 21 a 64 años no está documentada. El presente estudio determinó la prevalencia de incontinencia urinaria y cómo el índice de masa corporal (IMC) se asocia a esta en una muestra de mujeres entre las edades de 21 a 64 años residentes de una zona urbana de Bayamón. Se utilizó un muestreo por conglomerado para seleccionar 354 mujeres entre las edades de 21 a 64 años. Un total de 276 (77.52%) de la 354 mujeres elegibles completaron la entrevista personal donde se recopiló información sobre las características sociodemográficas, el historial médico, ginecológico e historial de incontinencia urinaria. Las variables que se asociaron marginalmente o significativamente con la prevalencia de IU y al IMC ($p < 0.10$) se incluyeron en el modelo de regresión logística. El protocolo de investigación fue aprobado por el Comité de Derechos Humanos del Recinto de Ciencias Médicas. Entre los hallazgos de este estudio, encontramos que la prevalencia general de incontinencia urinaria fue de 34.78% (IC 95%: 29.39% – 40.59%). El análisis bivariado reveló que las mujeres obesas tienen 2.76 veces ($p < 0.05$) la posibilidad de tener IU. El análisis multivariado reveló que la obesidad se asoció significativamente (POR=1.77 $p < 0.05$) cuando se controla

por el sobre peso, diagnóstico de diabetes, uso de medicamento cuyo efecto secundario sea orinar frecuentemente, infección vaginal y el número de partos. A través de este estudio se pudo observar la alta prevalencia de IU y cómo la obesidad está asociada a ésta. Se reconoce la aportación del programa de RCMI.

R- 138
Tatuajes en Prisión: Implicaciones para la Prevención de Contagio con VIH y Hepatitis B y C. E. Flores, G. Caraballo-Correa, C. Albizu-García. Social Research and Evaluation Center, School of Public Health.

Centro de Investigación y Evaluación Sociomédica Tatuarse está prohibido en prisión, condiciones de asepsia y medidas para no contagio con patógenos no siempre utilizadas. Esto implica riesgo de contagio con patógenos en confinados que incurren en tal práctica, sobre todo dada alta prevalencia de contagio. Importante generar recomendaciones al DCR para implantar medidas de salud pública basadas en evidencia para prevenir condiciones adversas de salud asociadas a práctica no-estéril de tatuajes. Este estudio reportará prevalencia de tatuajes en prisión y presentará las condiciones de tatuajes y la relación de éstas prácticas con historial de contagio con VIH, VHC y VHB. Análisis de datos secundarios (2005) de una muestra representativa de la población penal del país. Muestra final de 1,1179 confinados (tasa de respuesta de 89.7%). Método de entrevistas: entrevista cara a cara para variables de salud. El "Audio Computer Assisted Self Interview" para variables de prácticas de tatuajes. 80.1% de los confinados reportan historial de tatuajes, 57% de éstos tatuado en prisión y 81% auto-reporta contagio con algún patógeno. Algunas conductas de riesgo de contagio fueron: tatuarse con aguja re-usada (32%); tatuarse con tinta preparada en prisión (91%). La práctica de tatuajes es común en las prisiones de PR y se da bajo condiciones no-estériles. La estrategia para la prevención de contagio es entrega de material educativo a reclusos y manejo efectivo de esterilización. Dado que se evidencia disponibilidad de confinados a reducir prácticas riesgosas cuando es factible, se informará a las autoridades para que consideren recomendaciones que reduzcan contagio al tatuarse.

R- 139 **Periodontal Status in a Population of Older Adults in San Juan.** M. Montero-Aguilar, A.R. Elías-Boneta, L. Cuadrado, C.E. Toro-Vizcarrondo, K.J. Joshipura. Research Center, School of Dentistry, Medical Science Campus, University of Puerto Rico.

Puerto Rico has not been included in the U.S. National Health Surveys; this is the first report of the periodontal health status in a Puerto Rican population. Objective: To assess the periodontal status of the elderly (60+) in San Juan. Methods: A cluster sample stratified by age and gender was selected from older adults residing in independent retirement housing, known as egidas (n=186). Participants were clinically examined for periodontal disease following the NIDR diagnostic criteria. Pocket depth (PD) and attachment level (AL) were measured at 3 sites per tooth: buccal, mesio-buccal, and disto-lingual. Results: The mean age of the subjects examined was 75.5 (SD=8.6), 51% were male, and 82% were never smokers. The subjects on average had 14 teeth and 21% were edentulous. Among the dentate, the mean PD was 2.7mm and mean AL was 4.4mm. Moderate periodontal disease was observed in 70.2% of the subjects (mean AL 3mm-6mm) and 12.8% showed severe disease (mean AL >6mm). The NHANES III showed significantly lower prevalence of periodontitis (6.8%) among 60+ adults in the United States, compared to 27.5% in our population (periodontitis defined as α -8805;4 sites with AL α -8805;5 and α -8805;1 site with PD α -8805;4 based on two sites). Conclusion: The results show the prevalence of periodontal disease is high in our study population. Larger island-wide studies are needed to determine the periodontal status across different regions and age groups in Puerto Rico, and to understand the reasons for the high prevalence of periodontal disease. This investigation was supported by NIH Grants P20RR11126, R25RR17589 and K24DE16884 and the University of Costa Rica.

R- 140 **Asymmetrical Dopaminergic Innervation Within the Esophagus May Possibly Underlie Different Feeding Related Behaviors in Aplysia Californica.** C. Martínez-Rubio¹, G.E. Serrano¹, A. Maldonado², K. García¹, M. Díaz-Ríos¹, M.W. Miller¹. Department of Biomedical Sciences, School of Medicine.

Aplysia has been studied extensively in investigations aiming to understand the neural regulation of complex behavior patterns such as motivated behavior and behavioral plasticity (learning). The esophageal nerve

(EN) plays an important role in feeding related behaviors, classical conditioning of feeding, satiation, and rejection. There are several findings that suggest a pivotal role of dopamine (DA) in the modulation of these behaviors. Although previous studies have shown the presence of dopaminergic fibers in the EN, the density of DA fibers and cells in the esophagus has not been mapped and quantified in a detailed fashion. The EN is divided into two major ramifications, the anterior (E1) and posterior (E2) branches that innervate distinct regions of the pharyngeal-esophageal axis. The present study was intended to map DA in the regions innervated by these two ramifications. Our findings indicate that the innervation patterns of the two EN branches differ in a significant fashion.

R- 141 **Disruption of the Gamma-glutamyl-cysteine Synthetase (pbggcs) Gene in Plasmodium Berghei.** J. Vega-Rodríguez, B. Franke-Fayard, H.A. Colón-Rivera, C. Janse, A. Waters, A.E. Serrano. Department of Microbiology, School of Medicine.

Glutathion (GSH) is the most abundant thiol molecule in Plasmodium parasites and is directly involved in the maintenance of the cellular redox state and detoxification of xenobiotics. Drug resistant cancer cells use GSH modifications or co-transport of drugs with GSH as a detoxification mechanism. The same detoxification strategy has been suggested in the Plasmodium genus in which drug resistance in some chloroquine resistant strains of P. berghei and P. falciparum is accompanied by increased glutathione levels. Gamma-glutamylcysteine synthetase (GGCS) is the rate limiting enzyme in glutathione biosynthesis. An augmented expression of the pbggcs mRNA in chloroquine resistant parasites as compared to sensitive ones was previously reported, suggesting a possible role in Plasmodia drug resistance. We generated a P. berghei ggcs knockout parasite. According to Southern blot analysis the integration event took place at the endogenous pbggcs locus. The integration of the pbggcs-ko construct mapped to chromosome 8, supporting the Southern blot results. Expression experiments as Northern blot, Western blot and Immunofluorescence are currently underway to confirm whether or not this parasite line is deficient of pbGGCS. Drug assays will be done in order to determine the response of these knockout parasites to commonly antimalarial drugs such as Chloroquine. This new parasite line provides the opportunity to study the proposed GSH-mediated drug resistant phenotype in

Plasmodia as well as the role of this pathway in the redox balance of the parasite.

- R- 142** **25 - hydroxycholesterol Induces Mitochondrial DNA Damage and Dysfunction in the Human Leukemic CEM Cells.** R. Castro. N. Rosario², K. Acevedo-Torres¹, C.A. Torres-Ramos¹, S. Ayala-Torres¹². ¹University of Puerto Rico, Medical Sciences Campus, San Juan, PR; ²Universidad Central del Caribe, Bayamón, PR.

Oxysterols are cholesterol oxidation products that induce apoptosis in human lymphoid cells and show great potential as chemotherapeutic agents. The mechanism by which oxysterols trigger apoptosis is unknown but radical oxygen species (ROS) generation has been suggested to play a role. In this work we tested the hypothesis that oxysterol-induced apoptosis leads to mitochondrial DNA (mtDNA) damage and loss of mitochondrial function. We applied a PCR-based assay to detect a variety of DNA lesions and assess the relative amounts of mtDNA damage after oxysterol treatment of the human leukemic cell line CEM. Our data show time and dose-dependent increases in the number of mtDNA lesions in oxysterol-sensitive cells exposed to 25-hydroxycholesterol (25OHC). A significant 15% decrease in the amplification of a 10.0 kb mitochondrial DNA (mtDNA) fragment was observed at 24h after 1000 nM 25OHC exposure. The number of lesions in a nuclear DNA (nDNA) fragment was less as compared to mtDNA as shown by an 18% reduction of amplification of the nDNA fragment at 48h after 1000 nM 25OHC treatment vs a 35% reduction in mtDNA. Our data also show a dose-dependent decrease in ATP levels in the oxysterol-sensitive cells 48h after exposure to 25OHC. In addition, we show that 25OHC treatment elicits a dose-dependent loss of mitochondrial membrane potential 48h after treatment. These effects were not observed in the oxysterol-resistant M10R5 cells, which do not undergo apoptosis in the presence of 25OHC. These results support our hypothesis that mitochondria are target of oxidative damage during oxysterol-induced apoptosis of human CEM.

- R- 143** **Bioaerosoles Presentes en la Atmósfera de San Juan y Caguas: un Estudio Comparativo.** E. Quintero, B. Bolaños. Departamento de Microbiología, RCM, UPR.

Las esporas de hongos y los granos de polen son bioaerosoles comunes en la atmósfera, su presencia

representa un riesgo para la salud. Las afecciones se presentan por la inhalación del particulado, que tiene el aire, como medio de dispersión. Los estudios aerobiológicos sirven de insumo a médicos y alergistas para el diseño de tratamientos preventivos acordes con las circunstancias ambientales del trópico. Para contabilizar las esporas de hongos y el polen se utilizó el captador "Allergenco® Air Sampler" (MK3). Durante nueve meses se tomaron muestras de aire, en dos estaciones: una ubicada en San Juan y otra en Caguas. Las laminillas impactadas, se tiñeron con calcofluor y se observaron al microscopio. Las condiciones del tiempo de ambos lugares se obtuvieron con la estación "Weather Station®". Los resultados indican que el particulado fúngico esta presente todo el tiempo, presentando un ritmo circadiano de predominancia nocturna. El promedio de esporas/mes fue más alto en Caguas que en San Juan. Las esporas más frecuentes son las basidiosporas y las ascosporas, aunque se han contabilizado otros tipos de esporas de hongos con potencial alergénico. El polen es menos frecuente en la atmósfera de Caguas y San Juan. Los aspectos microclimáticos inciden en los procesos de condensación o dispersión. Se observa que la lluvia y el viento actúan como dispersantes, en tanto que la humedad y el punto de rocío favorecen la concentración. Los datos climáticos varían constantemente, lo que implica realizar observaciones durante periodos más largos, que permitan tener una estimación acorde con las circunstancias del trópico.

- R- 144** **Estimado de Necesidades de Liderazgo en los Profesionales de Enfermería en Tres Centros en la Zona Metropolitana.** Rodríguez Morales. Escuela de Enfermería, Recinto de Ciencias Médicas. Universidad de Puerto Rico.

Los objetivos Gente Saludable 2010, establecen como una de las dos grandes metas la eliminación de desigualdades de salud. El desarrollo de liderazgo puede contribuir a la profesionalización de la enfermería. Este estudio destaca las áreas de necesidad de capacitación educativa de liderazgo en los profesionales de enfermería, las barreras que impiden su desarrollo como líder y la percepción sobre desigualdades de salud. El mismo fue uno exploratorio descriptivo. Los participantes fueron escogidos por disponibilidad, en tres instituciones en el área metropolitana. Fue analizado con una muestra de 78 sujetos. El 93% de la muestra indicó que desean desarrollar destrezas de liderazgo en nueve competencias que debe poseer el líder según la investigadora (Enfermeras en Ontario 2000, Tourangeau 2003, Villaruel

y Peragallo 2004 y Keltner, 2004). El 63% describe tener barreras que impide su desarrollo como líder. También, se puede decir que enfermería relaciona las desigualdades de salud a los altos costos, entre otros. En conclusión enfermería debe reafinar las destrezas de liderazgo descritas para apoderar al profesional de enfermería en la atención de cliente, familia y comunidad. Una de las recomendaciones es crear iniciativas de liderazgo en distintas áreas donde enfermería se desempeña. Estos resultados pueden ser una base de apoyo para futuras investigaciones en las áreas de liderazgo. Además, de contribuir en la planificación e implementación de estrategias para mejorar el liderazgo, así como la creación de programas de alianza y colaboración interdisciplinaria para el beneficio del cliente, familia y comunidad.

R- 145
Conocimientos y Actitudes del Personal de Enfermería sobre el Manejo del Dolor con Técnicas no Farmacológicas en Pacientes Pediátricos. M. Paz Cruz.
Departamento de Estudios Graduados,
Escuela de Enfermería.

Las técnicas no farmacológicas son parte importante del cuidado del paciente pediátrico que padece de dolor. Tales técnicas no incluyen el uso de medicamentos, pero hacen el dolor más tolerable y dan al niño(a) un sentido de control de su condición (Polkki, Laukkala, Vehvilainen y Maija, 2001; Coleman, 2001; McGrath, 1998.) El propósito del estudio fue conocer los conocimientos y las actitudes del personal de enfermería en el manejo del dolor de pacientes pediátricos con técnicas no farmacológicas, describir las técnicas más utilizadas en su práctica y la relación entre el uso de las técnicas por años de trabajo. El diseño fue de tipo descriptivo correlacional. Participaron 100 enfermeras(os) pediátricas de 3 hospitales del área metropolitana. El 75% de la población fueron mujeres, entre 41 y 50 años y con más de 16 años de experiencia. El conocimiento de las técnicas no farmacológicas fue alto. La terapia más conocida para el alivio del dolor fue el masaje, aunque solo la mitad lo usaba en su práctica profesional y para el alivio personal. El 75% de los(as) encuestados(as) conoce la acupuntura como una técnica terapéutica no farmacológica y la y aunque la usan como método curativo para su propio alivio, ninguno la usa al ofrecer cuidado. En conclusión, el personal de Enfermería demuestra conocer las técnicas no farmacológicas, pero aun no han incorporado las mismas en su práctica. Es importante desarrollar programas educativos para adiestrar a los/ as profesionales de la enfermería sobre terapias no

farmacológicas para el alivio del dolor en pacientes pediátricos.

R- 146
Autoeficacia del Personal de Enfermería para Promover el Amamantamiento en un Escenario Hospitalario. B. Díaz Santiago.
Departamento de Estudios Graduados,
Escuela de Enfermería.

Aunque existe evidencia científica sobre los beneficios del amamantamiento, esta práctica no es lo suficientemente frecuente si comparamos el por ciento de niños/ as lactados (Becerra y Smith, 1990). Esta realidad se materializa en la falta de políticas hospitalarias que promuevan la lactancia y el seguimiento de su funcionalidad. Estas circunstancias se agudizan al considerar la apatía, desconocimiento y actitudes del personal de enfermería en la promoción de la lactancia (Patton, Beaman, Csar y Lewinski, 1999; Spear, 2004; Parrilla y Gorrin, 2000; Mateus y Carvajal, 2003) El propósito fue auscultar mediante encuesta el nivel de autoeficacia, conocimiento y actitudes de un grupo de 94 enfermera/os en promover el amamantamiento. Los objetivos fueron: 1) medir el nivel de autoeficacia en la promoción del amamantamiento, 2) Determinar el nivel de conocimiento al intervenir con las madres en el proceso de amamantamiento y 3) describir las actitudes durante la promoción del amamantamiento. El diseño fue descriptivo correlacional y se realizó con enfermeras(os) de sala de parto, recién nacidos y maternidad de tres hospitales del área nor-noreste. Los hallazgos apuntan a que las enfermeras se sienten capaces y seguras de realizar las tareas y destrezas relacionadas con la promoción de la lactancia. Las actitudes y el conocimiento mostrados por este profesional son cónsonos con la política de fomentar el amamantamiento. Los resultados proveen información relevante sobre la autoeficacia y autoestima del profesional de enfermería en la promoción de la lactancia.

R- 147
Datos Preliminares Sobre Estudios de Infantes Prematuros con ROP: Percepción Paterna/materna. Z. M. Rivera-Orraca, G. Reyes-Báez, A. Vargas-Arriaga. Sección Neonatal, Departamento de Pediatría, Recinto de Ciencias Médicas, Universidad de Puerto Rico.

Los avances médicos han conllevado nuevos retos para la práctica neonatal, los servicios de salud y las familias de los infantes prematuros. La condición de retinopatía del prematuro (ROP) es uno de estos nuevos desafíos que impacta el desarrollo del niño. Con el objetivo de recopilar datos relacionados al conocimiento y la

percepción de los padres respecto a esta condición se realizaron 127 entrevistas. Una vez las variables fueron categorizadas y definidas se llevó a cabo un análisis de frecuencia de los datos obtenidos. Los resultados preliminares muestran que el 100% de los padres conocen la condición de ROP de sus hijos, aunque no la puedan explicar detalladamente. El 99% de éstos entienden la importancia del seguimiento oftalmológico. Asimismo, el 89% de éstos mostraron conocer el tratamiento actual. Sobre la percepción de la visión refirieron: 44% “ve bien”, 8% “ve algo”, 21% “ve sombras” y 14% “responde a luz”. Estos datos son relevantes porque sugieren un manejo de información mas precisa. También se observó que sobre el 80% de los entrevistados indicaron estar satisfecho con el servicio de oftalmología recibido. En conclusión, los padres entrevistados de infantes prematuros con ROP demostraron conocer la condición, el tratamiento y la importancia del seguimiento oftalmológico para la salud visual de éstos. En general, se observó el conocimiento y la percepción paterna como aspectos fundamentales para el éxito y el cumplimiento del protocolo establecido para esta población. Esta investigación es subvencionada por el Consejo Estatal para Deficiencias en el Desarrollo.

R- 148 **La Educación en Salud Pública: Sesenta Años de la Profesión en Puerto Rico (1947-2007).** H.V.Arroyo, D.Gely, S.Rabionet, M.C. Santos, V. Vázquez. Programa Graduado de Educación en Salud Pública, Departamento de Ciencias Sociales, Escuela de Salud Pública, Recinto de Ciencias Médicas, Universidad de Puerto Rico.

La Educación en Salud Pública ha sido históricamente una de las estrategias de intervención por excelencia en el campo de la Salud Pública. Ha sido instrumental en las políticas de salud a nivel nacional y global y en las acciones institucionales y programáticas de los ámbitos de la salud comunitaria, la prevención, la protección de la salud y la promoción de la salud en general. La Educación en Salud Pública en Puerto Rico alcanza posicionamiento disciplinar y profesional a partir de la década del 1940 hasta el presente. El objetivo de este trabajo es analizar la contribución social y de salud de la profesión de Educación en Salud en Puerto Rico utilizando como referencia tres perspectivas, a saber: la política pública de salud vigente, el desarrollo académico alcanzado y la percepción de los profesionales de Educación en Salud en Puerto Rico. El análisis fue realizado a través de la revisión documental y el desarrollo de entrevistas a una muestra de profesionales de la Educación en Salud en Puerto Rico. Los resultados del estudio permiten valorar

la contribución de la Educación en Salud Puertorriqueña en el ámbito académico y en el quehacer salubrista nacional e internacional.

R- 149 **Un Modelo para la Enseñanza de la Práctica Basada en Evidencia: Diseño Curricular, Experiencias y Retos.** C. Rodríguez-Delgado. Programa de Terapia Ocupacional, Recinto de Ciencias Médicas, Instituto FILIUS.

La enseñanza de la práctica basada en evidencia (PBE), como un componente curricular, ha tomado importancia en diferentes profesiones de la salud durante los últimos años. La información científica disponible, la disponibilidad de las bases de datos y el reclamo de los consumidores por sus derechos y por la calidad de los servicios de salud que reciben, son algunas fuerzas que enmarcan y le dan forma a esta realidad. Tickle (1999) propone el esquema de los pasos o dimensiones para facilitar el que los profesionales apliquen esta práctica. Este esquema incluye desde la formulación de la pregunta clínica de búsqueda hasta la comunicación al paciente y la evaluación de las evidencias. El objetivo de este proyecto ha sido enfatizar la enseñanza de la PBE a lo largo del currículo usando como modelo el esquema descrito. Estas experiencias educativas innovadoras además están fundamentadas en la filosofía y diseño curricular. La experiencia de la implantación de una serie de cursos, la presencia de los principios de la práctica basada en evidencia en los cursos de aplicaciones clínicas, la consideración de la preparación y experiencias previas de los estudiantes, la preparación de la facultad y la evaluación continua, son estrategias que han sido utilizadas. Las controversias en la aplicación de estos principios es otro aspecto que ha sido considerado. Los logros curriculares incluyen aportaciones a la PBE de Terapia Ocupacional en Puerto Rico y la educación a instructores clínicos.

R- 150 **Determinación Científica de la Forma de Combinar los Componentes del Sistema de Evaluación de la Facultad Propuesto para el Recinto de Ciencias Médicas.** A. A. Collazo. Decanato de Asuntos Académicos, Recinto de Ciencias Médicas, Universidad de Puerto Rico.

Tomar decisiones relacionadas con los pesos que deben tener los componentes de un sistema de evaluación de la facultad es una tarea muy ardua que necesita sistematización. Por otra parte, hay investigaciones que recalcan las limitaciones que enfrentamos cuando dichas

decisiones se basan en los rangos o pesos indicados por docentes en una escala de importancia. El propósito de esta investigación fue derivar la forma de combinar los componentes del sistema de evaluación de facultad que se está desarrollando para el RCM mediante un método científico diferente, enmarcado en la teoría de juicio social. Con este fin, el 71% (N = 85) de los miembros de los comités de personal departamentales contestaron una de dos formas de un instrumento autoadministrable, que fue asignada aleatoriamente. Ambas forma contenían 20 perfiles ficticios de docentes pero variaban en cuanto a las áreas de la labor docente evaluadas. Las áreas docentes fueron: docencia general y servicio (Forma 1) y enseñanza e investigación (Forma 2). El análisis de las respuestas incluyó un nivel ideográfico mediante correlación y regresión múltiples, además de un nivel nomotético mediante estadísticas descriptivas y análisis de conglomerados (cluster analysis). Los participantes tuvieron, típicamente, un control cognitivo alto al hacer los juicios. Sólo en el área de investigación se obtuvieron conglomerados de modelos de juicio distintos (dos conglomerados). Los resultados del análisis sugieren los modelos a seguir para combinar los componentes de cada área del sistema de evaluación propuesto.

R- 151 Aprendizaje Basado en Problemas y su Relevancia en la Práctica Profesional de la Terapia Física. I. Bonet. Programa de Terapia Física, Escuela de Profesiones de la Salud.

El Programa de maestría de Terapia Física, en su nueva oferta curricular incluye tres cursos cuya estrategia educativa es el aprendizaje basado en problemas. Los mismos están diseñados de manera que un grupo pequeño de estudiantes trabaja y discute un caso hipotético para identificar carencias de aprendizaje, elaborar preguntas claves, y formular hipótesis para atender el mismo. Una de las metas fundamentales de esta estrategia es la búsqueda y análisis crítico de la literatura científica por parte de los estudiantes, que les permita analizar y adoptar o no la hipótesis formulada. A través de esta presentación se examinará esta estrategia educativa y las implicaciones de ésta en la práctica de la Terapia Física. Se incluirá el análisis de la literatura que sostiene dicha estrategia. Además se analizarán las experiencias más relevantes en el programa desde la perspectiva tanto de su implantación, como los logros obtenidos y una reflexión acerca de las recomendaciones para el futuro.

Trace Metals in Sportfish from Humacao Nature Reserve, Puerto Rico. A. Santana-Cruz, D. Santiago Miranda, C.J. Rodríguez-Sierra, I. Mansilla-Rivera. Department of Environmental Health, Graduate School of Public Health, Medical Sciences Campus, University of Puerto Rico, San Juan, Puerto Rico.

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To determine the extent of contamination by metals in the Humacao Nature Reserve concentrations of arsenic (As), cadmium (Cd), copper (Cu), lead (Pb), selenium (Se), mercury (Hg) (only in muscle tissue), and zinc (Zn) in muscle and liver tissues of *Tilapia* spp. (herbivorous), *Centropomus undecimalis* (carnivorous), and *Megalops atlanticus* (carnivorous) were measured. Homogenates of wet skinless muscle are being digested in a microwave oven with nitric acid. Metals are being analyzed using atomic absorption spectrometry. Results showed metal concentration ranges ($\mu\text{g/g}$ wet weight basis) in muscle and liver tissues of *Tilapia* spp. were the following: (0.05-0.72) and (0.08-0.28) for As, (0.09-0.24) and (0.38-1.87) for Se, (0.09-0.29) and (1.41-71.10) for Cu, (3.14-4.66) and (9.21-23.30) for Zn, and (no detect-0.011) for Hg, and for *Centropomus undecimalis*, metal concentration ranges were: (no detect-0.10) and (0.03-0.47) for As, (0.04-0.28) and (0.74-1.39) for Se, (0.09-0.13) and (5.40-15.87) for Cu, (3.4-4.2) and (27.74-46.44) for Zn, and (0.01-0.12) for Hg. For *Megalops atlanticus*, metal concentrations in muscle and liver tissues were: ((0.03-1.11) and (0.03-0.38) for As, (0.07-0.25) and (0.92-1.79) for Se, (0.15-0.26) and (5.29-30.48) for Cu, (2.33-3.68) and (22.62-46.58) for Zn and (0.02-0.23) for Hg. Pb and Cd were below detection limit for the three species in both tissues. In conclusion, metal levels in fish tissues were low and do not represent a health risk for people who consume them. Funding was provided by Department of Natural and Environmental Resources.

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Neonatal Exposure to Fluoxetine Induces Sex-Specific Changes in Social Interactions. W. Díaz-Casillas¹, I. Terón-Molina², Y. Fortis-Santiago³. Department of Psychology, University of Puerto Rico, Río Piedras¹, San Juan, PR, Department of Biology, University of Puerto Rico, Río Piedras², San Juan, PR, Neuroscience Graduate Program, Volen Center, Brandeis University, Waltham, MA³.

Exposure to the serotonin selective reuptake inhibitor (SSRI) fluoxetine during neonatal development may have permanent behavioral consequences. Fluoxetine, trade name Prozac, is a pharmacological drug used in the therapeutic management of depression and associated anxiety. There have been recent serious concerns that this drug is unsafe in pediatric populations as it may increase the risk for suicide. Therefore, we aimed to develop an animal model where neonatal animals are systemically exposed to fluoxetine and its long-term consequences on behavior are assessed at various developmental stages. We found that fluoxetine-exposed pup females took longer to detect and interacted less with their dam when compared to their control siblings. During puberty and adulthood, fluoxetine-exposed females showed a reduction in social interactions when compared to control siblings. Male rats did not show significant changes in the social interaction test. Given that social behaviors in rodents rely heavily on olfactory cues, we are currently testing the hypothesis that fluoxetine-exposed females will also show a disruption in sexual behaviors. Nevertheless, our data show that early exposure to fluoxetine has long-term consequences in behavior according to sex. This study was supported by NIH-COBRE Grant RR-15565. IT-M was supported by the NIH-MBRS-RISE Program at MSC-UPR (GM61838). YF-S (now at Brandeis University) and WDC are supported by NIMH-COR Grant 5T 34MHO19134-16.

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Postnatal Exposure to Fluoxetine Induces Sex Specific Changes in the Accessory Olfactory Bulb Morphology in Adult Rats. K. Bermúdez-Hernández, D. Meléndez-Ronda, J.C. Jorge. Department of Anatomy, School of Medicine.

The accessory olfactory bulb (AOB) is a dimorphic structure and the first relay station in the vomeronasal system. It consists of three main layers: glomerular layer, mitral cell layer, and granule cell layer. It has been reported that the AOB morphology of adult rats is altered in a sex specific manner when they are exposed to diazepam (trade

name: Valium) during their postnatal period (Segovia et al 1991). Diazepam is a positive modulator of GABAA receptors, which are present in the granular cells of the AOB. Fluoxetine (trade name: Prozac) inhibits the enzyme 3- α -hydroxysteroid oxidoreductase, a key enzyme in the production of neurosteroids which act as allosteric modulators of GABAA receptors. The present study addressed permanent changes in the mitral cell layer of the AOB after postnatal exposure to fluoxetine in rats. We found that postnatal exposure to fluoxetine in males induced a significant increase in mitral cell density accompanied by an increase in mitral soma area, while in females there was an increase in cell density accompanied by a decrease in soma area. These data suggest that, in males, there was a decrease in cell number while in females there was an increase in cell number. Experiments are underway to determine whether these dramatic morphological changes are related to the production of GABA or in the clustering of GABAA receptors. To this end, we are assessing the profile of protein expression of GAD 65, GAD 67, and gephrin with Western Blot Analysis. Taken together, our results suggest that exposure to an antidepressant early in life may have permanent consequences in brain morphology.

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La Población Masculina: su Comportamiento Sexual, su Fecundidad y el Uso de Métodos Anticonceptivos. D.V. Báez Feliciano. Departamento Ciencias Sociales, Facultad de Salud Pública, Recinto de Ciencias Médicas, Universidad de Puerto Rico.

La Salud Reproductiva (SR) es tema de gran relevancia en la demografía ya que envuelve un conjunto de problemas relacionados a la salud y/o enfermedad asociadas a los riesgos físicos y sociales de la sexualidad en la población. La presente investigación exploró acerca de la SR de los hombres matriculados en una Institución Universitaria del Área Metropolitana de San Juan (AMSJ) en el año 2000-2001. El diseño del estudio es transversal y descriptivo, encuesta. La muestra consistió de 280 hombres en la Institución del AMSJ y utilizó un instrumento de recopilación de datos diseñado para obtener indicadores de comportamiento sexual y la fecundidad de los hombres, aprobado por el IRB del Recinto Ciencias Médicas. La metodología de análisis fue descriptiva. La mediana de edad del grupo fue 21 años, el 80.1% eran solteros y el 50.6% reportó un ingreso anual menor de \$15,000 anuales. El 84.1% estaban activos sexualmente. El 82.5% había tenido penetración vaginal y el 42.4% anal. La mediana de edad al inicio de la actividad

sexual fue de 16 años y el promedio de parejas sexuales fue de 5. El 47.7% de los hombres indicó haber usado condones la última vez que tuvieron relaciones sexuales. El 13.8% de los hombres eran padres y de estos solo el 56.7% planificó los hijos. El 73.3% de los participantes deseaba tener 2-3 hijos en el futuro. Los hallazgos mostraron conductas sexuales de alto riesgo practicadas por este grupo de hombres que podrían resultar en embarazos no deseados y riesgo a las ETS.

R- 156 Association of Childhood Overweight and Dietary Practices of Second Grade Students from Public Schools in all Municipalities of Puerto Rico, 2005. W. Rivera-Soto. Department of Human Development, School of Public Health.

Since 1970 the proportion of overweight children has more than tripled in children ages 6-11(from 4% to 19%)(1). This increase is a serious public health concerns worldwide, attributed to lifestyles, diet and environment changes. Dietary practices is one of the most influential risk factors. This study aimed to examine the association of BMI-for-Age with dietary practices of second grade students from public schools in all municipalities in PR. A structured questionnaire with 43 questions was sent to a representative sample of 1,911 parents of students. Response rate was 51%. Sample consisted of 54% girls and 45% boys. Twenty-four percent of students were overweight whereas 22% were on risk of overweight. Thirty-six percent had adequate BMI for their ages. Although 23% of parents considered their child overweight, 15% didn't consider it a problem. Soda was consumed everyday by 71% of students. In addition, 36% of students have sugar-added fruit drinks daily. Sixty-nine percent of students have a fruit everyday whereas only 17% have one serving of vegetable per day, 32% never eats vegetables. Whole grains cereals were consumed by 17% of students and fritters were consumed by 46% of them. Thirty-three percent of students eats candies everyday. Among them, 55% eats more than two candies per day. Conclusions: Dietary practices of students were not according to Dietary Recommendations for their age group. A high consumption of sugar-added, high fat products and low consumption of vegetables was reported, practices associated to overweight among children. This study was supported by RCM PAHO. Study was IRB approved.

R- 157 Oral and Temporomandibular Joint Health Needs Assessment of Muscular Dystrophy Patients, a Progress Report. I.C. Ríos, E. Pagán, J. R. Carlo. Department of Surgical and Ecological Science, School of Dentistry; Department of Neurology, School of Medicine.

There are almost no reports in the scientific literature of studies related to the status of the maxillofacial complex of Muscular Dystrophy patients. Muscular Dystrophy consists of a group of disorders characterized by progressive muscle weakness and loss of muscle tissue. There are nine types, the most common being Myotonic Muscular Dystrophy, which symptoms may begin from birth to adulthood. It affects both men and women, causing generalized weakness, initially seen in face, feet and hands. The purpose of this clinical study was to survey and assess the needs of the Muscular Dystrophy patients for Oral and Temporomandibular Joint (TMJ) treatment. The study is being conducted in the Muscular Dystrophy Association (MDA) Clinic at the UPR-Medical Sciences Campus. Patients are being classified by age, gender and type of Muscular Dystrophy. A questionnaire is being used to assess the needs of the patients. It is being filled by the clinician with the information offered by the parents and/or the patient. Up to the present time the questionnaire has been administered to 100 patients. Preliminary results indicate these patients are very conscious and have good compliance with oral health prevention practices. Prevalence of TMJ disorders symptoms appear to be comparable to the one of the non-disease population. This research project is still in progress and the ultimate objective is to determine if a dental clinic should be instituted, in order to complement the services being offered by the MDA Clinic.

R- 158 Reducing Neuropathic Pain. I. Sosa¹, J. Santiago-Figueroa², H. Guzman², O. Reyes³, D.P. Kuffler⁴. UPR Sch. of Med., ¹Section of Neurological Surgery; ²Dept. of Orthopedic Surgery; ⁴Inst. of Neurobiology; and ³Doctors Center Hospital, Manatee.

Neuropathic pain is debilitating, difficult to manage, causes depression, reduces quality of life, and has a variety of clinical symptoms. It affects about 5% of the population, 70% of patients with advanced cancer and inflammatory pathologies, and 95% of patients with spinal cord injuries. Neuropathic pain is primarily treated with antidepressants, anticonvulsants, local anesthetic/topical agents, and opioids. Rapidly evolving symptom- and

mechanism-based approaches for treating neuropathic pain hold promise for improving patients' quality of life. However, pharmacological treatment of symptoms of painful neuropathy is difficult because of the limited understanding of the underlying causes of the pain. At effective doses various agents induce systemic levels of multiple side effects. With neuropathic pain often refractory to conventional analgesic treatments most patients obtain only partial relief, and tolerability or side effects often limit their use. Alternative treatments include peripheral or neuraxial nerve blockade, and implanted cortical or spinal cord stimulators. We developed a technique that reduces to eliminates neuropathic pain, which involves only one surgery in which any neuroma is removed, along with the damaged tissue of the proximal and distal nerve stumps, bridging the gap with a collagen tube filled with an autologous 3-dimensional matrix filled containing a cocktail of neurotrophic factors. The neuropathic pain of all patients was significantly reduced (>75%) to completely eliminated, by about 1 year post surgery. Investigator funded study, using RCM/UPR IRB approved protocol and consent forms.

R- 159 **Level of Awareness and Knowledge about Osteoporosis among Women 50 Years and Older in Puerto Rico.** H.A. Monsanto. Merck Sharp & Dohme (I.A.) Corp.

The objective of this study was to determine the level of awareness and knowledge about osteoporosis among women 50 years and older in Puerto Rico. Telephone interviews were conducted in February 2006 using a structured questionnaire. A sample of 342 women was selected from different regions of the island. Eight percent responded they did not know anything about osteoporosis and were not included in the final analysis. Of the remaining 314 women, nearly two thirds know someone with osteoporosis, 25% had been diagnosed with osteoporosis and nearly 20% had a bone fracture. More than 60% of those diagnosed with osteoporosis mentioned taking medications or nutritional supplements. Twelve percent did not know what factors contribute to the development of osteoporosis. Although the great majority (84%) identified calcium deficiency as a risk factor for the development of osteoporosis, more than 60% of participants did not mention other risk factors, such as exercise, vitamin D deficiency, smoking, alcohol consumption, and age. Nearly 20% did not know the complications associated with osteoporosis. Two thirds identified bone fracture as the main complication. Almost half of the participants were of the opinion that osteoporosis may not be prevented. In conclusion, there

is a lack of awareness and knowledge among women 50 years and older about different aspects of osteoporosis, particularly those related to risk factors and complications. As a result, preventive behaviors, lifestyle modification and treatment may be postponed by the patient leading to complications.

R- 160 **Low Oncotic Pressure of Plasma and Antihypertensive Agents as Factors Causing Brain Swelling of Patients with Hypoxic Trophoblast Produced Capillary Hypertension (Preeclampsia).** F. Báez-Matos; J. Inserni-Milan; K. Adamsons. Department of Neurosurgery, School of Medicine.

Preeclampsia (HTCH) is the only known medical disorder in which arterioles do not protect capillaries from a pressure which exceeds the oncotic pressure of plasma. This is due to action of vasodilator polypeptides, and another substance with inotropics properties. The only arterioles that do not comply with the imposed vasodilatation are the arterioles of the brain.

We are proposing that hypertension in the capillaries of the brain will only develop when arteriolar conductance increased by vasodilators, and when plasma oncotic pressure is below norm. Since during the period 1980–2003, we did not use vasodilators, and normalized oncotic pressure in treating HTCH, we compare the relative frequency of brain swelling of patients with HTCH during that period, and the period July 1, 2003 to December 2004 when we reverted to US standards. In the first 23 years we could not identify a single patient with brain swelling treated according to our guidelines. In contrast, the second period contained four patients for whom the cause of death was listed as brain swelling/edema. Albumin concentration ranged between 2.8 g/100 ml to less than 1.0 g/100 ml. CT scans revealed diffuse brain swelling in three, and area of swelling or fraction in the fourth. Our observations question the safety of vasodilators including magnesium, in the management of patients with HTCH, and emphasize the role of normal oncotic pressure of plasma in this disorder.

R- 161 **DNA Profiling from Amniotic Fluid: A New Approach for Criminal Paternity.** C. Tirado, F. Mercedes, R. López, M.E. Matos, M. Candelario, J.F. Rodríguez. Institute of Forensic Sciences.

DNA identification is routinely performed in the Forensic DNA-Serology Laboratory of Puerto Rico for criminal paternity and human identification of descomposed

bodies. We report the first case in the Caribbean for criminal paternity using amniotic fluid as a sample. Forensic DNA analyses from amniotic fluid were performed from a pregnant 10 year-old girl who alleged being raped by her stepfather. In order to proceed legally, a paternity determination is crucial to scientifically corroborate the victim's testimony. After the amniocentesis process, a Forensic Identification Protocol for isolation of DNA from the sample was performed. Amniocytes were extracted by organic extraction, concentrated with microcon, quantified, amplified by PCR, and typed by capillary electrophoresis, using the ABI 3100 Genetic Analyzer and fifteen STR genetic markers. A positive identification was reported with a Paternity Probability of 99.999%. In conclusion, amniotic fluid is a suitable sample for forensic paternity testing before the child is born.

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Actitudes de los Profesionales de la Salud hacia la Muerte y el Cuidado a Pacientes en Etapa Terminal. A. González-Torres. Departamento de Estudios Graduados, Decanato de Enfermería.

La muerte, al igual que el nacimiento, es un fenómeno natural inherente a la condición humana que comparte aspectos biológicos, sociales y culturales, así como psicológico-emocionales (Brunet, Limonero & Otero, 2003). Los sentimientos personales de los profesionales de la salud pueden influenciar como éstos/as manejan los/as pacientes en etapa terminal. En Puerto Rico se han realizado muy pocos estudios con profesionales de la salud en las áreas de actitudes y la muerte. Participaron profesionales de la salud (n= 80 enfermeras/os y n= 20 médicos/as) de unidades de cuidados intensivos en dos hospitales. El propósito fue examinar las actitudes de los profesionales de la salud hacia la muerte y el cuidado a pacientes en etapa terminal en las áreas de intensivo. Se utilizaron tres instrumentos para medir las variables del estudio y se aplicó un instrumento para recoger datos demográficos. Los profesionales de la salud tienen actitudes negativas hacia la muerte (M= 138, SD= 18.65) y actitudes negativas hacia el cuidado del paciente en etapa terminal (M=116, SD= 11.92). Las mujeres (M = 141.60, DT = 16.75) reportaron mayores actitudes positivas hacia la muerte que los hombres (M = 130.60, DT = 20.75). Las personas solteras (M = 143.58, DT = 15.92) reportaron mayores actitudes positivas hacia la muerte que las personas casadas (M = 131.20, DT = 18.69). Ante estos hallazgos es vital desarrollar estrategias efectivas y programas educativos para los/as profesionales de la salud para mejorar la práctica y la calidad del cuidado

ofrecido a pacientes en etapa terminal y sus familiares en unidades de cuidado intensivo.

R- 163
Nutrient Intake of Puerto Rican Children, Participating or Not Participating in the Federal School Lunch Program. C. Rodríguez Sierra, A. Preston, R. Vélez, B. Rivera, V. Ramos. Dept. Biochemistry, University of Puerto Rico – Medical Sciences Campus.

Federally funded meals programs have been evaluated very often on the US mainland however, little information is available on these programs in Puerto Rico. To address this issue, we have administered 24 hr recall questionnaires Mon – Fri to groups of participating (P) or non-participating (NP) children in the Federal Lunch Program (FLP) at 3 educational levels: elementary-101 students (67 P and 34 NP), middle-116 students (64 P and 52 NP) and high- 105 students (58 P and 47 NP). Comparisons were made for (1) lunch intake of several macro- and micro-nutrients during the school week (2) total intake of several macro- and micro-nutrients during the school week (3) the percent contribution of the lunch to the total daily intake of several macro- and micro-nutrients and (4) total intake of several macro- and micro-nutrients during the weekend (i.e. when no lunch program is available). FLP participation is associated with higher lunch intakes of fiber, thiamin, riboflavin, vitamin D, vitamin K, iron, calcium and magnesium, and a lower intake of vitamin C at the High School Level. Both groups failed to reach lunch RDA levels for fiber, calcium and vitamin C and exceeded guidelines for sodium intake and percent dietary fat and saturated fat intake. Overall, eating patterns were superior in terms of total nutrient intake in P vs. NP children. Support is acknowledged by the National Research Initiative of the USDA Cooperative State Research, Education and Extension Service, grant number 2003-35200-13590.

R- 164
La Evaluación de la Integración y el Cumplimiento del Sistema Nacional para el Manejo de Incidentes (NIMS) en el Departamento de Salud de Puerto Rico. J. Toro, B. Santiago, M. Morales, I. Hernández, M. Ficher, M. Rivera, T. Meléndez, M. Aponte, M. Vera, A. Pattatucci. CIES, Escuela Graduada de Salud Pública.

Los eventos del 11 de septiembre de 2001 evidenciaron la necesidad de un sistema uniforme para el manejo de incidentes. Como resultado el gobierno federal desarrolló el “Sistema Nacional para el Manejo de Incidentes”

(NIMS). En este estudio se realizó una evaluación sobre el proceso de integración y cumplimiento del NIMS en el Departamento de Salud de Puerto Rico, con el fin de crear una base de datos que permita dirigir esfuerzos en el desarrollo de un sistema de preparación adecuado para responder a emergencias de salud pública. Se tradujo y adaptó el instrumento de evaluación del NIMS para realizar entrevistas con el personal clave de las ocho regiones de salud que cubre la isla. Los resultados sugieren que el Departamento de Salud aún no ha logrado cumplir con la mayoría de los criterios establecidos por el NIMS. Las emergencias se continúan manejando a través de un sistema no integrado donde los protocolos y roles están definidos por el uso y costumbre (i.e. "sistema criollo"). Aún así, se observó progreso en áreas compatibles entre el NIMS y el "sistema criollo". Los ejercicios prácticos y los simulacros se perfilan como actividades esenciales en la integración de los roles y responsabilidades del personal ante una emergencia. Varios factores como la centralización y la improvisación en los procesos de toma de decisiones interfieren en la integración del NIMS, por lo que deben ser atendidos mediante estrategias a corto y largo plazo. Se recomienda un enfoque persistente, riguroso y sistemático para lograr la integración efectiva del NIMS. (Auspiciado por el Departamento de Salud de Puerto Rico; aprobada por el IRB).

R- 165 **Subsite-specific Incidence Rates and Behavior of the Disease in Colorectal Cancer by Sex, Age Group and Year of Diagnosis in Puerto Rico, 1987-2002.**
M.Torres-Cintrón. Puerto Rico Department of Health, San Juan.

Background: Colorectal cancer is the second most common type of cancer in Puerto Rico. The incidence rates have been increasing since 1987 for both sexes. Colorectal cancer incidence rates vary by subsite. This has been associated with current strategies of early detection screening (Cheng, 2001). **Purpose:** The purpose of the study is to evaluate colorectal cancer subsite specific in situ or invasive behavior by sex, age group, and year of diagnosis. **Methods:** Incidence rate data and stage of disease were obtained from the Puerto Rico Central Cancer Registry. Age-adjusted incidence rates were standardized using the 2000 US standard population. Age-specific and age-adjusted rates were analyzed by subsite, sex, and year of diagnosis. Annual percent changes were estimated. **Results:** From 1987 to 2002, an increment was observed in the colorectal cancer incidence rates for all sub sites. The increasing trend observed for invasive colorectal cancer was statistically significant (p

<0.05). Age-adjusted incidence rates for invasive cancer were elevated for all subsites when we compared with in situ. The incidence trend was higher for proximal colon. **Conclusions:** The increase in the proximal colon cancer incidence rate suggests an effect of the change of detection methods. No screening effect was observed in the in situ incidence trend, however an increase was observed for invasive cancer. Lower incidence rates of in situ tumors suggest a failure in detecting the disease at early stages.

R- 166 **Incidence Trends of Cervical Cancer in Puerto Rico During 1987-2002.** J. Pérez-Irizarry, Puerto Rico Central Cancer Registry, Puerto Rico Department of Health, San Juan.

Background: The screening program for cervical cancer for the whole island of PR began in 1961 by settling cytological laboratories and personnel trained in the regional hospitals. The reports of the Dept. of Health PR showed that the incidence rates of invasive cervical cancer had descended from the beginning of the program. **Objective:** To evaluate the trends of cervical cancer incidence in residents of PR during 1987-2002 by histologic type (adenocarcinoma, squamous cell carcinoma,) and age group. **Methods:** The incidence data from the PR Cancer Registry were used to calculate age adjusted and age specific rates by histologic type. APC were estimated to evaluate the incidence trends from 1987-2002. **Results:** During 1987-2002, trends for carcinoma of the cervix showed a downward trend. Squamous cell carcinoma descended during 1987-2002 ($p<.05$), while for adenocarcinoma the trend was ascending ($p<.05$). For women 45y and older, the incidence of squamous cell carcinoma showed a significant decrease during 1987-2002. In women less than 30y of age, squamous cell carcinoma showed an increase from 1987-1990, then a decrease is observed from 1990-2002. For adenocarcinoma, women of 30-44y had an increase during 1987-2002, while women 45y of age and older showed a decrease in incidence. **Conclusion:** The incidence rates for squamous cell carcinoma have descended, while for adenocarcinoma, the incidence has increased. These results agree with previous studies. Nevertheless, the analysis by specific age group shows variation in the risk that could imply changes in the associated factors to each of the histology types.

R- 167 **Cancer Survival in Puerto Rico From 1987-2001.** T. De La Torre-Feliciano. Puerto Rico Department of Health, San Juan.

Background: Population based cancer survival data have not been published for PR since 1989. This study describes the relative survival rates for all cancers combined, cancer of the colon and rectum, lung and bronchus, prostate, and female breast cancer by age and sex. **Methods:** Five-year relative survival rates were analyzed for 99,897 patients diagnosed with invasive cancer in PR between 1987-2001, by age and sex, when applicable. The incidence data from the PR Cancer Registry was used. **Results:** The overall five-year relative survival rates for 1987-2001 was 37.6%. Survival has decreased for all of the cancer sites analyzed. From 1987-1994 to 1995-2001 the five-year relative survival rates for all cancers combined decreased from 39.0% to 34.6% for females and from 39.0% to 34.2% for males. Survival rates tended to be higher for females than for males for all cancer sites analyzed. Five-year relative survival rates by primary site were: 32.7% for colorectal cancer, 4.9% for lung and bronchus, 56.9% for female breast cancer, and 72.8% for prostate cancer for 1987-2001. Lower survival rates were observed for patients with colorectal, prostate and female breast cancer who were younger than 50 years of age as compared to patients of 50 years of age or older. Higher survival rates were observed for patients with lung and bronchus cancer who were younger than 50 years of age as compared to patients of 50 years of age or older. **Conclusions:** Survival rates in patients with invasive cancer in PR have not improved in recent years. This tendency was observed for all cancer sites analyzed.

R- 168 **Clinical Trials Sponsored by the Pharmaceutical Industry in Puerto Rico.** J.G. Quijada, E. López, H.A. Monsanto. Merck Sharp & Dohme (I.A.) Corp.

The objective of this study was to evaluate the clinical trials implemented in Puerto Rico sponsored by the pharmaceutical industry. A detailed review of the clinicaltrials.gov database was performed during November 2006 in order to obtain the relevant data. From nineteen pharmaceutical corporations members of PIA (Pharmaceutical Industry Association of Puerto Rico), twelve were actively involved in clinical trials in several therapeutic areas in different stages of clinical development including Phase I to post-marketing studies. There were 182 studies registered, 65 of them in active

recruiting, 42 were no longer recruiting and 75 had been completed. The vast majority of the studies were in Oncology followed by HIV related conditions, Diabetes, Psychiatric disorders, Cardiovascular conditions and Infectious diseases, in descending order. The information obtained from the data base has some limitations in terms of number of patients, sites and enrollment success. Interestingly, there is no correlation between the prevalence of different health conditions in Puerto Rico and the type of trials conducted locally. This may define the potential of different therapeutic areas to attract clinical research to the Island.

R- 169 **Ventriculostomy to Improve Cerebral Perfusion in Patients with Brain Swelling due to Trophoblast Produced Capillary Hypertension (HTCH, Preeclampsia).** F. Báez-Matos, J. Inserni-Milan, K. Adamsons. Department of Neurosurgery, School of Medicine.

Reduction of elevated intracranial pressure by ventriculostomy is performed to improve brain perfusion. The etiology, however, has received little attention when identifying candidates for this intervention. This is due to low complications rate of ventriculostomy, and the absence of alternative interventions. We are proposing that CNS capillary hypertension in such patients leads to absorption of the extruded albumin free fluid by the cells of the CNS, the increased volume of which then compresses the microcirculation. Therefore, reduction of the volume of ventricular fluid, would not be expected to improve oxygenization of brain.

We are presenting two recent cases of brain swelling in patients with HTCH. The first was 23 y/o at 28 wks of gestation, treated with magnesium and vasodilators. BP was 150/100. Next day she became unconscious. CT revealed diffuse brain swelling. Ventriculostomy was performed removing 200 ml of fluid. The following day EEG was isoelectric, and she was declared brain dead. The second patient was 31 y/o at 25 wks of gestation with eclampsia. Her seizures were refractory to various antihypertensives and magnesium. CT revealed diffuse brain swelling. Ventriculostomy was performed. In spite of it EEG became isoelectric next day, and she was declared brain dead. **Conclusion:** Ventriculostomy does not prevent brain death in patients with brain swelling from HTCH treated with vasodilators and magnesium.

R- 170
The Use of Folic Acid for the Prevention of Birth Defects in Puerto Rico. L. García², I. García², E. Correa³, D. Valencia³, C. Rivera¹. University of Puerto Rico, School of Medicine¹, Department of Pediatrics, Neonatology Section², and the Puerto Rico Department of Health, Birth Defects Registry³. San Juan, Puerto Rico.

Women of reproductive age should use folic acid to prevent birth defects. Since 1994, Puerto Rico has a campaign to promote the use of folic acid and since 1998 there is fortification of grain derived food. After this fortification, we have seen a reduction in the incidence of neural tube defects. The objective of this study is to assess the use of folic acid by women of reproductive age in Puerto Rico and determine factors associated to its use. A survey was done among 964 women of reproductive age. The use of folic acid was 28% despite 97% of women stating to know that they should use it. The use of folic acid was higher among women of higher education ($p=0.000$) and those in higher social classes ($p=0.0013$). The folic acid campaign has succeeded in improving the women's knowledge about the recommendation for folic acid use. Nevertheless, its use is lower than desired for continuing the reduction in the incidence of birth defects in Puerto Rico. Education and social class continue to represent a barrier to eliminating the disparity in pre-conception health in our population. This study was supported in part by the Puerto Rico Department of Health, Birth Defects Registry and Folic Acid Campaign and by the Clinical Research Center, NIH Grant P20RR11126, National Center for Research Resources (NCRR).

R- 171
Electronic Data Collection for Caries Studies. P. Hernandez, J. Soto, V. Monllor. Research Center, School of Dentistry.

While the use of computers for data collection is becoming ubiquitous in clinical research, in Puerto Rico data generated during dental caries studies is still collected in paper. Objectives 1. To develop, test and implement a computer system for dental caries study data collection and 2. To examine agreement rate between the computer and traditional paper collection system. Methods We analyzed the NIDCR Caries Examination Record (PAPER), a one-page form used for collecting dental caries information. A computer program was developed in MS Access 2003, following accepted database development standards of design, implementation and testing. The computer program (COMPUTER) ran in a Sony Micro Computer VGN-UX 180P with a 5" diagonal touch screen. Two recorders

(simultaneously) used PAPER and COMPUTER to collect data from 18 patients. MS Excel 2003 was used for analysis. Results PAPER consists of 28 teeth represented in four different layouts totaling 672 data fields. COMPUTER provided one screen for each of the 28 teeth with the same total number of fields as PAPER. There was complete agreement in 12 of the 18 exams recorded (67%). Low disagreement rate was found in six exams (37%). Exams 1, 3, 12 differed by one field, exam 2 by three fields, exam 9 by five fields and exam 8 by nine fields. Discussion Small disagreement found between paper and computer (1 to 9 fields out of 672) can be explained by failure to train both recorders. We find our computer program to be an extremely valuable tool for dental caries data collection. Supported by Grant R25 RR17589 NCRR-NIH, UPRSD-Research Center and HCOESD.

R- 172
Acute Promyelocytic Leukemia, Twelve Years Experience at the University Hospital, San Juan PR. A. López-Enriquez. Department of Internal Medicine, School of Medicine.

Background: Acute Promyelocytic Leukemias (APL) are a unique example in carcinogenesis, of maturation arrest at the Promyelocytic stage, associated with a chromosomal reciprocal translocation of a portion of chromosome 15 and 17 with the formation of fusion proteins between the PML gene and the alpha retinoic receptor site. The discovery that the Trans-retinoic Acid compound induced maturation of the promyelocyte, has contributed to increased the curability of this disease. **Methods:** Since 1994 when Transretinoic Acid (ATRA) became available to us, we developed a protocol incorporating this drug to the standard regime of induction chemotherapy for Acute Leukemias, starting the ATRA on day 14 at 45mg/m² and continued for 120 days. **Results:** We have treated 65 patients with APL since 1994 up to February 2006. Fourteen of sixty-four (14/64) died early in the first two weeks of Induction of bleeding and sepsis for a 21% early death rate. Forty-nine out of Fifty patients (49/50) went to Complete Remission for a 98% rate. Thirty three has remained in complete remission with a range of two to twelve years for a rate of 67%. **Conclusion:** Acute Promyelocytic Leukemias are nowadays a potentially curable disease. The initial high early mortality needs to be addressed with a more aggressive support system. A 98% complete remission rate for Induction Chemotherapy is extraordinary; no ATRA Syndrome when the ATRA is given on the 14th day of treatment reduces further morbidity and mortality in this group of patients. Four of the ten patients that

relapsed received Daunorubicin as single agent in consolidation.

R- 173 Validation of a Spanish Version HIV/AIDS Symptom Management Guidebook. E. Román Rivera. Department of Graduate Studies, School of Nursing.

Purpose: Develop the Spanish version of the guidelines through forward and backward translation technique, validate the content of the self-care symptom management guidebook with a group of HIV/AIDS care providers in Puerto Rico and verify the perceived feasibility and usefulness of the guidelines by conducting focus groups with people with HIV/AIDS. Phase I: A HIV/AIDS Symptom Management Manual developed by University of California San Francisco was translated into the Spanish version through forward and backward translation processes by two independent bilingual translators. Phase II: Seven HIV/AIDS care providers reviewed the guidebook for the appropriateness of its contents. Phase III: Ten people with HIV participated in two focus groups to review the Spanish version. A week prior to the discussion, participants reviewed the guidebook. They discussed the usefulness and feasibility of the guidebook for symptom management. The discussion was audio taped and notes were taken. The participants' ages range between 37-66 years old. Patients and care providers welcomed the purpose and content of the manual and eager to use the information for their own benefit and of others. They recommended information and strategies that they use themselves to be added to the manual. The findings suggest that this manual can be used as an intervention strategy for symptom management in HIV/AIDS patients. This project was supported by NIH Research Grants P20 NR008359 (Holzemer, PI) and P20 NR008342 (Rivero, PI) funded by the National Institute of Nursing Research and the National Center for Minority Health and Health Disparities.

R- 174 Revisión de Vida de Envejecidos Exitosos como Método de Aprendizaje para la Geropsicología. J. M. Umpierre, A. Sybel. UPR-Recinto de Ciencias Médicas, Escuela Graduada de Salud Pública, Departamento de Gerontología, San Juan, PR.

El estudio de casos de una población de personas mayores de 75 años con rasgos de ser: extrovertidos, gregarios y con buen sentido del humor, permite un contacto directo con el envejecimiento exitoso. Los estudiantes del curso Aspectos Psicológicos del Envejecimiento, con el objetivo de aplicar los conceptos

de la Geropsicología, entrevistaron a 29 personas de edad avanzada como experiencia didáctica. Se utilizó un Protocolo de Revisión de Vida, que consiste de 8 entrevistas dirigidas y 15 instrumentos de evaluación, para conocer los cambios que confrontan personas de edad avanzada y los ajustes que han realizado en el transcurso de sus vidas. Además de la información cualitativa, se obtuvieron datos cuantitativos de los cambios en: funciones físicas, personalidad, cognición, aspectos sensoriales y conducta. Igualmente se midió el margen en que la intervención cumplió con objetivos en cinco áreas: didácticos, afectivos, autoestima, resolutivos y existenciales. Los resultados confirman la particularidad de los cambios de una población que ha envejecido exitosamente. Los objetivos alcanzados con el Protocolo de Revisión de Vida confirman el proceso como uno efectivo para los envejecidos: reafirman la autoestima (92.6%), sirven como recurso para compartir conocimientos y sabiduría (86.4%), validan sentimientos positivos (83.6%), afianzan aspectos existenciales (82.8%) y contribuyen a la resolución conciliatoria (65.2%). Los resultados sirven para validar el método de Revisión de Vida como uno efectivo para contribuir al bienestar de las personas de edad avanzada entrevistadas y enseñar y aplicar los conceptos de la Geropsicología.

R- 175 Educación Médica por Estudiantes Avanzados: Enfoque en Pensamiento Clínico, Crítico y Profesionalismo. A. Facundo¹, N. de Jesús², M. Palau³. Departamento Medicina Interna¹, PG-1 Pediatría², Med IV³.

Existe una expectativa social de que el médico sea educador del paciente. Durante los años de residencia se espera que los residentes más avanzados colaboren con la educación de los que están en los primeros niveles. A pesar de estas expectativas, se encuentran pocas oportunidades en los currículos de muchas escuelas de medicina para que los estudiantes aprendan y practiquen destrezas de enseñanza. En esta presentación compartiremos el proceso y los logros de un curso electivo en Educación Médica de la Escuela de Medicina de la UPR. En esta electiva, estudiantes de 4to año de medicina se convierten en Facilitadores de estudiantes de 1er año en el desarrollo de destrezas de pensamiento clínico, crítico y profesionalismo. El material de estudio son casos clínicos escritos que generan los temas de investigación y aprendizaje. La responsabilidad adoptada para realizar esta tarea por los estudiantes de 4to año que interesan seguir una carrera en medicina académica, los hace estudiar

con rigurosidad lo que les definirá como futuros educadores y médicos.

R- 176 **Development, Implementation and Evaluation of Distance Education for Health Professions at the Medical Sciences Campus.** C. Ortiz, R. García. Title V Project, Medical Sciences Campus, University of Puerto Rico.

The incorporation of distance education in the health professions field represents a great challenge. However, following the trends of the technological era, the Title V Project was working in the development, implementation and evaluation of distance education. Objective: To provide the students of the health professions an academic environment that incorporates technology and distance education modality. Strategies: the enhancement of the computation and communication infrastructure and the development of a formal training program for the faculty that includes: Theory of Distance Education and Instructional Design for On-Line Courses and Blackboard platform. Results: the technological and distance education infrastructure was established; 45 professors of a variety of health professions were trained, certified and the same number of courses were designed, created, offered and evaluated; the distribution of the courses created are: School of Pharmacy (18%), School of Nursing (20%) and the College of Health Related Professions (62%); 87% of the courses were offered hybrid and 13% fully online; 137 (66%) students offered their feedback through a survey in the preparation of the faculty, the students and faculty use and the support that they received. Conclusions: the distance education modality is viable for the preparation of health professionals and will provide an empowered academic scenario for interaction of faculty and students through technology to improve the teaching-learning process. By the program Title V of the Department of Federal Education through the "Grant" PO31SO10027PO.

R- 177 **Is Puerto Rico Complying with the Synar Amendment?.** M. Rivera-Lugo, M. Aponte, C. Velez, A. Pattatucci-Aragon. CIES, School of Public Health.

In 1992, Congress enacted the Synar amendment requiring states and territories to establish and enforce laws prohibiting the sale of tobacco to minors. The amendment's goal was to reduce illegal tobacco purchases by minors to no more than 20% of attempts. Study objectives were to evaluate if Puerto Rico is complying with the Synar Amendment and to establish a

database to help strengthen existing tobacco prevention programs at the Office of Prevention and Mental Health Promotion of ASSMCA. A random sample of 460 outlets was selected from an eligible population of 14,835 to conduct the study across areas of the island represented by the 12 ASSMCA Regional Prevention Centers. Field data collectors (FDCs) were 18 years of age but had a younger overall appearance. FDCs made 447 random, unannounced attempts to purchase cigarettes from convenience stores, gas stations, grocery stores and pharmacies as well as from vending machines. Of these purchase attempts, 39 resulted in sales to FDCs. Collected information indicates that 8.7% of the attempts to purchase cigarettes using the Synar Inspection Protocol were successful, which places PR under the 20% threshold required by the Synar Block Grant. No significant associations were found among the successful attempted buys and other characteristics, such as vendor gender and age, type of outlet, regional zone, and the gender of FDCs. ASSMCA records for recent years show non-compliance rates that are consistently low, which provides encouraging evidence that prevention programs and strategic enforcement activities are meeting objectives. This study was sponsored by ASSMCA.

R- 178 **Evaluation of Emergency Readiness in the Puerto Rico Department of Corrections and Rehabilitation (PR-DCR).** Y. Estrada Del Campo, K. Caez, K. Kelly, O. Rivera, M. Rosa, A. Pattatucci-Aragón. Center for Evaluation and Sociomedical Research, Graduate School of Public Health, University of Puerto Rico, San Juan.

Correctional facilities regularly face emergencies that have a potential to spiral into major disasters, resulting in a loss of prison control and adverse health outcomes. Recent medium- to large-scale disasters have revealed an inadequate level of preparedness at facilities in the U.S. prison system. This study examines the level of preparedness and capacity for emergency management in the PR-DCR. Qualitative interviews were performed with a diverse sample of 32 administrative staff at correctional institutions throughout the island. Interviews explored the context of emergency management, including planning and prevention strategies, communication, training, response and recovery. Triangulation of data included interviews of administrative staff at the central level, institutional level and document review. Thematic analysis was performed with ATLAS.ti v. 5.2.2 using the constant comparative method. Findings suggest the lack of a systematic approach to preparedness and prevention

activities. Stereotypical assumptions and misinformation across correctional staff responsible for safekeeping the inmate population as well as the communities surrounding it represent significant barriers to effective emergency management. We provide an in-depth examination of emergency management readiness within prisons of Puerto Rico. Disaster prevention is a major public health concern for correctional facilities in Puerto Rico, posing a serious need for strategic thinking to develop accurate, clear and concise plans needed to ensure proper decision making processes during emergencies. Sponsored by CDC & Puerto Rico-DOH; IRB approved.

R- 179 **YRBSS: Una Década de Cambios 1995 a 2005.** L. Soto de Laurido, R.M. Alemán. IIPESAG, Escuela de Profesiones de la Salud.

La Encuesta de conductas de riesgo en adolescentes de 9no a 12mo grado (YRBSS), es un estudio epidemiológico que se realiza cada dos años. En Puerto Rico se ha realizado en: 1991, 1995, 1997, 1999, 2001 y 2005 en escuelas públicas y en el 1992 en escuelas privadas. Las preguntas del cuestionario y la metodología para desarrollar la misma son definidas por CDC. La encuesta mide la prevalencia de los comportamientos de riesgo. La seis (6) conductas de riesgo son: accidentes intencionales y no-intencionales, uso de alcohol y drogas, comportamiento sexual, uso de cigarrillos, comportamiento alimentario; y falta de actividad física. La prevalencia de 3 de las seis conductas de riesgo ha disminuido a través de la década. Sin embargo, en las conductas: uso de alcohol y otras drogas, comportamiento sexual y hábitos alimentarios se ha mantenido un aumento en su manifestación. De estas tres conductas la que ha mantenido un aumento sostenido desde el 1991 es comportamiento sexual. Se ha atribuido esta manifestación de la conducta a la necesidad de los adolescentes por buscar experiencias diferentes lo que los ha expuesto a la combinación de conductas de riesgo, como lo son el uso de alcohol y drogas con la culminación de la actividad sexual. Esta combinación se convierte en un detonador de sensaciones que pueden resultar en experiencias no placenteras o implicar responsabilidades no propias de un adolescente. El análisis que se presentará comparan los resultados de 1995 con los de 2005 por conductas de riesgo y preguntas seleccionadas del cuestionario de investigación.

R- 180 **Assessment of Emergency Capacity and Infrastructure in Municipalities of Puerto Rico.** Y. Estrada Del Campo, I. Hernández Gierbolini, T. Meléndez, P. Montañez, D. Sánchez, M. Oliver, A. Pattatucci-Aragón. Center for Evaluation and Sociomedical Research, Graduate School of Public Health, University of Puerto Rico, San Juan.

Puerto Rico is highly susceptible to natural and man-made disasters due to its geographic location and climatological conditions. Population increases and urban planning exacerbate the socio-economic and public health impacts of emergencies on the Island. Although there is worldwide interest in emergency management (EM), little information is available on current capacity and integration of planning efforts in Puerto Rico. Our objective was to better understand existing EM capacities and procedures at the local level. We used a grounded theory qualitative research approach. The study sample consisted of 23 Municipal EM Offices, 11 EM zone offices and the central level State Agency for Emergency Management (AEMEAD). Thematic analysis was performed on transcribed interviews with ATLAS.ti v. 5.2.2 using the constant comparative method. Observation and supporting documents strengthened our interpretation of interview data. Findings showed an encouraging level of planning and commitment to emergency readiness. However, several problematic conditions interfere with the implementation of strategic solutions. A core group of agencies with overlapping missions protects the health and security of the island's population, but political and economic conditions negatively affect the continuity of established programs and prioritization of issues. Existing gaps in communication further hamper efforts. This study highlights major areas with which Puerto Rico needs to work with before attempting to implement federal initiatives such as the National Incident Management System. (Funded by the CDC and the Puerto Rico-DOH. IRB approved).

III. Presentaciones de Proyectos y/o Centro Institucionales de Investigación y/o Educación

R- 181 **Pediatric Dentistry Community Track Program.** D. Molina; R. Hanke; Y. Rivera. Pediatric Dentistry Department, UPR School of Dentistry.

The Pediatric Dentistry Postdoctoral Program of the UPR School of Dentistry has begun a new community track that will prepare primary care providers to serve the medically disadvantaged. This project is operating within the existing Pediatric Dentistry Program and calls for two additional trainees per training year. The goals are aimed at expanding the competencies in the areas of behavior management and treatment of children with special needs. Program strategies include preventive and interceptive treatment of malocclusions, dental practice in the hospital setting and the application of concepts of prevention and treatment of oral diseases of the medically compromised children and adolescents. Special emphasis will be given to the caregivers through workshops in dental education using the community and the association of parents with disabled patients as coordinators. A distance learning continuing education program will be developed in order to assure that dentists and allied professionals receive education in areas of prevention, risk assessment and referrals of the disable population. The underserved community is the "Península de Cantera" in the capital city of San Juan, Puerto Rico. Cantera's health problems are directly associated with environmental and socioeconomic risk factors. This program is important to sensitize pediatric dentistry trainees to continue with disadvantaged community groups after program completion.

R- 182 **El Programa de Demografía: 40 Años de Análisis y Práctica Demográfica.** León López, Luz E. ; Santana, Enid; Morales, Jonathan; Morales Jorge; Morgado, Yaritza; Programa de Demografía, Escuela Graduada de Salud Pública, RCM.

Durante el año académico 2006-07 el Programa de Demografía de la Escuela Graduada de Salud Pública del Recinto de Ciencias Médicas, UPR, ha estado celebrando sus 40 años de existencia como programa académico. Este fue el primer programa gestado y establecido en Puerto Rico en la enseñanza de esta disciplina y el primer programa de esta naturaleza en establecerse en América Latina. Este es, al presente, el único programa que enseña esta materia

en la Isla. Sus fundadores el Dr. José L. Vázquez Calzada y el Dr. José L. Janer fueron dos científicos visionarios con respecto a la necesidad de que diversos profesionales se capacitaran formalmente en la ciencia del análisis demográfico. Desde su origen, más de un centenar de estudiantes han completado formalmente dicha preparación y un gran número de éstos ocupa posiciones claves dentro del sector de la salud y otras áreas. Tanto la facultad del Programa como sus egresados han estado a la vanguardia en el quehacer demográfico a nivel nacional e internacional. En la actualidad, el Programa tiene una estructura que responde al interés de enfatizar las áreas de enseñanza, investigación y el servicio. La enseñanza es la base esencial del Programa y se cubre a través del componente curricular existente. La investigación por su parte, se canaliza a través de nuestro Centro de Investigaciones Demográficas (CIDE). El área de servicio es un componente esencial de nuestro Centro de Datos Censales y Estadísticas de Salud, *José L. Vázquez Calzada*. Como Programa nos enorgullece el haber dedicado aproximadamente medio siglo al desarrollo de profesionales, a promover y llevar a cabo investigación y proveer servicios de alta calidad relacionados con la ciencia de la Demografía.

R- 183 **Centro de Datos Censales y Estadísticas de Salud.** José L. Vázquez Calzada Hernando Mattei, Miguel Cortés, Raúl Morris.

El Centro tiene como meta aumentar y mejorar la accesibilidad a datos censales y de salud para proveer al público en general, agencias y organizaciones con información para propósitos educativos, administrativos y apoyo para la toma de decisiones, planificación estratégica e investigación. Entre sus objetivos están: promover y ofrecer datos censales y de salud; proveer asistencia a los usuarios para la correcta interpretación y análisis de información; proveer asistencia técnica para la manipulación y acceso a datos, el desarrollo y ejecución de programas estadísticos; mantener accesible los informes censales y de salud, documentos oficiales, materiales electrónicos e información geográfica; desarrollar y ofrecer seminarios, talleres, conferencias y/o adiestramientos para la comunidad académica y el público en general. El Centro posee la colección más completa de los censos llevados a cabo en PR. De igual forma es custodio de las cintas de nacimientos y defunciones que produce el Departamento de Salud de PR. La combinación de recursos en términos de datos censales y de salud y del personal que atiende las solicitudes del Centro lo colocan a la vanguardia en el análisis de los cambios demográficos significativos que

están ocurriendo en la isla. El Centro se proyecta como uno esencial para el desarrollo de la docencia, la investigación y el servicio en nuestra institución.

R- 184
El Centro de Preparación en Salud Pública: Enlazando la Academia y el Servicio de los Profesionales de la Salud.

Ralph Rivera Gutiérrez, PhD y Luis Estremera De Jesús, MPHE, Centro de Preparación en Salud Pública, Escuela Graduada de Salud Pública, UPR.

La salud pública tiene un rol significativo con relación a la planificación y preparación ante desastres, emergencias o el bioterrorismo. La preparación para desastres o emergencias requiere el desarrollo de actividades de capacitación a profesionales especializadas en la identificación y manejo de las amenazas a la salud pública, tratamiento a víctimas y el establecimiento de planes institucionales enfocados en proveer una respuesta efectiva durante una emergencia o desastre. Para atender esta realidad, el Centro de Preparación en Salud Pública de la UPR (CPSP-UPR) fue creado en el 2004 a través de un acuerdo colaborativo la Universidad de Emory. La meta del CPSP-UPR es responder a las necesidades de adiestramiento de preparación en salud pública. Nuestros objetivos son: implantar un programa de desarrollo para facultativos en materia de preparación de salud pública; adiestrar a los profesionales de la salud pública en la preparación para desastres, emergencias y actos de bioterrorismo; adaptar y traducir materiales educativos producidos por la Universidad de Emory y otros centros; distribuir materiales educativos; y, establecer una colaboración estrecha con el Departamento de Salud, la Agencia Estatal para el Manejo de Emergencias y Administración de Desastres (AEMEAD) y otras agencias dedicadas a la preparación, respuesta y recuperación de desastres, emergencias y actos de bioterrorismo.

Este cartel describirá las iniciativas de capacitación y servicio del CPSP-UPR para la preparación a desastres y emergencias y se describirán los logros alcanzados por las iniciativas desarrolladas.

R- 185
Nursing Research Center on HIV/AIDS Health Disparities. Marta Rivero-Méndez, Principal Investigator and Ricardo Vargas, Project Director (NIH P20NR008342-5).

Description: This center combines the Schools of Nursing at the University of California, San Francisco, and the University of Puerto Rico. It is a unique partnership that links a Hispanic/Latino institution that serves minorities (UPR) and a research-intensive institution, studying HIV/

AIDS in minorities, women, and the poor (UCSF). **Goal:** To enhance the knowledge base for nursing care in order to improve the health and quality of life for people living with and affected by HIV disease. **Center's Aims are:** (1) expand the number of nurse researchers involved in research on HIV/AIDS health disparities; (2) increase the number of research projects aimed at reducing health disparities in HIV disease; and (3) enhance the career development of minority nurse investigators. The Center provides faculty with seed money to conduct research that leads to extramural grants that have an impact on nursing research, practice, and policy development. Each pilot study is led by two investigators, one from each university. **Outcomes:** Fourteen pilot studies have been funded by the Center addressing issues like HIV/AIDS self-care and symptom management, quality of life, adherence to ART, stigma, genetic determinants of lipodystrophy, sexual and reproductive counseling and skin disease among HIV positive persons. Support has also been extended to nursing students carrying out research on HIV-related issues. **Lessons learned:** Importance of community involvement, inter-disciplinary teamwork in enhancing research and keeping faculty vitality and productivity as an ongoing task.

R- 186
Proyecto Training the Trainer in Tobacco Use Prevention: Enlazando la Academia y la Comunidad, Salud Pública RCM,UPR

Luis E. Estremera; Sylvia, Rabionet; Luz E. León-López.

This curricular project had as its primary purpose increasing the number of public health faculty who specialized in tobacco studies at the School of Public Health. By training key faculty the program seeks the development of a cadre of scholars devoted to the multiple factors associated to tobacco prevention and control. Simultaneously, it seeks to train leading practitioners in order to create a group of people who could serve as liaisons, collaborators, and supervisors for faculty and students at the community level. The project has four major components: training, curriculum, research and services. In all of these components the project's outcomes have gone beyond expectations. An unexpected amount of faculty, practitioners and students were trained. Tobacco topics have begun to be integrated to existing courses. Presentations at national/local conferences have been carried out, students dissertations have been developed on this topic. An important network has been established with national/local organizations. Very successful community projects have been developed and carried out, all of them from diverse types of institutions. Among the

institutions or agencies that developed the projects are: the Health Department of Puerto Rico; TripleS, Triple C Inc., and the School of Public Health. Again, each of them drives the topic in different directions such as prevention, cessation and training/education. An important role played by the project was our participation in the diverse activities carried out that ended in an approved law project "Puerto Rico Libre de Humo". Definitely, going beyond the physical structure, and getting connected with the community, gave us the opportunity to confirm that with passion, devotion, union and engagement with human wellness everything is possible. (Funded by the Association of Schools of Public Health and American Legacy).

Instituto en Deficiencias en el Desarrollo: Proyecto Hogar Médico. Annie Alonso Amador, Psy D., MSW, Myrna L. Quiñones, MD, Leslie Quiñonez, MSW, Jeanette Montes, MSW, Maria Pijem, BA, Iliá M. Torres, MS, Kesia Mulero, BA, Ricardo Figueroa, BBA, Mario Rodríguez, Ph.D.

R- 187
El Proyecto Hogar Médico es un proyecto piloto iniciado por el Instituto de Deficiencias en el Desarrollo (DD) en colaboración con la Universidad de Puerto Rico, Recinto de Ciencias Médicas y el Departamento de Salud. Este proyecto pretende promover la visión de alcanzar servicios de alta calidad para todos los niños/as con DD de una forma costo efectiva. En este modelo los médicos, profesionales de la salud y padres trabajan estrechamente

de forma colaborativa para identificar y acceder todos los servicios médicos y de apoyo necesarios para ayudar al niño/a con DD y su familia a desarrollar el máximo potencial. El modelo está basado en que la prestación de servicio sea accesible, centrada en la familia, comprensiva, continua, coordinada, compasiva y culturalmente efectiva.

El proyecto tiene como metas principales: Mejorar el acceso y calidad de salud y servicios relacionados para individuos con DD basado en organizaciones comunitarias y proveedores de servicios públicos, Aumentar la cantidad y calidad de profesionales en reuniones de trabajo de Puerto Rico quienes proveen servicios a poblaciones con DD a través de adiestramiento de pre-servicios y educación continua en las áreas de necesidad, Conducir investigaciones sobre la efectividad del Hogar Médico como un modelo comprensivo de salud. El Proyecto ha sido evaluado para determinar su impacto en la población que recibe los servicios. En una encuesta a 16 familias receptoras de los servicios, 75% de las mismas informaron que estaban completamente satisfechas con la forma en que el médico y el personal respondían a sus necesidades. En cuanto al cuidado centrado a la familia, 81.2% estaba completamente satisfecho y en la continuidad de los servicios, el 73.3% también estaba completamente satisfecho. Los hallazgos de las evaluaciones apoyan la continuidad de los trabajos del Proyecto y la posibilidad de extender el mismo a otros lugares.