

**A-092 Estadísticas Incomparables: Cartografías de Natalidad y Mortalidad en Informes Oficiales de Puerto Rico, 2004-2010**

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Trasfondo y objetivos: Una de las funciones esenciales de la salud pública es la determinación de necesidades, la cual requiere de recopilación, análisis y comunicación de indicadores de salud. Para ser útiles, dichos indicadores deben ser comparables. ¿Cuán comparables son las estadísticas “comparables”? ¿Cómo se comunican a la ciudadanía? Esta investigación tiene como objetivo evaluar la idoneidad de los mapas de natalidad y mortalidad en la serie de Informe Anual de Estadísticas Vitales, del Departamento de Salud de Puerto Rico, del 2004-2010. Métodos: Dichos informes publicaron mapas de tasas de natalidad (2004-2010), tasas de mortalidad general (2004-2006) y tasas de mortalidad infantil (2004-2008) por municipios, junto con las tablas de las estadísticas correspondientes. Utilizando las recomendaciones de la literatura estadística y cartográfica, dichos mapas se evaluaron siguiendo tres elementos: (1) identificación de valores extremos (“outliers”); (2) determinación de categorías de clasificación (por ejemplo, tasa de natalidad/1000 habitantes de 10.0-11.0, 11.1-12.5, 12.6-14.0 y 14.1-15.0); y (3) uso de color en los mapas. Resultados preliminares: Los informes no presentan qué criterios utilizaron para la identificación de valores extremos y para la selección de categorías y color. La selección de categorías y color en ocasiones cambia de año en año, lo cual dificulta realizar comparaciones. Conclusión. La determinación de necesidades se dificulta cuando la comunicación visual de datos en los informes del Departamento de Salud no permite realizar comparaciones anuales. No existen conflictos de intereses.

**A-093 An Intervention for Chronic Disease Self-management in a Low-income Community in Puerto Rico: Results from the Pilot Study**

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Background: Hispanic communities with high prevalence of co-morbid diseases often suffer from increased complications associated with poor self-management. This pilot study aims to develop and test the acceptability and feasibility of a culturally-tailored intervention to support chronic disease self-management in a low-income community in Puerto Rico. Methods: A culturally tailored intervention, based on community health workers (CHWs) was developed using participatory approaches to increase participants’ knowledge and skills for chronic disease

self-management. We used a convergent parallel mixed methods design. For quantitative data, descriptive analyses and non-parametric tests (Wilcoxon/Mann-Whitney U-tests and Kruskal-Wallis test) were done to compare the pre and post change scores in each group and the overall group effect. For qualitative data, content analysis of focus groups and in-depth interviews were done. Results: 45 subjects were recruited and allocated into three groups: an evidence-based intervention (EBI) supported with CHWs (n=18), EBI intervention alone (n=13) and usual care (n=14). Participants in the CHWs group showed higher positive score changes in the pre (baseline) and post (three months) test analysis when compared to those in the EBI. Positive indicators included: monitoring blood pressure at home (24% vs. 16%), having a blood pressure registry (33% vs. -50%), exercising (87% vs. 18%), increasing vegetable consumption (98% vs. -66%) and reducing the use of preserved food (29% vs. 0). Participants highly recommended the CHWs intervention. Conclusions: Pilot data suggest that culturally tailored intervention based on CHWs could potentially impact self-management behaviors among patients with chronic disease in low-income communities in Puerto Rico. Acknowledgements: This study was supported partially by the Puerto Rico Clinical and Translational Research Consortium, Grant 8U54MD 007587-03 and Endowed Health Services Research Center, Grants 5S21MD000242 and 5S21MD000138, National Center on Minority Health and Health Disparities, National Institutes of Health. IRB approval date: Sept. 6, 2012, Protocol #: A3490113.

**A-094 La Toma de Decisiones con Personas que Padecen la Enfermedad de Alzheimer y otros Desórdenes Relacionados: Perspectiva Clínica, Legal y del Cuidador**

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Trasfondo y Objetivo: El Alzheimer es una enfermedad degenerativa que se caracteriza por la incapacidad para tomar decisiones sobre las actividades diarias, el autocuidado de la salud y la administración de sus bienes, entre otros. El propósito de esta investigación fue explorar el proceso de toma de decisiones con las personas que sufren la enfermedad de Alzheimer y otros desórdenes relacionados desde la perspectiva del médico, del abogado y del cuidador. Metodología: Se entrevistaron médicos generalistas, neurólogos, geriatras, psiquiatras, médicos de familia del área metropolitana, proveedores de Triple S para el año 2009-10. Los abogados adscritos a los Centros Regionales de Servicios Legales de PR, Inc. fueron seleccionados al azar. Los cuidadores participantes de grupos de apoyo de la Asociación de Alzheimer de PR se seleccionaron por disponibilidad. Para recopilar la información, las investigadoras diseñaron un cuestionario para cada muestra. Los instrumentos para médicos y abogados eran autoadministrables y fueron enviados por correo. Los cuidadores fueron entrevistados por las investigadoras. Resultados: Los médicos ofrecían información sobre las di-

rectrices anticipadas a los pacientes y familiares periódicamente. Según los abogados, la incapacidad del cliente para entender las consecuencias de sus actos y la conducta desafortunada para dilapidar los bienes justificaban las Peticiones de Incapacidad/Tutela. El cuidador no acostumbraba a buscar el apoyo de la familia en el proceso de toma de decisiones. Conclusión: El proceso de toma de decisiones con pacientes de Alzheimer y otros desórdenes relacionados es complejo y requiere la consideración e integración de los aspectos médicos, legales y familiares. Reconocimientos: Dr. Juan A. Rosado Matos por el asesoramiento en el diseño de los instrumentos y en aspectos metodológicos a la Dra. Irma Rivera.

#### **A-095 Synthesis of Carbazole Derivatives and their Use as Antiproliferative Compounds**

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**Background & Objectives:** Many carbazole derivatives are well known for their various pharmacological activities, including antibacterial, antifungal, anti-HIV and anticancer. The cytotoxic activity of carbazole alkaloids has been related to their polycyclic, planar and aromatic structure. We recently developed EHop-016 a carbazole derivative, which has been demonstrated to reduce metastatic cancer cell viability at concentrations  $>5 \mu\text{M}$ . We hypothesized that the cytotoxic effect of EHop-016 derivatives can be related to structural modifications at the 3-position of the carbazole moiety. Our objective was to design and synthesize new 3-substituted carbazole derivatives and study their antiproliferative activity. **Methods:** A first series of compounds were synthesized by coupling primary amines with 9-ethyl-9H-carbazole-3-carboxylic acid to produce carbazole-3-carboxamide derivatives, and a second series of compounds were synthesized in two steps by reacting 3-amino-9-ethylcarbazole with 2-chloronicotinic acid followed by nucleophilic aromatic substitution with several amines. All compounds were tested for their growth inhibitory activity against SH-SY5Y and MCF-7 cancer cells using a Sulphorhodamine B assay. **Results:** Among the series of compounds synthesized, various compounds showed moderate GI50 in the range of 16.8-44.1  $\mu\text{M}$  on the MCF-7 breast cancer cells. As for SH-SY5Y cells, one compound showed GI50 of 32.4  $\mu\text{M}$ . **Conclusions:** We have demonstrated that small structural modifications of EHop-016 can affect the cytotoxic activity of these carbazole derivatives. The results showed that these derivatives could be potentially developed as anti-cancer drugs. **Acknowledgements:** Supported by RCMi Grant 8G12MD007600/G12 RR 03051 and American Association of Colleges of Pharmacy New Investigator Award.

#### **A-096 Association of Adverse Pregnancy Outcomes on Teen Patients Affected by Sexually Transmitted Infections**

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**Introduction:** Based in our population data, the teen pregnancy rate is worrisome as well as the prevalence of sexually transmitted infections (STIs) diagnosed during pregnancy. STIs appear to pose a threat to pregnancy outcomes including preterm birth, low birth weight (LBW) and preterm premature rupture of membranes (PPROM). The objective of this study is to determine the prevalence of STIs in teens and the association of this variable to adverse pregnancy outcomes, compared as well with the adult population. **Methods:** We performed a cross sectional study to assess the prevalence of STIs among pregnant patients during a 4 year period at our institution, focusing on teen population, then birth outcomes such as gestational age at delivery and birth weight were analyzed. **Results:** Teen pregnancy rate fluctuated between 16.8% and 21.7%. The rate of STIs for both adult and teen pregnancies was similar (23%). Chlamydia was the most common STI (50%) on both groups. LBW was slightly more prevalent among teens with STIs compared to adults (20% vs 17%). As well, PPRM complicated 19% of teen pregnancies with STIs, compared to 13% in adults. **Conclusion:** There is no significant correlation between the STIs and the adverse pregnancy outcomes on teen pregnancies for our population. However, this age group is associated with a high-risk sexual behavior and poor adherence to treatment. They would benefit from efforts to prevent unintended pregnancies and infectious diseases.

#### **A-097 Clinical Effectiveness of Polyphenols Present in Natural Substances in Caries Prevention**

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Polyphenols are substances with significant antioxidant activity, commonly found in plants. There has been significant interest in these substances in dentistry as potential anticaries agents. **Objective:** The aim of this study was to evaluate the scientific literature regarding the effectiveness of polyphenols present in natural substances in caries prevention. **Methods:** A systematic review was done using one electronic database (PubMed). **Keywords used included:** "humandental, prevention, and polyphenols". Additional searches were performed using the keywords "human dental" and a natural substance known to contain polyphenols, such as "cocoa bean", "tea", "hop", "cranberry", "grape seed extract", and "raisins". **Inclusion criteria were:** papers published within 10 years, whole paper in Spanish or English, clinical study using a natural substance containing polyphenols. **Results:** Database search revealed 83 eligible papers. 10 of those met the inclusion criteria; these abstracts were pre-screened and 8 papers were selected for the final review. These included 3 on cocoa bean extract, 2 on Hop extract, and 3 on tea leaf extract. **Conclusion:** There is significant clinical evidence demonstrating that polyphenols can reduce the numbers of cariogenic bacteria

in the saliva, and reduce dental plaque formation. Chewing gum containing tea extract significantly reduced caries increment in children over a two-year period compared to plain gum and no gum. Polyphenols show potential as a new caries preventive therapy. However, more research is needed in order to develop effective clinical protocols for long-term caries prevention using natural, polyphenol-containing substances.

#### **A-098 Pediatric Resident's Comfort on Medical Error Disclosure**

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**Background & Objectives:** More people die annually from medical errors while hospitalized than from motor vehicle accidents, breast cancer and AIDS. Some errors are unavoidable and doctors are faced with deciding which errors to disclose and how. There are no effective systems to guide physicians through this process and help them deal with the consequences. It is becoming important for residency programs to guide physicians-in-training in developing the communication skills needed. **Methods:** Pediatric residents answered a survey after completion of a station of the yearly Objective Standardized Clinical Exam (OSCE) dedicated to a medical error disclosure situation. The survey addressed the level of difficulty, comfort in the situation provided and if current training has been sufficient to confront the situation. **Results:** Of the 30 residents, 100% completely agreed/agreed that the medical error disclosure station difficulty level was adequate. Most residents (83%) completely agreed/agreed that their rotations had prepared them to deal with this type of situation, whereas 17% were either indecisive or in disagreement. Regarding comfort, 97% completely agreed/agreed that they felt comfortable in this type of situation. **Conclusions:** Most Pediatric residents feel comfortable when encountering a medical error disclosure situation, which is surprisingly different from previous reports. They feel that the current 'Breaking Bad News' curriculum is sufficient. Still, some residents don't feel prepared for adequately disclosing medical errors. We will develop a formal Medical Error Disclosure Curriculum for pediatric residents to evaluate comfort and performance in the disclosure of medical errors before and after its implementation.

#### **A-099 Er: YAG Laser Therapy in Patients with Peri-implantitis: A Systematic Review**

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**Background and Objectives:** Peri-implantitis is associated with implant failure due to the loss of supporting bone in the tissues adjoining an implant. Currently, no gold standard approach has

been set for the treatment of peri-implantitis. The aim of this study is to evaluate the clinical outcome of peri-implantitis using Er: YAG laser therapy. **Materials and Methods:** A systematic review was conducted using electronic databases (Pubmed and Clinical Key) with the terms "peri-implantitis treatment, laser and Er: YAG". **Inclusion criteria:** use of Er: YAG laser for peri-implantitis, clinical trials, published within 10 years. Three review authors evaluated the prospective studies. **Results:** A total of 78 articles were identified, 25 articles were pre-screened (abstract evaluation) and 7 articles were included. Six articles compare Er: YAG laser therapy with non-laser therapy (air-abrasive or CPS). The non-laser therapy revealed higher reductions in clinical parameters (PI, PD, BOP, GR and CAL). However, the Er: YAG laser therapy was most significant in reduction of BOP. **Conclusions:** Clinical outcome of implants may be improved with laser treatment as an adjunctive therapy to mechanical debridement; however, it was observed that non-laser therapy could be more effective than Er: YAG laser therapy in the treatment of peri-implantitis. Further studies evaluating clinical outcomes of peri-implantitis using Er: YAG laser therapy are recommended.

#### **A-100 Association of Chlamydia Trachomatis Serostatus with HPV Infection in Women Aged 16-64 Years Old Living in Metropolitan Area of San Juan, Puerto Rico**

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**Background and Objectives:** Human papillomavirus (HPV) and Chlamydia trachomatis (CT) are among the most common sexually transmitted infections world-wide. Recent studies suggest CT as a cofactor of persistence of HPV infection, however, these results remain inconclusive. The aim of this study is to examine the association of HPV antibodies in serum (any, high risk, low risk, and multiple) with CT antibodies among women aged 16-64 years living in the San Juan Metropolitan area of Puerto Rico. **Methods:** This is a secondary data analysis from a population based study of HPV infection in Puerto Rico. A total of 530 (93.6%) women were eligible for analysis. Enzyme linked immunosorbent assays were used to detect serum antibodies to CT and HPV (6, 11, 16 and 18). Logistic regression was used to estimate the magnitude of the association between HPV and CT. **Results:** Overall, 97 (18.30%) of women were CT seropositive and 251 (47.4%) were HPV seropositive. After adjustment for age, education, lifetime number of sexual partners and for age of sexual debut, HPV in serum was associated with CT antibodies among participants aged 35-49 years (PORadj: 3.12, 95%CI=1.28-7.64) and among participant with ≥4 sexual partners (PORadj: 1.87, 95%CI=0.91-3.82). **Conclusions:** This study suggests an association between CT and HPV seroprevalence in women aged 35-49 years and among those with ≥4 sexual part-

ners. Future studies should further evaluate these associations and investigate whether CT infection influences HPV acquisition and persistence in this population. Acknowledgements: Study was approved by the UPRMSC IRB (#A1810414).

#### **A-101 Impacto del Cambio Climático y Aumento en Temperaturas en la Calidad del Aire y el Consumo Energético en Puerto Rico**

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**Trasfondo y Objetivos:** La quema de combustibles fósiles (QBF) emitidas por plantas de energía eléctrica, es una fuente antropogénica asociada al empeoramiento del cambio climático y la calidad del aire (CA). La QBF contribuye a la producción de O<sub>3</sub>, PM<sub>10</sub> y SO<sub>2</sub>, contaminantes nocivos para la salud humana, específicamente al sistema respiratorio y cardiovascular. Puerto Rico al tener un clima sub-tropical y tropical, la demanda de consumo energético aumenta durante temporadas cálidas por la accesibilidad que tiene la población a sistemas de climatización de interiores. **Objetivos:** Demostrar cómo la CA es afectada por el aumento de consumo energético poblacional, en la zona metropolitana aledaña a la central eléctrica Palo Seco en Cataño, Puerto Rico. **Métodos:** Se realizó un análisis estacional durante el 2000-2012. Se analizó la ocurrencia y frecuencia de valores extremos para las variables de: consumo/producción de energía eléctrica mensual, temperatura diaria (TMAX-TMIN), "Air Quality Index" (AQI) y valores diarios de O<sub>3</sub>, SO<sub>2</sub>, PM<sub>10</sub>, en Cataño, P.R. **Resultados:** Se encontró que la demanda energética aumentó en temperaturas cálidas, donde el 2005 y 2010 fueron los años de mayor significancia. El AQI para PM<sub>10</sub> era moderado, mientras que SO<sub>2</sub> y O<sub>3</sub> era bueno. La mayor emisión de PM<sub>10</sub> y SO<sub>2</sub> fue en verano y primavera, mientras que O<sub>3</sub> fue en primavera e invierno. **Conclusión:** En comparación con zonas no metropolitanas, la central eléctrica contribuye al empeoramiento de la CA y pone en riesgo poblaciones vulnerables aledañas a sufrir daños a la salud.

#### **A-102 Impacto del Cambio Climático en la Incidencia de Casos de Dengue en Tasas Específicas por Edad en Salinas, Lajas y Mayagüez, Puerto Rico**

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**Introducción y Objetivos:** El dengue es una infección endémica en países tropicales, representando una amenaza para la salud pública en Puerto Rico. Estudios previos han evidenciado que las condiciones climáticas entre otras cosas, pueden perjudicar o favorecer el hábitat del vector y la transmisión del virus. Los objetivos del estudio son analizar las variables climáticas y su impacto en los casos de dengue en Salinas, Lajas y Mayagüez desde

1992 al 2012. **Métodos:** Se analizaron variables de temperatura atmosférica, precipitación, nivel medio del mar, datos censales y los casos confirmados de dengue. Se calcularon las tasas específicas por edad. Se construyeron índices de eventos climáticos extremos y se correlacionaron los eventos climáticos con la incidencia en casos de dengue. Se analizaron la ocurrencia, las tendencias y frecuencia de estos eventos. **Resultados:** Otoño es la temporada con mayores casos de dengue. Esto coincide con la segunda temporada de lluvia y cuando la temperatura atmosférica es elevada. Los jóvenes (5-19 años) son los más vulnerables. Las tasas de incidencias en Salinas y Mayagüez fueron mayor para el año epidémico 2010, mientras que para Lajas fue en el 1998. En Mayagüez los días secos aumentaron, mientras que en Lajas, los días secos disminuyeron. La precipitación, el nivel medio del mar y los valores de temperatura máxima han aumentado en las últimas décadas. **Conclusión:** Este estudio ayuda a entender los posibles impactos del clima en la transmisión del dengue para mejorar la planificación, intervenciones de políticas públicas y sistemas de vigilancia.

#### **A-103 Epidemiologic Study about Leptospirosis at Manatí Medical Center**

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**Background & Objectives:** Leptospirosis is a zoonotic disease with epidemic potential. According to the Department of Health of Puerto Rico Leptospirosis constitutes a health problem poorly documented in the island. The present work aims to study the distribution profile of Leptospirosis and to identify risk factors for infection in the population served at the Manatí Medical Center (MMC) during the period 2004-2014. **Methods:** A retrospective descriptive study was conducted from secondary information of patients evaluated in the emergency department and admitted in the study period with diagnostic codes: 100, 100.8, 100.81, 100.89 and 100.9 according to ICD9. The following data was collected: laboratory results, treatment, patient outcome, age, gender, socioeconomic and environmental factors. **Results:** Were reported 74 cases of Leptospirosis, 67% were confirmed and 15% died. The mean age was 45(±19.6) years and 91.6% were male who presented with fever, headache and myalgias. Clinical manifestations included thrombocytopenia (70.9%), gastrointestinal involvement (69.0%), acute renal insufficiency (34.5%) and jaundice (31%). The largest number of cases occurred in October (20.3%), December (16.2%) and June (14.8%). The towns with the largest number of cases were Morovis (19.4%), Arecibo (11.1%) and Barceloneta, Manatí and Vega Baja (9.7%). The majority of the exposures were work rela-

ted. Conclusions: Our study, although several limitations due to its retrospective nature, will allow us to establish effective intervention methods and understanding of community risk factors in our area of care. This study was approved by the PSMHS IRB (Protocol number 141013-LM on 10/15/2014).

#### A-104 Validation of Cancer-related Proteins in the Hypothalamic GT1-7 Cell Line after Exposure to Anabolic Steroids

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**Background & Objectives:** The abuse of anabolic-androgen steroids (AAS) is considered a worldwide health problem. Supraphysiological doses of AAS lead to a variety of neurophysiological problems, including endocrine disorders and cancer-related disease. To determine the biological substrates underlying AAS effects in the neuroendocrine system, we performed proteomic analysis of the hypothalamic GT1-7 cell line after exposure to the AAS, 17 $\alpha$ -methyltestosterone. **Methods:** 2D-DIGE and mass spectrometry followed by western blots analyses were used to identify changes in protein expression. **Results:** We found twelve proteins significantly modulated by AAS. Ontological analysis showed that these proteins were associated with cell cycle/growth, drug detoxification and metabolic processes. Among the up-regulated proteins we found glutathione S-transferase Mu-1 (GSTM1) and glyceraldehyde 3-phosphate dehydrogenase (GAPDH). On the other hand, enhancer of rudimentary homolog (ERH) and phosphatidylethanolamine binding protein-1 (PEBP1) were down-regulated. **Conclusions:** Our results highlight the adverse effects of AAS in the neuroendocrine system, specifically in cancer-related processes. **Acknowledgements:** This project was supported in part by grants from NIH: NCRG G1203051 (RCMI-UPR, MSC), NCRG (2P20RR016470), NIMHD (8G12-MD007600), NIGMS (8P20 GM103475) to JLBE and MBRS-RISE-MS Fellowship (R25-GM061838) to FJMR.

#### A-105 Aspectos Legales de una Emergencia de Salud Pública y la Responsabilidad Médica en Puerto Rico

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**Política Pública en análisis** Se analiza el manejo de emergencias de salud pública y la responsabilidad médica del sector de la salud en el Estado Libre Asociado de Puerto Rico. **Disciplina Académica** Ámbito Legal. **Fuentes de Información.** Bases de datos legales, leyes, reglamentos, órdenes ejecutivas y administrativas, federales y locales, proyectos extranjeros y revistas jurídicas. **Métodos de Investigación.** Se analizan las fuentes de información para delinear la respuesta del Estado Libre Asociado de Puerto Rico ante una situación de emergencia de salud pública, dando énfasis a lo que se refiere a la responsabilidad médica desde el marco legal. **Hallazgos:** Como resultados preliminares se presenta en el ámbito local, la situación para el Manejo de Emergencias se ha modificado en los últimos meses. El 11 de septiembre de 2014, la OE-2014-044, derogó la OE-2009-43 y el OE-2010-20, las cuales, a su vez, derogaron a la Orden Ejecutiva 2001-26 que estableció el Plan Estatal Para el Manejo de Emergencias, (concretamente, dispuso un extenso plan de coordinación de funciones de las agencias ante el manejo de una emergencia estatal), y a la Orden Ejecutiva 2005-36 que dispuso lo relativo al Sistema Nacional de Emergencias. La OE-2014-043, del 11 de septiembre de 2014 establece la política pública de Puerto Rico en el Manejo de Emergencias y Administración de Desastres de Puerto Rico, los municipios y las entidades privadas. **Implicaciones para la Política Pública** Puerto Rico tiene un nuevo sistema de manejo de emergencias el cual hace imperativo el análisis del mismo desde la perspectiva de una emergencia de salud pública y la responsabilidad del sector médico durante la misma. **Reconocimientos:** Subvención: Este proyecto fue subvencionado en su totalidad por fondos federales del Center for Disease Control and Prevention (CDC) y Office of the Assistant Secretary for Preparedness and Response (ASPR) del U.S. Department of Health and Human Services (USDHHS), administrados por la Oficina de Preparación y Coordinación de Respuesta en Salud Pública (OPCRSP) del Departamento de Salud de Puerto Rico bajo contrato #2014-DS0583.

#### A-106 Community-associated - methicillin-resistant *Staphylococcus Aureus* from Public Beaches in Puerto Rico

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**Background and Objectives:** Community-associated-methicillin-resistant *Staphylococcus aureus* (CA-MRSA) has become a global pathogen responsible for a broad range of clinical presentations in both community and hospital settings. Transmission of MRSA can occur either from people or fomites. Previous studies in the USA have demonstrated the presence of this organism in coastal environments. We hypothesized that in the marine tropical environment of Puerto Rico (PR), the proportion of MRSA will be greater in seawater and beach sand than the percent reported in USA of 1% and 8.1% respectively. The aim of this study was to detect, characterize and determine the concentrations of CA-MRSA in recreational marine environments. **Methods:** Five pu-

blic beaches of Puerto Rico were selected and marine water and intertidal sand samples collected between November, 2012 and March, 2013. The CA-MRSA was identified and characterized by culture media, PCR, and PFGE. Descriptive and inferential statistics were used to summarize the data. Results: Of 120 samples collected from marine water and intertidal sand, the average percent detection frequency for MRSA was 3% (2/60) at a median concentration (25th and 75th percentiles) of 29 CFU/100 ml (15, 435) and 12% (7/60) at a median concentration of 115 CFU/100g dw (8, 225), respectively. Conclusions: This is first report of the presence of CA-MRSA in public beaches in Puerto Rico. Our data suggest that the concentration of CA-MRSA is higher in PR than in the USA. Public health authorities should discuss the possibility of establishing policies to decrease the potential environmental transmission of CA-MRSA. Acknowledgements: This research was supported by the Environmental Health Department, MSC, UPR; Dean of the School of Medicine, MSC, UPR and RCMI/NIH (G12-MD 007600).

#### **A-107 Assessment and Management Practices of Pain, Agitation/Sedation, and Delirium in Adult Intensive Care Patients in San Juan, Puerto Rico**

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**Background & Objectives:** Pain, agitation/sedation, and delirium (PAD) are common phenomena in ICU patients. Little is known about the assessment and management practices of PAD in Puerto Rico ICUs, which are explored in this study and described with recommendations from current PAD guidelines. **Methods:** A prospective descriptive study was used. Clinical records from 80 patients were reviewed at four ICU's at the Medical Center of PR to identify the methods for assessment and management of pain, agitation/sedation, and delirium used by nurses and doctors for each patient. **Results:** Pain, agitation, and levels of sedation are assessed predominantly by nurses. The most common tool used to measure pain is the verbal 0-10 Numeric Rating Scale (NRS). For those patients who are not able to self-report their pain, two ICU's used observation of pain behaviors and the assumption that pain is present according to pain risk factors, respectively. For agitation and sedation levels, the Richmond Agitation Sedation Scale (RASS) is used in three of the ICU's, but not in a consistent manner. Delirium is not assessed in any of the ICU's. As for the management of these phenomena, it was found that inconsistent practices were used among the hospitals. **Conclusion:** The assessment and management practices of these four ICU's are not at all consistent with the current PAD guidelines. A future study to know the barriers and facilitators for the use of the current PAD guidelines is needed. **Acknowledgement:** Funded by Capacity Advancement in Research Infrastructure UPR MFP-6251123.

#### **A-108 University of Puerto Rico Comprehensive Cancer Center Biobank: Quality Assessment of Biospecimens**

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**Background & Objectives:** Biobank is a new science that focuses on the collection, storage and distribution of high-quality biospecimens for research and clinical purposes. Our Biobank collects and store samples from patients with breast, melanoma, prostate, urinary bladder, ovarian, endometrial, and colon cancer. This study was designed to evaluate quality measurements of the collected samples. **Methods:** After IRB approval and informed consent, 216 random samples were assessed. Quality measures evaluated include: 1) presence of identification label in the sample, 2) label legibility, 3) label placement, 4) correlation of specimen location with clinical database, 5) type of sample, 6) availability of consent, and 7) if consents were signed. Data was analyzed using descriptive statistics. **Results:** A total of 7.4 % (216/2,935) samples from 2012-2013 were evaluated. All samples had their identification label in place and the information was legible. However, 1/216 samples showed the label detached from the sample. The location of all samples was correct in the clinical database. The samples include: 33 plasma, 35 snap frozen, 41 serum, 77 urine, 23 paraffin-embedded tissue, 5 blood, and 18 frozen tissue. All samples had their corresponding consents available. However, 4.5% were not signed by biobank staff. **Conclusions:** Our biobank showed high-quality information regarding samples location and identification. In addition, all samples were obtained after informed consent from the patient. Future areas of improvement include: identification of duplication of samples id and signing of informed consent by biobank staff. **Acknowledgements:** No conflict of interest was identified by any author.

#### **A-109 Effects of Hydrogen Peroxide on the B<sub>2</sub> Adrenergic Agonist Response of the Isolated Pre-contracted Rat Trachea in Low Temperature Conditions**

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**Background and objectives:** Reactive Oxygen Species (ROS) from endogenous peroxides are a well known component of inflammatory reactions such as obstructive airway disease like asthma. Exacerbation of symptoms is observed in asthmatics exposed to low ambient temperature in resting and/or exercise conditions. B<sub>2</sub> adrenergic agonists have been shown to prevent bronchoconstriction in asthmatics before cold exposure but no studies exist on the effects of B<sub>2</sub> agonists under low temperature conditions and/or high levels of ROS. Thus, we investigated how exposure to peroxide (H<sub>2</sub>O<sub>2</sub>) generated ROS induces changes in the acetylcholine (Ach) contracted rat trachea (RT) at 37°C and 18°C in the presence and absence of the well known B<sub>2</sub> agonist salbutamol (SA). **Methods:** RTs from male

Sprague Dawley rats were mounted in an isolated organ bath preparation and stimulated with Ach ( $10^{-3}$ M) at 37°C and 18°C respectively in the presence and absence of H<sub>2</sub>O<sub>2</sub> (10-3M). This procedure was repeated after a 30 min. incubation of the RT with SA (10uM). Results: The presence of H<sub>2</sub>O<sub>2</sub> reduced the Ach induced RT contraction at 37°C but not at 18°C. SA has no effect on RT contraction at 37°C in the presence of H<sub>2</sub>O<sub>2</sub>. At 18 C H<sub>2</sub>O<sub>2</sub> in the presence of SA the Ach induced contraction was significantly enhanced. Conclusion: These results indicate that low temperature causes a significant reduction in B<sub>2</sub> agonist induced airway relaxation in the presence H<sub>2</sub>O<sub>2</sub> derived ROs. Thus, there is a dampening of the effect of B<sub>2</sub> agonist in low temperature conditions and high levels of ROS. This has implications for asthmatic patients using B<sub>2</sub> agonists in cold environments or after exercise. Both conditions are known to cause bronchoconstriction in asthmatics. Acknowledgements: This research has been supported by funds provided by the Deanship of Biomedical Sciences and the Department of Physiology and Biophysics of the UPR School of Medicine.

#### A-110 Epidemiology and Outcomes of Congenital Diaphragmatic Hernia in Puerto Rico

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Background and Objectives: Congenital Diaphragmatic Hernia (CDH) is associated with a significant morbimortality and has a highly variable clinical presentation. The study's objective is to describe the demographics, clinical characteristics, and factors associated to mortality in newborns with CDH admitted to the University Pediatric Hospital (UPH) Neonatal Intensive Care Unit (NICU) over a 12-year period. Methods: Medical records of newborns with CDH admitted to the UPH-NICU from 2002 to 2013 were reviewed. Data was analyzed using Statistix 8.0. Differences among groups were analyzed using t-test and chi-square as appropriate. Results: Seventy-two neonates with CDH were admitted during the research period. The mean gestational age at birth was 37 weeks (range 29-41) with a mean birth weight of 2761 grams (range 1200-3900). Most infants were male (62%) with a male: female ratio of 1.6:1. Isolated CDH was diagnosed in 96%. Although 65% of neonates required endotracheal intubation in the delivery room, all of them required mechanical ventilation during hospitalization. High frequency ventilation was used in 29% of neonates and inhaled nitric oxide (iNO) in 17%. Pneumothorax was observed in 24%. Mortality within 12 hours of admission was 17% and overall survival was 38%. Factors associated to mortality included lower gestational age, lower birth weight, lower 1 and 5 minutes APGAR scores, delivery room intubation, longer duration of ventilation, pneumothorax, and requirement of iNO ( $p < 0.05$ ). Conclusion: CDH is rarely associated with other genetic syndrome or chromosomal abnormality but has a high mortality risk despite of advancements in the neonatal care and technologies.

#### A-111 Impact of Gender in Very Low Birth Weight Infants' Survival

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Background and Objectives: An advantage in survival for female infants has been reported suggested to be related to a more favorable hormonal milieu in female fetuses causing accelerated maturation. The purpose of this study is to determine associations between gender and survival in very low birth weight (VLBW) infants. Methods: Study subjects included VLBW infants admitted to the University Pediatric Hospital Neonatal Intensive Care Unit from 2002-2013. Data was obtained from the Vermont-Oxford Network database. Analysis was performed using Statistix 8.0. Chi-square was used to analyze differences among groups. Results: During the study period 2,087 VLBW infants were admitted. Gender distribution was females 47% and males 53%. Mean birth weight was similar. The overall survival rate was 67%. Females had a higher survival rate (69% vs 64% ( $p < 0.05$ ; OR 1.284 [1.0698-1.5425])). When analyzed by birth weight groups, females had a higher survival rate in the groups of infants 500-750 grams and 751-100 grams ( $p < 0.05$ ). Survival for females was significantly higher at 23-25 weeks and 29-32 weeks gestational age groups. There was no gender difference in the prevalence of respiratory distress syndrome (RDS) but males required surfactant administration more commonly (36% vs 31%,  $p < 0.05$ ; OR 1.2667 [1.0554-1.5203])). Conclusions: The higher survival of females is consistent with previous reports. Although prevalence of RDS was similar, males had higher requirements of surfactant suggesting more immature lungs and sex-biased disease vulnerability following premature delivery. These findings are important when approaching parents with respect to chances of survival when faced with a premature birth.

#### A-112 Health Literacy in a Group of Older Adults Assisting to Seniors' Activity Centers

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Background & Objectives: Functional health literacy is defined as the degree to which individuals have the capacity to obtain, process and understand basic health information and services

needed to make appropriate health decisions using both information and services. Inadequate levels of health literacy affect the health status of individuals and are associated with a range of poor health-related outcomes. The purpose of this study was to determine the levels of functional health literacy in a group of elders who participate in seniors' activity centers. Methods: A total of 100 people aged 65 years or older who attended a seniors' activity center were interviewed in person between January and April of 2010. The study used a structured questionnaire which included demographic information, use of health services, the Spanish version of the short functional literacy scale (S-TOFHLA) and the generic health scale version (SF-36 v2). Results: More than half (54%) presented inadequate levels of health literacy, 15% reported marginal health literacy, while 31% had adequate levels of health literacy. More than one-fifth (22%) reported that they did not understand the instructions that the provider offered at the moment of the treatment and more than one-third (34%) reported difficulty completing the medical forms. Conclusion: Health literacy presents adult educators with an opportunity to motivate adult learning while providing adults with knowledge and skills that will enhance their lives and the well-being of their families. Acknowledgements: This study was part of a doctoral dissertation. We would like to thank the seniors' activities centers for their willingness to collaborate with the information needed for this project. IRB: This project was approved by Interamerican University of Puerto Rico, Institutional Review Board, protocol number 09-010-032-2010 on February 5, 2010.

#### **A-113 Twin Reversed Arterial Perfusion Sequence: Unique Complication of Monochorionic Twin Pregnancy**

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Purpose: Twin Reversed Arterial Perfusion Sequence (TRAP) sequence is a complication of monochorionic twin pregnancies in which a twin with absent or nonfunctioning heart is perfused by its co-twin (pump) via placental arterial anastomosis. Occurs in 1% of monochorionic twin pregnancies. A portion of pump twin cardiac output travels through placental arterial-arterial anastomosis to the umbilical artery and then to the circulation of recipient co-twin, creating a reversed circulation. The pump twin may have signs of high output cardiac failure. Perinatal mortality for the pump twin is related to congestive heart failure and preterm birth. We present this rare complication of monochorionic twins and the importance of prenatal counseling. Case Description: A 29 weeks male preterm adequate for gestational age born to a 28y/o female with prenatal diagnosis of TRAP sequence. Examination showed an 855 grams critically ill patient on mechanical ventilation, with dysmorphic features and a systolic murmur 3/6. Clinical Approach: The patient received parenteral nutrition and broad spectrum antibiotics. Evaluation by cardiologist revealed atrial septal defect, tricuspid regurgitation, multiple echogenic foci on left ventricle papillary muscle, echogenic right ventricular muscle and pulmonary

valve, with an ejection fraction of 74%. Clinical findings: The patient deteriorates developing signs of high output cardiac failure that included tachycardia, narrow pulse pressure. Inotropic support required. Patient further deteriorates, advanced cardiorespiratory support as per Neonatal Resuscitation Program provided, but despite efforts patient was declared death on day #2 of life. Hypothesis: In twins with this rare complication, intrauterine surgery may improve prognosis.

#### **A-114 Dysembryoplastic Neuroepithelial Tumor in the Puerto Rico Medical Center: A Five Year Review**

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Glial tumors arise in the Central Nervous System (CNS). Dysembryoplastic neuroepithelial tumor (DNET) is a low grade glial tumor, WHO Grade I. This tumor commonly affects children and young adults. DNET is typically located in the supratentorial cortex with a predilection for the temporal lobe. In 1988, Dumas-Duport, et al described this tumor in a series of patients with intractable partial complex seizures presenting complete remission after surgical removal. Its histologic hallmark consists of dysplastic neuronal tissue embedded in a mucinous background known as a "floating neurons." This study aims to show the prevalence of DNET in the Puerto Rican Medical Center (PRMC) and educate in order to enhance diagnostic awareness. We performed a search in the PRMC database of cases diagnosed from August 2009 to August 2014. All cases with a final pathologic diagnosis of DNET were included. We identified and revised a total of eight cases with diagnoses supported by immunohistochemistry studies and a neuropathologist consult. The mean age of diagnosis was 26.5 years, affecting primarily males (62.5%). The majority of cases (87.5%) were located in the temporal lobe. The incidence was 1.3% among all primary CNS tumors diagnosed in that period (n=634). Three cases were diagnosed at unusual ages; the oldest at 65 years of age. DNET is a particular entity that requires a high level of clinical suspicion to achieve diagnosis. The absolute possibility of cure granted, even by partial surgical removal, highlights the pertinence of recognizing this entity to ensure proper patient management.

#### **A-115 Pregnancy with Prior Knowledge of HIV: Opportunities for Improved Outcomes**

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Background: Pregnancy, childbearing, and other aspects of reproductive health are issues that need to be addressed for women living with HIV. Pregnancy presents both a challenge and an opportunity to engage more fully into care and to improve adherence to HAART and care. Methods: We analyzed data from 47 pregnant women living with HIV newly enrolled in



care. Demographic characteristics, social needs, HAART use, HIV RNA viral load, CD4 counts and other data were obtained from the clinical charts of patients. Descriptive analyses were performed in order to portray a general profile of pregnant women living with HIV. Results: The mean age was 28.05 (SD=6.30) and the timing at first visit was 13.66 weeks. The majority (72.3%) were diagnosed with HIV previous to pregnancy. The following needs were reported: transportation, housing, medications, legal advice, health insurance, and adherence counseling. An improvement in viral suppression was noted between the initial and the last visit: from 34% to 71.1% and improvement in CD4 was also noted: from 31.9% to 45.5% with CD4 counts. Conclusions: More women are presenting for prenatal care with prior knowledge of their HIV infection which could be related to perceived improvements in care and outcomes. Nevertheless, there are multiple other needs expressed by the patients. Integration of services may alleviate some of the challenges to women's living with HIV ability to exercise their sexual and reproductive health and rights. Addressing needs and providing adherence counseling to pregnant women living with HIV seems to facilitate virologic and immunologic control.

#### **A-116 Andrographolide Modulates Cell Cycle, Cell Migration and Tumor Growth in prostate Cancer**

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**Background & Objectives:** Prostate cancer is the most frequently diagnosed non-cutaneous cancer and the second leading cause of cancer death in American men. Andrographolide, a labdane diterpenoid that is a component of the medicinal plant *Andrographis paniculata*, has been reported to have a wide range of biological activities including anticarcinogenic properties. In this study we aim to determine the role of Andrographolide in prostate cancer using in vitro and in vivo models. **Methods:** Invasion and migration process were measure by wound healing assays and boyden chamber experiments. Tumor tissue was collected for gross examination, immunohistochemical analysis and gene expression analysis. **Results:** Andrographolide significantly inhibited PC3 cell growth at a concentration of 10 $\mu$ M after 24h of treatment ( $P<0.001$ ), and inhibited LNCaP cell growth at a concentration of 15  $\mu$ M after 24h of treatment ( $P<0.001$ ). PC3 prostate cancer cells treated with Andrographolide (25 $\mu$ M) significantly reduced ( $P<0.001$ ) their migration and invasion. Andrographolide (25 $\mu$ M) significantly increased apoptosis, decreased cell population in G1 phase, and reduced count and viability of PC3 cells treated for 48h ( $P<0.001$ ). Immunofluorescence analysis showed that MMP-11 expression levels were

significantly decreased and ZO-1 expression was significantly increased in PC3 cells treated with Andrographolide (25 $\mu$ M). Tumor development was evaluated using a xenograft model in which the prostates of SCID mice were injected with 22RV1 or PC3 cells, and mice were treated bi-weekly with andrographolide (10 $\mu$ M and 25 $\mu$ M). Andrographolide significantly decreased tumor volume when compared to control. **Conclusions:** Our results suggest that the anti-migration and anti-invasion effects of andrographolide may be associated with alterations in the expression of ZO-1 and MMP-11. **Acknowledgements:** This work is funded by start-up funds from the UPR Comprehensive Cancer and funds from the graduate program of the School of Pharmacy. Approved by IACUC.

#### **A-117 Chronic Diarrhea in Captive Rhesus Macaques at the CPRC and Potential use as Translational Model for Inflammatory Bowel Disease**

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**Background & Objectives:** Chronic diarrhea in Rhesus macaques is a debilitating disorder that is frequently encountered research facilities resulting in significant morbidity and mortality. Clinical management is often difficult and frequently outcomes are negative. Our main goal is to further characterize the causes of chronic diarrhea of captive Rhesus macaques, discuss the overall effects on colony health and demonstrate that Rhesus macaques are potentially a useful model for Inflammatory Bowel Diseases (IBD). According to the Centers for Disease Control (CDC), the incidence of people with chronic gastrointestinal disorders in the US ranges from 1-1.3 million. Although controversial, the zoonotic nature of some of these debilitating human conditions has been correlated with the presence *Mycobacterium paratuberculosis* in human subjects with Crohn's Disease. **Methods:** Pooled fecal samples from SPF corrals exhibiting chronic diarrhea events, fecal samples of individual rhesus macaques and tissues samples collected at necropsy from animals exhibiting chronic diarrhea were obtained and submitted for liquid cultures for *Mycobacterium paratuberculosis*. Cases were selected based on clinical history of individual animals and/or necropsy findings; primarily focusing on cases of chronic diarrhea that are unresponsive to conventional treatments for *Shigella* spp., metazoan or protozoal parasites. **Results:** All of the 39 fecal and tissues samples obtained from suspect cases were negative for *Mycobacterium paratuberculosis*. **Conclusion:** To our knowledge this would be the first attempt to isolate *M. paratuberculosis* from samples of captive Rhesus and findings suggest this bacterium is not involved in the etiogenesis of chronic diarrhea in Rhesus at the CPRC. **Acknowledgements:** Funding Sources: Funding Sources: National Institute of Health Principal Investigator Dr. Melween Martin Approved by IACUC: October 3, 2014.

#### **A-118 Shear Bond Strength of Three Adhesive Luting Agents to Bovine Dentine**

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**Background and objectives:** There is limited evidence of the shear bond strength of newer self-adhesive resin cements compared to self-adhesive resin-modified glass ionomer cements bonded to dentin. The aim of this study is to compare the shear bond strength (Mpa) of a Resin Modified Glass Ionomer Cement (material A), Self-Adhesive Resin Cement (material B) and Total Etch Adhesive Resin Cement (material C). **Methods:** An in vitro experimental design of 9 (3 per material) bovine teeth were handled as previously described by Ayala Gamalier et al. (2004). Successfully prepared by grinding the buccal surface flat with a carbide disk on a low speed trimmer and a 600 grits carbide paper under continuous water flow. All specimens spent 24 hours in a thermostatically controlled water bath at constant temperature of 37°C. All groups' preparation followed the manufacturers' instructions. All specimens were thermocycled 100 times (5-55°C). Shear bond strength values were determined by a Chantillon Testing Machine. **Results:** Overall mean shear bond strength was 6.07±2.61 Mpa, material A had 3.96±0.88 Mpa, material B 4.91±1.06 Mpa, and material C 9.34±0.76 Mpa. One-way ANOVA showed a statistically significance difference in mean shear bond strength by material (p=0.0008). Bonferroni test was used to assess differences between specific materials, and differences were found comparing material A vs. C (p=0.001) and B vs. C. (p=0.003), but no significant difference was found between material A and B. **Conclusions:** Total Etch system presented more retentive properties. Additional studies are need with larger amount of specimens.

#### **A-119 Transitional Care: Early Post-Discharge Follow-Up and Re-hospitalization Rates in High Risk Population in Western Puerto Rico**

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**Background and Objectives:** Recently, the Centers for Medicare & Medicaid Services (CMS) began using readmission rates as a publicly reported metric with plans to lower reimbursement to hospitals with excessive risk-standardized readmission rates. High readmission rates have surpassed mortality as the standard of measure of healthcare management outcomes. Interest in transitional care interventions have grown out of the thought that they may 1) reduce readmissions among chronically ill adults, 2) provide clinically relevant stratification of readmission risk,

and 3) give information early enough during the hospitalization to trigger a transitional care intervention. The goal of this study is to compare the overall readmission rate in high-risk patients (defined as those with a CIRS score of 9 or greater) against that of the general population and establish a protocol to identify those high-risk hospitalized patients that would benefit from an early post-discharge follow up visit. **Methods:** A prospective cohort study was designed which included all patients admitted to Mayaguez Medical Center (MMC) between Oct 1, 2013 to Feb 1, 2014 under the care of Family Medicine service. Two hundred and forty-three patients identified and categorized as high risk were followed for 30 days after discharge. Rehospitalization was defined as those occurring within 30 days after hospital discharge. **Results:** The most common readmitting diagnoses were CHF and pneumonia. Patients admitted for CHF had a readmission rate of 72% by the same condition. Patients non-compliant with their follow-up visit had 3.5 times the risk of readmission. **Conclusions:** There is a strong relation between early post-discharge follow-up and no readmission.

#### **A-120 Epidemiology of Gun Shot Wounds in the Pediatric Population of Puerto Rico**

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**Background & Objectives:** Puerto Rico figures in the 19th position for homicide incidence in the world with an incidence of 25 homicides per 100,000 inhabitants. In 2005 about 94.8% of violent deaths were caused by firearms. There are no epidemiological studies evaluating the incidence of gun shot wounds in the pediatric population in P.R. There is a need to identify areas of high propensity to violence in order to establish a strategy that would enable early intervention through educational programs in our public schools. The objective of this study is to evaluate the incidence and outcomes of pediatric gun shot wounds in the major trauma center of P.R. **Methods:** This is a retrospective record review study of the pediatric patients treated by the orthopedic service for a penetrating firearm injury at the University Pediatric Hospital from the dates 2000 to 2013. A total of 77 patients were included in the study and analysis of the medical treatment and demographic variables was performed. **Results:** About 99% of our patient sample were male adolescents between ages 13-18. Wound to lower extremities were more common than upper extremity and presented with higher incidence of neuro-vascular complications resulting in permanent functional damage and even loss of the extremity. **Conclusion:** Our study suggest that adolescents have a higher risk of suffering gun shot injury because are more exposed to violent situations. Also the severity and complexity of the injuries seen in our population have a higher impact on the public health costs.

#### **A-121 Tunicamycin Inhibits Angiogenesis and Breast Tumor Progression**

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**Background and Objective:** Breast cancer is a global health problem affected 1.7 million women in 2012 and 522,000 died. The estimate for 2035 is 846,241. The disease is complex but follows the core principles of sustainability to proliferative signaling, ability to evade growth suppressors, ability to resistance cell death, ability to enable replicative immortality, angiogenesis induction, and activating invasion and metastasis. The treatment used anti-angiogenic/anti-cancer therapies. But, due to a poor performance and inefficacy, many have been called into question. Glycosylation plays a critical role in angiogenesis, and we have hypothesized that asparagine-linked protein glycosylation inhibitor would prevent angiogenesis and breast tumor progression. The objective of the study is to develop our US Patented drug tunicamycin as a next generation glycotherapy for breast cancer. **Methods:** We have used MTT assay for cell proliferation, flow cytometry for cell cycle analysis, western blotting, immunofluorescence microscopy and qRT-PCR for protein/gene expression, and nude mice for breast cancer. **Results:** Tunicamycin inhibited capillary endothelial cells and human breast cancer cells proliferation in a dose dependent manner, arresting cells in G1. Expression of Bcl-2, D-type cyclins, CDK4, p21 was upregulated with no change in Bax expression. High GRP-78/Bip expression indicated ER stress and those of ATF-6, PERK as well as caspases-3, 9, 12 supported apoptotic death induced by unfolded protein response (upr) signaling. Breast tumor progression in nude mice was reduced ~ 55% - 65% in three weeks. **Conclusion:** Anti-angiogenic and anti-tumorigenic actions make tunicamycin an excellent glycotherapy. **Acknowledgement:** Supported by grants EPS-1002410 (DKB) and NIH/NIMHD 2G12MD007583 (KB).

#### **A-122 Anion Gap as a Predictive Value of Clinical Outcome in Critically Ill Children**

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High anion gap (AG) has been found to be a predictor of all-cause mortality in adults critically ill. This finding has not been reported in critically ill children. Our aim is to assess whether high AG is associated with morbidity and mortality of critically ill children. A retrospective observational study including patients, 0 to 21 years old, admitted to the University Pediatric Hospital-Pediatric Intensive Care Unit (PICU) from November 2009-2010 (n=201) was performed. Sociodemographic data, AG on PICU admission, mechanical ventilation (MV) days (morbidity) and death (mortality) were obtained. Normal and high AG were defined as <14 and ≥14, respectively. MV days and death rate were compared among children with normal AG and high AG.

Mean (standard deviation), median (interquartile range-IQR), frequencies (percentages) were used to describe the sample. Mann-Whitney and Fisher exact tests were used for comparisons. Of the 201 patients, 58% were male, mean age was 7.5 yrs (+/- 6.1 yrs), MV days were 5 days (2-12) and the overall mortality was 9% (n=18). Patients with high AG (n= 136) were on MV for a longer period of time than those with normal AG (n=65) (7 days, IQR: 4-18 days vs. 5 days, IQR: 2-11 days; p=0.04). Patients with high AG had greater mortality than those with normal AG (15% vs. 6%; p=0.03). This study suggests that high AG may be associated with increased morbidity and mortality in critically ill children, which may become a useful predictive tool in this population. Our next step is to compare AG to validated ICU severity scores, including PRISM III.

#### **A-123 Spontaneous Intracranial Epidural Hematoma in a Patient with Juvenile Idiopathic Arthritis**

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**Purpose:** Spontaneous intracranial epidural hematomas (EDH) are a rare occurrence. The reported cases have been associated to coagulation disorders, tumors, vascular lesions, and meningeal, sinus or otic infections. To our knowledge there is no documented case of a spontaneous epidural hematoma in a patient with a history of juvenile idiopathic arthritis. **Case Description:** The authors present a case of a 15 year-old boy with a history of juvenile idiopathic arthritis that presented with a non-traumatic left frontal acute epidural hematoma. **Clinical Approach:** An emergency craniotomy and evacuation of clot was required. The hematoma recurred bilaterally 21 days later, requiring a second evacuation. **Clinical Findings:** History, examination and work-up were negative for trauma, infections, coagulation disorders, vascular lesions and tumors. A left frontal spontaneous epidural hematoma was observed in head CT. Twenty-one days following the initial evacuation, the hematoma recurred bilaterally requiring a second craniotomy and evacuation. **Hypothesis:** Juvenile idiopathic arthritis (JIA) may present with antiphospholipid syndrome or vasculitides. These however have historically shown to cause ischemic infarcts rather than spontaneous hematomas. The etiology of this rare event is something we are looking to elucidate.

#### **A-124 Pseudomonas luteola as the Cause of Liver Abscess and Lung Nodules in an Immunocompetent Pediatric Patient**

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Pseudomonas luteola is a motile aerobic gram-negative rod with a yellow-orange pigment. The normal habitat of P. luteola is unclear; however, it may be frequently found in water, soil and other damp environments. It is considered to be an opportunist

saprophytic organism, rarely found in humans. We report the case of an immune-competent 10 year-old male with past medical history of successful treatment of gastritis by *Helicobacter pylori*. He presented with right upper quadrant (RUQ) pain of 1 month of evolution. Abdominal pain was treated with ibuprofen at home with slight improvement of symptoms. He denied fever, vomiting, diarrhea, anorexia, or weight changes. Physical examination was remarkable for mild RUQ tenderness to superficial palpation. Mother reports that the patient did not wash his hands after playing soccer or before eating. He was then hospitalized for further management. Imaging studies showed bull's eye/target liver lesions with centripetal, progressive rim and nodular enhancement associated with numerous lung nodules. Laboratories revealed elevated inflammatory markers (IM), for which broad spectrum antibiotics were started. Allergy & immunology, gastroenterology, oncology, infectology, surgery, and cardiology were consulted. Despite antibiotic treatment, the patient persisted with elevated IM, and displayed lack of improvement. Liver samples obtained by laparoscopy exhibited abscess formation. Sample culture flourished *P. luteola*. To our knowledge there are only 12 cases reported in the literature with this microorganism. This is the first case of an immunocompetent pediatric patient with *P. luteola* without underlying disease.

#### A-125 Epidemiology of Pancreatic Cancer in Puerto Rico (1987-2010): Incidence, Mortality and Survival

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**Background & Objective:** Pancreatic cancer is an uncommon type of cancer worldwide. Nonetheless, even with early diagnosis, mortality rates are high. This study aims to perform an epidemiologic profile of pancreatic cancer in PR. **Methods:** Using data from the Puerto Rico Central Cancer Registry, age-standardized incidence and mortality rates of pancreatic cancer in Puerto Rico (PR) were compared with Hispanics, non-Hispanic Whites, and non-Hispanic Blacks in the United States (US). Incidence and mortality trends of pancreatic cancer were estimated, and survival analyses were also performed. **Results:** In 2005-2010, 5.8 per 100,000 persons were diagnosed with pancreatic cancer in PR and mortality rates were similar. Pancreatic cancer was more frequent in men (6.5 per 100,000 men) than women (5.2 per 100,000 women), and in persons older than 65 years (32.0 per 100,000 persons). Moreover, the median survival for the people diagnosed with pancreatic cancer in PR during 2006-2007 was 4 months and at the end of the third year after diagnosis, only 13% of the patients survived. Incidence trends of pancreatic cancer

showed an increase for men (APC=13.0%, $p<0.05$ ), but not for women (APC=-0.4, $p>0.05$ ). However, mortality trends showed a slight decrease for men (APC=-1.0%, $p<0.05$ ), but not for women (APC=1.4, $p>0.05$ ). Meanwhile, Puerto Ricans in comparison to other racial/ethnic groups living in the US, showed a lower risk for being diagnosed and of dying from pancreatic cancer. **Conclusion:** Our results highlight the need for additional research in pancreatic cancer, in order to have an impact in disease survival in PR. **Acknowledgements:** CDC grant #5U58DP003863-03

#### A-126 Psychometric Construction of a Trans-diagnostic Anxiety Index: A Pilot Study

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**Introduction:** Individuals diagnosed with anxiety disorders (AD) share common features, like high state and trait anxiety, negative affect, and neuroticism (McManus, 2010). The NIMH Research Domain criteria (R-Doc) propose that these overlapping features can be categorized as a negative valence (NV) domain. Following R-Doc, we propose to assess these characteristics with self-report measures and categorize the sample creating an anxiety index. **Methods:** 88 subjects (77% AD), 69% female, 76% with a college degree, were screened using the Structured Clinical Interview for the presence of an AD. 5 self-report scales measured the R-Doc NV factors: Beck Anxiety Inventory, State-Trait Anxiety, Negative Affect Scale (PANAS) and Neuroticism Sub-scale. Psychometric differences led to transform raw scores into re-scaled scores. Averaging led to mild (AI= $\leq .14$ ), moderate (AI=0.15-0.45), severe (AI= $\geq .46$ ) categories. One-way ANOVA assessed differences in mean scale scores between categories. Discriminant analysis and exploratory factor analysis tested the proposed anxiety index. **Results:** Subjects without diagnosis (53.3%) and with specific phobia (40%) were mainly in the mild group. Subjects diagnosed with panic, PTSD, OCD, and GAD were predominantly classified in moderate and severe groups. Severe anxiety group showed higher mean scores in all individual scales ( $p < 0.05$ ). Each individual scale was a significant factor in categorizing sample into severity groups ( $\lambda=.130$ ,  $p<.05$ ). **Discussion:** Factor and discriminant analysis confirmed the proposed model's ability in identifying severity of anxiety withstanding diagnostic category. Given high comorbidity rates in AD, this could be a helpful tool for individualized-treatment, as it portrays psychological profiles specific to anxiety severity.

#### A-127 Comparación de Dos Técnicas de Impresión de un Implante Angulado a 15 Grados

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**Planteamiento del problema:** En restauraciones sobre implantes la falta de pasividad puede provocar complicaciones mecánicas o biológicas, la pasividad puede verse comprometida durante la toma de impresión y la confección del modelo definitivo. **Objetivo:** Comparar la precisión de dos técnicas de impresión de un implante MIS angulado a 15 grados y a 0mm de profundidad. **Materiales y métodos:** Se fabricó un modelo maestro de polimetil metacrilato a partir de un dentoformo maxilar dentado. En la posición del central maxilar derecho se colocó un análogo de implante MIS de conexión interna (13mm de longitud x 4mm de diámetro), a una angulación de 15 grados y 0 mm de profundidad con respecto al central maxilar izquierdo. Se fabricó dos cubetas individuales (una para cada técnica de impresión: técnica de arrastre como el grupo 1 y técnica de "snap-on" como grupo 2). Se llevó a cabo la toma de impresión (n=10) con poliéter y mediante un aditamento, para estandarizar tanto la impresión como su vaciado. Se realizó el vaciado al vacío y mezclado mecánicamente con piedra dental tipo IV utilizando las proporciones recomendadas por el fabricante (100ml de agua por 20mg de piedra dental). La posición tridimensional de los implantes fue medida atornillando un pilar recto a la plataforma del implante y ubicándolo tridimensionalmente mediante una máquina de mediciones tridimensionales por coordenadas (CMM, Mitutoyo BH-305). Los datos fueron analizados estadísticamente con un t-student con un nivel de significancia de .05. **Resultados:** No existe diferencia estadísticamente significativa entre las técnicas de impresión utilizadas en ninguna de las coordenadas ni en la resultante, teniendo como promedio de la distorsión de la resultante del grupo 1 de 25 micras y en el grupo 2 un promedio de 65micras. **Conclusiones:** Dentro de las limitaciones de este estudio, la técnica de impresión "snap-on" es igual de precisa que la técnica de impresión de arrastre en un implante MIS angulado a 15 grados.

**A-128 Comparison of Dietary Patterns and Obesity Rates of Puerto Ricans Residing in Lawrence, MA and Ponce, PR**  
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**Background:** Place of residence may be associated with differences in dietary intake and obesity. **Objective:** To compare dietary patterns and obesity rates of Puerto Ricans living in Lawrence, Massachusetts (MA) and in Ponce, Puerto Rico (PR). **Methods:** Participants (N=42 in MA; N=29 in PR) recruited from primary care practices completed assessments that included standardized interviews (i.e., demographics, physical activity), the Block fruit/vegetable and fat screeners, and anthropometric measurements. Data analysis included T-tests and Chi-square tests. **Results:** Participants were men and women (MA: 52.7%; PR: 51.4%) with ages 21-84. Compared to Puerto Ricans in MA,

those in PR consumed more daily servings of fruits/vegetables (3.86 vs. 4.87, respectively; p=0.001) and dietary fiber (15.07g vs. 18.18g, respectively; p=0.003), with a greater proportion of them meeting the guideline of >5 daily servings of fruits/vegetables (11.9% vs. 42.9%, respectively; p=0.003). Intakes of total fat, saturated fat, and percent of calories from fat were similar between the two groups (p=0.500, p=0.564, p=0.504, respectively). Mean body mass index (BMI) was 32.3 in MA and 30.3 in PR (p=0.371), with rates of obesity being 57.1% in MA and 41.4% in PR (p=0.128). **Conclusion:** Obesity rates of Puerto Ricans are high in MA and PR, however quality of dietary intake is poorer in MA compared to PR. Interventions to improve quality of diet and reduce obesity among Puerto Ricans in the US mainland and the island are needed. **Acknowledgements:** Research funded by grants from NIH (R01 MH085653 and 2G12-RR003051) and Ponce School of Medicine and Health Sciences.

**A-129 Pleuropulmonary Blastoma or Congenital Emphysema: A Diagnostic Challenge in Children**

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**Purpose:** Pleuropulmonary blastoma (PPB) and congenital lobar emphysema (CLE) are rare diseases in children which may have pathologic resemblance. Different from CLE, PPB has an elevated risk of other tumors and requires routine screening tests to monitor for the presence of these tumors. Thus, differentiating PPB and CLE is extremely important. **Case description:** In this report, we present a 2 year old boy with history of an upper respiratory tract infection at 1 year of age. X ray examination found a right lower lobe (RLL) atelectasis, later identified as a cystic lesion, which was resected. Pathologic results were consistent with CLE. Patient was well until 3 days prior to our evaluation when he presented with painless left abdominal mass, identified by grandmother. **Diagnostic approach:** Abdominal CT showed left renal cystic lesion. A chest CT was also performed showing a small cystic lesion in RLL, which is the same area of the previous lesion. Radical left nephrectomy was performed and specimen sent for pathology analysis. Pathology reported a cystic nephroma. The previously resected RLL lesion was reviewed by pathology in view of these new clinical findings. Pathology reported that there was a multicystic lesion with delicate connecting septa with the lining of the cyst containing low cuboidal type epithelium consistent with PPB type 1R. **Hypothesis:** History of lung cystic lesion in association with cystic nephroma questions previous diagnosis of CLE. It is important to determine the final diagnosis as each diagnosis has different management and prognosis.

**A-130 Localization of FMRamide-like Immunoreactivity in the Nervous System of Biomphalaria glabrata, an Intermediate Host for Schistosomiasis**

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**Background & Objectives:** It is estimated that approximately 10% of people worldwide live at risk of the parasitic disease schistosomiasis, or “snail fever”. The digenetic trematode worm *Schistosoma mansoni* that causes the form of schistosomiasis found in the Western Hemisphere employs the freshwater snail *Biomphalaria glabrata* as its primary intermediate host. **Methods:** As infection of snail hosts by larval trematodes has been reported to alter the expression of genes that encode precursors of molluscan neuropeptides belonging the FMR-Famide family, this investigation examined the localization of FMRFamide-like immunoreactivity (FMRFa-li) in the central nervous system (CNS) and peripheral nervous system (PNS) of *B. glabrata*. **Results:** Within the CNS, FMRFa-li neurons were mainly located in the cerebral ganglion (Cer. g.;  $34 \pm 7$ ), pedal ganglia (Pd. g.;  $36 \pm 10$ ), left parietal ganglion (L Pa. g.;  $18 \pm 11$ ) and visceral ganglion (V g.;  $13 \pm 3$ ). While no FMRFa-li neurons were observed in the buccal ganglion, the buccal neuropil contained branching fibers that originated from axons in the cerebral-buccal connective. In the periphery, structures associated with the male reproductive system (penis muscle and sheath) were innervated by FMRFa-li fibers. Double-labeling experiments (biocytin backfill x FMRFa-li) of the penis nerve demonstrated that the neurons projecting to male reproductive structures were located in the ventral lobe (VL) of the Cer. g. **Conclusions:** It is suggested that parasite-induced changes in this peptidergic system could contribute to modifications of feeding and reproductive behaviors reported in infected snails. **Acknowledgments:** Supported by National Institutes of Health: RCM RR-03051 & G12-MD007600, NIGMS MBRS: GM-087200; National Science Foundation DBI-0115825 and DBI-0932955, and NHRD-1137725. NIH ENDURE: 5R25NS080687-04.

#### **A-131 Optimización en el Análisis de 1-hidroxipireno en Orina por Cromatografía Líquida de Alta Resolución**

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**Objetivos y Trasfondo:** Los hidrocarburos policíclicos aromáticos (PAHs) son contaminantes ambientales que representan un riesgo a la salud humana, potencialmente capaz de producir mutaciones y cáncer. Los PAHs son generados por la combustión incompleta de la materia orgánica siendo el compuesto de pireno uno de los PAHs más frecuente en la quema de combustible. Su metabolito urinario, 1-hidroxipireno (1-HOP), se utiliza como un biomarcador de exposición a los PAHs. El objetivo de este estudio es optimizar el análisis químico de 1-HOP para poderlo medir en orina. **Métodos:** La optimización del 1-HOP se dividió en varias etapas; (i) separación por cromatografía líquida de alta

resolución (HPLC), (ii) concentración y evaporación, y (iii) la extracción. Para la parte de concentración y evaporación se compararon métodos: evaporación por nitrógeno gaseoso y la evaporación usando un rotavapor. Para cada método, se hicieron unos “spikes” por triplicados de  $25 \mu\text{g/L}$  1-HOP para determinar el porcentaje de recuperación. Las muestras fueron analizadas por HPLC. **Resultados:** El porcentaje de recuperación de 1-HOP usando el método de evaporación por nitrógeno gaseoso ( $88 \pm 10.4\%$ ) fue superior al del rotavapor ( $56.7 \pm 10.6\%$ ). **Conclusión:** El método de evaporación por nitrógeno es el más eficiente para obtener el metabolito de 1-HOP. El próximo proyecto es optimizar la extracción del 1-HOP en orina utilizando cartuchos de extracción en fase sólida. **Reconocimientos:** Este proyecto recibió apoyo económico del Departamento de Salud Ambiental del RCM-UPR para materiales de laboratorio.

#### **A-132 The Epidemiology and Risk Factors Associated with Burn Patients Cared for at University Pediatric Hospital** *Normaliz Rodríguez MD, Marlen Diaz MD, Ingrid Mercedes MD, Milagros Martín MD.* UPR School of Medicine, Department of Pediatrics, Pediatric Emergency Program, San Juan, PR

**Background & Objectives:** Every day children are treated in emergency rooms for burn-related injuries. Younger children are more likely to sustain injuries from scald burns. In older children flame burns are more likely. The purpose of this study is to determine age-specific and injury-specific burns that will help us develop targeted preventive strategies to reduce the prevalence of burns in children. **Methods:** Data was collected from surveys filled by 83 parents of burned children who visited the University Pediatric Hospital from March 2014 to October 2014. **Results:** The median age was 3 years old (range 0-17). Gender distribution was 57% males and 43% females. Participant parents were mostly mothers (81%). Most children (73%) had the PR government health insurance. A large proportion of our participants were transferred from other institutions (90%). Most burns (70%) occurred within the home and involved children’s arms (36%) and hands (30%). Hot liquids were most commonly involved (61%) and 64% of burns occurred with food or while in the kitchen. No knowledge as to how to manage burns at home was reported by 25% of parents. **Conclusions:** In this group of children, burns were mostly caused by hot liquids and food. Efforts should be directed towards educating parents as to the importance of burn prevention. Particular emphasis should be placed on keeping children out of the kitchen while cooking and testing the temperature of food or hot liquids prior to giving them to children. Parents should also be educated concerning appropriate first aid for burns. **Acknowledgements:** Lourdes Garcia, MD.

#### **A-133 The Role of the Adhesion-GPCR, EMR2, in Retinoblastoma Cell Migration**

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**Background & Objectives:** Metastatic retinoblastoma (Rb) is promoted by aberrations in the expression of cell-matrix and cell-cell adhesion proteins that induce Rb cell invasion to the optic nerve. Rb tumors are heterogeneous with respect to their cell adhesion and invasive properties, hence suggesting that Rb progression is likely due to changes in tumor cell motility. By focusing on the adhesion G-protein coupled receptor (GPCR), EMR2, we will elucidate the mechanism by which this adhesion receptor contributes to Rb cell invasion. Given that EMR2 was reported to be highly expressed at invasive stages of breast cancer and that it contributes to neutrophil migration during inflammatory responses [1,2], we hypothesize that EMR2 differentially distributes in invasive versus non-invasive Rb cells. **Objective:** Determine the role of EMR2 in promoting Rb cell migration and invasion. **Methods:** Immunocytochemistry assays will be performed to confirm that eGFP-EMR2 strategically localizes to lamellipodia regions to promote different rates of cell migration in Rb cells. By using a truncated eGFP-EMR2-NT construct, we will elucidate that the N-terminal is required for Rb cell migration. **Results:** Preliminary data show that EMR2 localizes at sites that are critical for cell migration in Human Embryonic Kidney 293 cells (control) and in neuroblastoma SH-SY5Y cells. Current work is in progress to test whether this localization pattern prevails in Rb cells. **Conclusion:** Preliminary data suggest a role for EMR2 in cell migration. Studies are underway to identify the distribution of EMR2 in Y79 and Weri, Rb cells. **Acknowledgements:** Yudoswki G.A., lab members, Dr. Garrett Seale.

#### A-134 Evaluation of Static Postural Control in Children with Mild Autism Spectrum Disorder

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**Background and Objective:** Individuals diagnosed with Autism Spectrum Disorder (ASD) could have some type of impairment like motor apraxia, reduced ankle mobility, history of gross motor delay and toe-walking that makes it difficult for the children to have a proper motor control. Some Researchers attribute these motor control impairments to the vestibular and visual system in this group. The objective of this research was directed to assess static postural stability in children with mild autism with a pressure mat. **Methods:** Postural stability was measured in 9 children with mild autism (8 male, 1 female, aged  $8.7 \pm 1.4$  years old). Static postural control was evaluated during eight sensory conditions that perturbed or stimulated the Visual, Proprioceptive and Vestibular systems on a pressure mat. **Results:** A paired-samples t-test was conducted to compare the eight sensory conditions. The purpose of this analysis was to characterize and isolate the system with impairments or does

that were not integrating the sensory inputs properly. Results showed a significant difference among the conditions evaluating the proprioceptive system ( $P \leq .05$  in all the conditions) and the conditions assessing the vestibular system ( $P \leq .05$  in all the tests, except eyes open on mat versus eyes open on mat head up and down  $P = .076$ ). However, according to our results the visual system is not affected in this group ( $P \geq .43$  in all tests). **Conclusion:** Static Postural control instability can be detected in children with mild autism under appropriate challenging conditions, previous to the evident appearance of vestibular and proprioceptive impairments.

#### A-135 Demographics, Risk Factors, Severity, and Short-term Outcome of Stroke in Young Patients in Puerto Rico

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**Background & Objectives:** Limited research is available regarding the epidemiology of stroke in young patients in Puerto Rico. This study aims to evaluate differences in demographic characteristics, risk factors, severity and short-term outcome of stroke between young and older patients in the island. **Methods:** This secondary analysis was based on data from the PR Cardiovascular Surveillance Study. Trained medical personnel obtained information from the medical records of patients admitted with a diagnosis of stroke at 18 hospitals in Puerto Rico, during years 2007, 2009 and 2011. The variables of interest were compared between young ( $\leq 45$  years old) and older patients ( $> 45$  years old). **Results:** Among 5,276 patients with stroke, 220 (4.2%) were  $\leq 45$  years old (range 3 to 45). Younger patients were more commonly male (55.5% vs 48.3%,  $p = 0.038$ ), single (50.2% vs 17.8%,  $p < 0.0001$ ), and beneficiaries of the government's health plan (38.6% vs 16.4%,  $p < 0.0001$ ). Younger patients were less likely than older patients to have a history of diabetes (OR=0.39, 95%CI: 0.28, 0.54), coronary heart disease (OR=0.24, 95%CI: 0.14, 0.39), hypertension (OR=0.22, 95%CI: 0.17, 0.30), and hyperlipidemia (OR=0.39, 95%CI: 0.23, 0.63). Compared to older patients, younger patients were approximately 2 times more likely to be current smokers (OR=1.94, 95%CI: 1.31, 2.80) and obese (OR=1.83, 95%CI: 1.19, 2.82). No differences in stroke severity and short-term outcome were found. **Conclusions:** This study provides preliminary evidence that can help promote tailored stroke prevention interventions for young patients in Puerto Rico. **Acknowledgements:** Research reported in this publication was supported by the National Institute on Minority Health and Health Disparities of the National Institutes of Health under Award Numbers 5S21MD000242, 5S21MD000138, 2U54MD007587 and G12MD007600 and the University of Puerto Rico School of Medicine. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. Approved by IRB. Protocol Number: A5620111. Approval Date: 04/18/2011

**A-136 Angiotensin II Receptor Blockade in Angiotensin II Preconditioned Rat Hearts Following Ischemia/Reperfusion**

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**Introduction:** Angiotensin II (AngII) has cardioprotective effects against ischemia/reperfusion injury (IR). This phenomenon, called Angiotensin II-induced preconditioning (APC), significantly improves post-ischemic ventricular recovery. However, its mechanism of action is still unclear. In this study we evaluated the role of the AngII receptors (AT1R and AT2R) in APC using losartan (AT1R blocker) and PD123319 (AT2R blocker). **Materials & Methods:** Isolated-perfused rat hearts were pre-treated (15 min) with losartan (10 $\mu$ M) and/or PD123319 (1 $\mu$ M) prior to 4 cycles (5 min each) of AngII (10nM) with or without drugs, followed by 30 min of global ischemia and 90 min of reperfusion without drugs (n=4/group). Left-ventricular developed pressure (LVDP), the first derivative of developed pressure (+dP/dt), the rate pressure product (RPP) and LDH release were monitored and infarct size was evaluated at the end of reperfusion. **Results:** Our results show that losartan significantly reduced cardiac function compared to APC during the pre-ischemic and post-ischemic periods (35%, P<0.05). PD123319 did not affect cardiac function during pre-ischemia but abolished the AT1R-dependent component when co-infused with losartan. In addition, PD123319 increased cardiac function 2-fold (P<0.05) during post-ischemia independently of the presence of losartan. These actions of AT1R/AT2R blockade were associated with reductions in infarct size (64%, P<0.05) and LDH release (72%, P<0.05) compared with controls. Compared with APC, however, both blockers reduced LDH release (45%, P<0.05), but only losartan inhibited infarct size (64%, P<0.05). **Conclusion:** These findings suggest important roles for AT1Rs and AT2Rs on cardiac function and APC after IR. **Acknowledgements:** Supported by: RCMI Program grant G12MD007600, the Univ. of Puerto Rico, and NIH grant SC1HL118669 (SJ).

**A-137 Utility of Point of Care Whole Venous Blood Testing Versus Reference Serum Laboratory Testing for the Evaluation of Glucose Levels**

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**Introduction:** Point of care (POC) testing allows for rapid and serial screening of blood glucose levels which facilitates clinical care of individuals independent of the presence of metabolic disorders. **Objective:** The purpose of this study was to assess the utility of POC testing (CONTOUR<sup>®</sup> Blood Glucose Meter) for hyperglycemia detection. **Methods:** Fasting POC testing and fasting plasma glucose levels were performed as part of the baseline examination of 1,340 participants aged 40 to 65 years enrolled in the San Juan Overweight/Obese Longitudinal Study (SOALS).

This analysis was performed as a secondary analysis within the SOALS cohort study, which includes individuals in a wide range of glucose homeostasis. Fasting plasma glucose levels were used to define glycemic status, according to the American Diabetes Association diagnostic criteria. Pearson's correlation coefficient and the Kappa statistic were used to assess the study aim. **Results:** 72% of the participants were women, with a mean age of 50.4 $\pm$ 6.7 years. Glycemic status was as follows: 71% had normoglycemia, 24% had prediabetes, and 5% had diabetes. Pearson correlation coefficient between POC and the fasting plasma glucose was excellent (r=0.90, p<0.0001). The kappa coefficient of diabetes diagnosis agreement between the two methods was 0.82 (95% CI: 0.75 - 0.89). **Conclusion:** The strength of agreement between POC testing and the standard clinical measure was found to be excellent. Therefore, immediate availability of results through POC testing may substantially improve the efficiency of the overall healthcare process associated with laboratory screening for diabetes, especially when considering its quickness and cost-efficiency. **Acknowledgements:** NIH R01DE020111 & NIH-NCRR 1U54RR026139-01A1, IRB protocol #A4840310

**A-138 Cambio Climático y Turismo: Un reto a la Salud Pública**

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**Resumen y Objetivos:** El cambio climático presenta impactos excepcionales para los recursos naturales, las actividades económicas y la salud humana. Uno de los sectores económicos que se verá más afectado será el de turismo. El cambio climático será responsable de eventos extremos así como episodios de calor causante de estrés térmico y golpes de calor. Este estudio propone analizar los conocimientos actuales sobre el Cambio Climático en Puerto Rico y su impacto en el Turismo. **Metodología:** Un análisis de vulnerabilidad y riesgo basado en OE-2013-016 encontró varios riesgos para los turistas que visitan la isla. Tomando en consideración estos resultados, se analizaron datos de la Compañía de Turismo y datos climáticos del National Climate Data Center. Con la utilización de Sistemas de Información Geográfica se identificaron las poblaciones y áreas más vulnerables y a través de cuestionarios y entrevistas semi-estructuradas. **Resultados:** La probabilidad y ocurrencia de episodios de calor extremos en la isla es muy alta. De acuerdo a la matriz de riesgo para hospederías endosadas el impacto a los turistas es considerado "Mayor". Se espera que con las alteraciones de las estaciones, las ofertas de turismo de naturaleza y deportivo se vea limitada por incomodidad de realizar actividades en el exterior. **Conclusiones:** El análisis de vulnerabilidad del turista frente a los distintos escenarios de cambio climático aportará información clave para proponer medidas de adaptación ante estos retos que afectan tanto a la salud pública en general y a la actividad turística en



específico. Agradecimientos: Este trabajo fue financiado por la Compañía de Turismo de Puerto Rico, contrato número PRTC 2015-000125. Agradecemos a la Compañía, al Departamento de Salud Ambiental, Escuela Graduada de Salud Pública, Universidad de Puerto Rico-Recinto de Ciencias Médicas por establecer los lazos de cooperación y acuerdos colaborativos entre las entidades participantes en esta investigación.

#### **A-139 Prevalence of Depression in Patients with End Stage Renal Disease on Hemodialysis at the Western Area of Puerto Rico**

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**Introduction:** Depressive symptoms and depression are major public health problems and both are between the most frequent psychological problems reported among end-stage renal disease (ESRD) patients being treated with hemodialysis. We assessed the prevalence of depressive symptoms among hemodialysis patients in the West area of Puerto Rico. **Purpose:** A systematic assessment of depression in hemodialysis patients would supply information about patient feelings of wellbeing. Existing data suggest that screening for depression may help identify patients at higher risk for death and hospitalization. **Methods:** This is a cross-sectional study with a sample of 94 hemodialysis patients selected from 3 dialysis centers in the West Area of Puerto Rico, including the Fresenius center at Aguadilla and two other Centers at Mayaguez; after providing written informed consent for patients. The Beck Depression Inventory (BDI-II) is considered to be the standard instrument for assessing symptoms of depression and screening for clinical depression. We used this scale of 21 short answer questions to assess degree of depression in studied patients. The scores will be obtained by using this score system: Total Score Levels of Depression, 0-10 = These ups and downs are considered normal, 11-16 = Mild mood disturbance, 17-20 = Borderline clinical depression, 21-30 = Moderate depression, 31-40 = Severe depression, >40 = Extreme depression. The main analysis was restricted to the prevalent cross-section of 94 patients with information on degree of depression diagnosis. Baseline data regarding years after ESRD diagnosis, socio-demographic factors, comorbidities, years in hemodialysis treatment, were collected at patient entry into the study. **Results:** Prevalence of depression in patients with ESRD/HD in the West area of Puerto Rico was present in 53% of the population at time of study. According to the chi-square criterion, there is no significant effect of gender in depressive symptomatology (Chi-squared=2.3151, p-value=0.1281). For age ranges, no significant effect was observed in depressive symptomatology (Chi-squared=1.8822, p-value=0.3902). In relation to the variable weather time in HD and prevalence of depression, significant differences were not found (Chi-squared=1.9984, p-value=0.5727). Finally, in the marital status variable, we found a statistically significant factor, and it was that married patients had more prevalence of depression than divorced ones, with

a Chi-squared=6.7122, df=1, p-value=0.0817 (significance at 10%). **Conclusion:** We recommend early implementation of psychological measures and medical treatment in ESRD patients on HD, in an effort to improve prognosis associated with depression in these particular patients and decrease morbidity and mortality, as well as hospitalizations.

#### **A-140 La Mortalidad Infantil por Tipo de Parto en Puerto Rico, 2005-2007**

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Puerto Rico tiene una tasa de mortalidad infantil más alta que los Estados Unidos. El tipo de parto ha sido asociado con diversos factores de riesgo en las muertes infantiles. El objetivo principal del estudio fue examinar la mortalidad infantil de acuerdo al tipo de parto, y ciertas características sociodemográficas de la madre y el niño. Las fuentes de datos fueron las bases de datos de nacimientos y muertes infantiles pareadas por periodo para 2005-2007 del Center for Disease Control and Prevention (CDC). La población de estudio estuvo compuesta por infantes que murieron durante el periodo 2005-2007 antes de cumplir su primer año de vida. El diseño del estudio es descriptivo. Los hallazgos indican que para el período de 2005-2007 la tasa de mortalidad infantil fue de 8.33 por cada mil nacidos vivos. Esta tasa fue más altas en los partos ocurridos por cesáreas al compararlos con los vaginales (9.3 vs 7.5). El apgar score al nacer con puntuación 0-3 fue más alto para los partos vaginales. Lo contrario se observó para el apgar con puntuación 9-10. Las mujeres con mayor nivel de educación mostraron una mayor proporción de partos por cesárea, aunque fue una diferencia pequeña. Es importante tomar en consideración el tipo de parto al estudiar la mortalidad infantil ya que este puede afectar la supervivencia del infante y aumentar los riesgos para la madre.

#### **A-141 Propiedades Psicométricas de Dos Cuestionarios para Evaluar Procesos Terapéuticos en Tratamientos Grupales con Adolescentes**

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**Trasfondo y Objetivos:** Cohesión grupal y alianza terapéutica son procesos vinculados al éxito psicoterapéutico. Como existen pocos cuestionarios validados en Puerto Rico para evaluar procesos terapéuticos grupales, examinamos la psicometría del Curative Climate Instrument (CCI) y el Cuestionario sobre la Calidad del Equipo Terapéutico (CCET). Esperábamos una consistencia interna  $\geq .80$ , una correlación significativa entre ellos e indicadores de progreso terapéutico, y evidencia de sensibilidad al cambio en ambos. **Método:** En dos ocasiones, 52 adolescentes con diabetes tipo 1 (30 féminas), participantes

de estudios sobre psicoterapia grupal, completaron el CCI y 34 llenaron también el CCET. Utilizamos el alfa de Cronbach para examinar la consistencia interna, la t de medidas repetidas para analizar la sensibilidad al cambio, y la correlación Pearson para determinar la validez. Resultados: La consistencia interna del CCI fue de .94 y la de sus subescalas fluctuó entre .84 (Cohesión) y .86 (Introvisión); el alfa del CCET fue de .95 y el de sus subescalas estuvo entre .84 (Estilo Comunicacional) y .88 (Estilo de Trabajo). Tras el tratamiento, estos cuestionarios correlacionaron .61 ( $p \leq .001$ ). Sus puntuaciones post-tratamiento se relacionaron significativamente con las de depresión, autoeficacia para la depresión y calidad de vida relacionada a la diabetes. El CCI también correlacionó con ideación suicida y autoeficacia para la diabetes, mientras que el CCET se asoció al autocuidado. Las puntuaciones de ambos aumentaron significativamente tras el tratamiento. Conclusiones: Nuestros resultados sugieren que estos cuestionarios son medidas válidas y confiables de facetas importantes del proceso terapéutico grupal en adolescentes. Reconocimientos: Esta investigación fue subvencionada por el NIDDK (5R03DK092547-04).

#### **A-142 A Comparison of Interval Sterilization Methods Performed at the University District Hospital**

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**Objective:** To evaluate and compare three methods of interval sterilization performed at University District Hospital. **Methods:** A retrospective chart review of women undergoing interval sterilization between 2006 and 2014. **Results:** Preliminary evaluation of 84 cases of interval sterilization show that 28 cases were performed by the open abdominal route, 31 cases were performed laparoscopically and 25 cases were performed by vaginal colpotomy. 2 vaginal cases were converted to abdominal cases and 1 laparoscopic case was converted to an abdominal case. No one method proved to be superior as far as blood loss or operative time. Interestingly, the choice of surgical route depended greatly on the physician's training, preference, or on the availability of equipment that the attending required for the surgery. **Conclusion:** Of this small sample, 33% were abdominal laparotomies, 37% laparoscopies and 30% vaginal sterilizations. Of the total, 3 cases were converted to open laparotomies, 2 vaginal and one laparoscopy. Laparoscopic interval female sterilization is the most accepted method performed in the United States today. Further evaluation considering previous abdominal surgeries and body habitus may help determine if there are certain patients that benefit more from the vaginal route of sterilization. We recognize the need to continue with training in vaginal surgery. We should not abandon vaginal sterilization as it is an efficient way to introduce vaginal surgery to our residents and then proceed with more complicated vaginal procedures that will benefit our patients. **Acknowledgements:** University District Hospital, University of Puerto Rico Medical Sciences Campus

#### **A-143 Is Subacute Combined Degeneration Still Present in this Time?**

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**Purpose:** Subacute combined degeneration is a myelopathy characterized by degeneration of the lateral and posterior columns of the spinal cord secondary to vitamin B12 deficiency. It is a rare diagnosis in Western Countries, usually caused by malabsorption. The reversal of symptoms depends on early recognition. MRI findings aid in the accurate diagnosis. Early recognition could avoid irreversible neurological damage and prevent disability. **Case description:** A 55-year-old woman presented with cramping and numbness of the lower extremities, and poor balance of one month in evolution. Neurological exam revealed distal sensory loss to vibration and proprioception, lower extremities areflexia, and sensory ataxia. **Clinical Approach:** CBC and vitamin B12 levels were ordered. Neuroimaging was performed including a complete spine MRI with contrast to assess for spinal cord pathology. **Clinical findings:** Laboratories revealed macrocytosis with anisocytosis suggestive of a megaloblastic anemia and severe vitamin B12 deficiency. Spine MRI showed abnormal signal intensity involving the posterior spinal cord from thoracic to lumbar level with diagnostic consideration of vitamin B12 deficiency or post infectious/inflammatory myelitis. Vitamin B12 replacement therapy was started. **Hypothesis:** This clinical case shows a neurologic manifestation of vitamin B12 deficiency secondary to myelin degeneration. In our case, only posterior columns were affected, likely secondary to early stages. The awareness of vitamin B12 causing myelopathy is important to consider in patients with similar spinal cord symptoms. Serum vitamin B12 levels must be included as routine work-up in all patients. The use of spine MRI as diagnostic tool assists in early diagnosis and treatment with possible resolution of the disease.

#### **A-144 La Relación entre la Intención de Involucrarse en Prácticas Sexuales con Personas del Mismo Sexo y el Comportamiento Suicida en Adolescentes**

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**Trasfondo y Objetivos:** Estudios sugieren que jóvenes de minorías sexuales reportan mayores riesgos de comportamiento suicida y suicidio completado en comparación con sus contrapartes. El suicidio es la tercera causa de muerte en jóvenes entre las edades de 10 a 24 años. Este estudio pretende determinar si existe alguna asociación entre la intención de involucrarse en prácticas sexuales con personas del mismo sexo y el comporta-

miento suicida en estudiantes puertorriqueños. Métodos: Estudio transversal donde se realizó un análisis secundario de los datos recopilados en Consulta Juvenil VIII. La muestra consiste de 5,284 estudiantes entre 7mo y 12mo grado de escuelas puertorriqueñas. Los estudiantes fueron clasificados en dos grupos: a) intención de involucrarse en prácticas sexuales con personas del mismo sexo y b) personas del sexo opuesto. Se llevaron a cabo regresiones logísticas para evaluar la asociación entre la intención de involucrarse en prácticas sexuales y la ideación e intento suicida. Resultados: El 6% de la muestra reportó tener intención de involucrarse en prácticas sexuales con personas del mismo sexo. Estudiantes con intención de involucrarse en prácticas sexuales con personas del mismo sexo tuvieron menor posibilidad de reportar ideación suicida (OR=0.82; IC 95%: 0.4-1.9) e intento suicida (OR=0.60; IC 95%: 0.2-1.4) que sus contrapartes. Conclusión: Los resultados de este estudio no sugieren una relación positiva entre la intención de involucrarse en prácticas sexuales con personas del mismo sexo y el comportamiento suicida. Sin embargo, tuvieron mayores posibilidades de reportar diversos factores de riesgo asociados al comportamiento suicida. Reconocimientos: Consulta Juvenil. Aprobado por IRB UPR-RCM (#A6600114) el 11 de abril de 2014.

#### A-145 RGD Domain Modulate P2Y2 Receptor Signaling and Functional Behavior

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**Background & Objectives:** The P2Y2 nucleotide receptor (P2Y2R) has become an apparent key player in regulating many cellular responses including apoptosis, cell survival and inflammation. In response to injury, the P2Y2R is thought to have both a protective and detrimental effects in the CNS by activating glial cells that secrete cytokines, chemokines, and growth factors at the site of the injury. P2Y2Rs have an arginine-glycine-aspartate (RGD) motif in the first extracellular loop that promotes its binding to  $\alpha$ v $\beta$ 3 integrin that can directly modulate transcriptional events and cell proliferation. In this study, we investigated the effects of an RGD to RGE mutation (arginine-glycine-glutamate) in the signaling and functional behavior of the P2Y2R. **Method:** WT Human 1321N1 astrocytoma cells are P2 receptors devoid. To express human HA-P2Y2R in these cells we used the retroviral vector pLXSN as described previously by Erb et al. 1995. The Aspartic Acid (D97) codon of the RGD motif in the P2Y2R construct was substituted with Glutamic acid (E97) using Site Directed Mutagenesis and stably expressed in 1321N1 astrocytoma cells. **Results:** P2Y2-RGE mutants show decreased agonist potency in eliciting PLC-dependent calcium mobilization and ERK1/2 activation. Density fractionation of 1321N1 cells homogenate revealed co-fractionation of P2Y2Rs with cav-1 in membrane-raft fractions. **Conclusions:** Our re-

sults suggest that an RGD to RGE mutation in will exclude the P2Y2R from caveolae and it will impair its ability to translocate to this microdomain and thus impair its downstream signaling machinery. **Acknowledgements:** NAM is supported by the NIH-NIGMS-MBRS-RISE Program Grant R25GM061838 at the UPR-MS. Experiments were performed at the Molecular Sciences Research Building of the UPR.

#### A-146 Urease Activity and Dental Plaque Composition in Children

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Urease activity from bacteria in dental plaque generates alkali, which can protect oral bacteria from acidification and may have an important impact on the oral health. **Objective:** To evaluate the impact of urease on the diversity and composition of dental plaque in children and identify the main contributors to this activity. **Methods:** 82 supragingival plaque samples were collected from 44 children at baseline and one year later, as part of a longitudinal study on urease and caries in children. Urease activity was measured using a spectrophotometric assay. DNA was extracted, the V3-V5 region of the 16S rRNA gene was amplified, pyrosequenced and analyzed with Qiime. **Results:** Urease activity had a significant impact on the composition of the microbial communities of dental plaque. Beta diversity in samples with low urease (<1.7 units/mg) was significantly different from those with high urease (>3.3 units/mg) (Permanova P=0.023 baseline, P=0.049 one year). The bacterial taxa that showed a consistent positive relationship to urease levels was Haemophilus parainfluenzae. Others that varied significantly in baseline samples were Porphyromonadaceae and Prevotellaceae, and in the one year samples Gemellaceae. **Conclusions:** To our knowledge, this is the first study to demonstrate the impact of urease on the ecology of the dental plaque. Our data points to H. parainfluenzae as an important contributor to this activity. Further studies are needed to establish the role of urease-associated bacteria in development and prediction of dental caries. **Acknowledgements:** Supported by NIH Grants DE015285, G12 RR 0305, U54RR026139-01A1 DE021135 P20RR11126.

#### A-147 The Tumorhead Protein Undergoes Phosphorylation during Xenopus Development

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Tumorhead (TH) is a protein that regulates cell proliferation during early embryogenesis in *Xenopus laevis*. It is important for

blastomeres to undergo cell division during the cleavage stages, and for ectodermal cells to divide and produce enough epidermal and neural progenitors later in development. To understand whether the TH protein is regulated by covalent posttranslational modifications, we have been using several approaches, including mass spectrometry. TH immunoprecipitates (IPs) were prepared from cell extracts derived from *Xenopus* embryos, which were previously injected with mRNA encoding an epitope-tagged version of TH. Western Blotting confirmed the expression and immunoprecipitation of the exogenously expressed TH protein. The IPs were then subjected to polyacrylamide gel electrophoresis, followed by silver staining of the gel. Several protein bands present in the TH IPs, but absent in IPs from uninjected embryos, were excised and processed for mass spectrometry. Some of these protein bands were identified as TH, validating our approach. Furthermore, in these mass spectrometry analyses we found that in TH IPs from cell extracts of embryos at the neurula stage, Ser431 of TH was phosphorylated. To further characterize this posttranslational modification that TH suffers, we will determine whether it occurs during other stages of development, where in the embryo it occurs, what kinase phosphorylates TH, and the significance of this phosphorylation for TH function. These experiments will allow us to address if phosphorylation of TH is important for its role in promoting cell proliferation during *Xenopus* development. This research was sponsored by UPR-Humacao Intramural Funds for Research Program.

**A-148 Localization of BgNPY-like Immunoreactivity in the Nervous System and Periphery of *Biomphalaria glabrata*, an Intermediate Host for Schistosomiasis**

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More than 200 million people worldwide live at risk of the parasitic disease schistosomiasis, or “snail fever”. The digenetic trematode worm species *Schistosoma mansoni* that causes the most widespread form of human intestinal schistosomiasis, employs the freshwater snail *Biomphalaria glabrata* as its primary intermediate host. Previous investigations in other schistosome-snail systems, showed that neuropeptide Y (NPY) gene expression increased during snail infection. A recently submitted mRNA sequence was reported to encode a *B. glabrata* NPY prepropeptide (GenBank Accession No.: JX013957). For this investigation, affinity purified polyclonal antibodies (rabbit) were generated against the predicted NPY neuropeptide (BgNPY; amino terminus 20 amino acids) deduced from the mRNA sequence. This investigation explored the localization of *Biomphalaria glabrata* NPY (BgNPY) in the central and peripheral nervous systems of the snail. BgNPY-like immunoreactive neurons were present in most central ganglia; buccal ganglion (dorsal:  $9 \pm 2$ , ventral:  $3 \pm 1$ ) and cerebral ganglion (dorsal:  $17 \pm 2$ , ventral:  $19 \pm 7$ ). Larger BgNPY-like neurons in

the left parietal ganglion (dorsal:  $14 \pm 5$ , ventral:  $7 \pm 4$ ), and visceral ganglion (dorsal:  $23 \pm 3$ , ventral:  $12 \pm 6$ ) had prominent axons oriented toward the parietal-visceral connective. BgNPY-like fibers were located around peripheral tissue surrounding organs in the digestive and reproductive tract. These results suggest that BgNPY could be involved in behaviors such as food intake and reproduction, and are consistent with a role of this neuropeptide in the redirection of energy resources in the *Schistosoma mansoni* - *Biomphalaria* host-parasite system.

**A-149 Stress-Induced Cardiomyopathy: an Uncommon Presentation**

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An 60 year-old man came to the emergency department due to chest pain described as epigastric, oppressive, with radiation towards left arm, 8/10 intensity, associated with nausea and shortness of breath. An electrocardiogram (ECG) showed ST segment elevation in leads V1-V5 with deep T wave inversions along elevated cardiac enzymes. Left ventriculogram showed anterolateral, apical and inferoapical hypokinesia along anterobasal and inferoapical basal hyperkinesia which correlated with cardiac echocardiographic findings of apical ballooning. Further coronary angiography revealed normal coronary arteries. He was admitted to coronary care unit where upon further questioning, he also complained of intermittent abdominal pain for the last three days described as sharp with radiation towards his back, with associated nausea and vomits post meals. Abdominal examination revealed tenderness at superficial palpation on the right and left upper quadrants along tenderness of all quadrants upon deep palpation. Laboratories revealed elevated lipase and amylase, as well as marked leukocytosis. An abdominal computerized tomography (CT) scan demonstrated significant inflammatory changes around pancreas and different attenuations around tail and body suggestive of edema and necrotizing pancreatitis. Based on cardiac workup findings along acute abdominal insult, a diagnosis of Stress-Induced (Takotsubo) Cardiomyopathy due to Necrotizing Pancreatitis was assessed. Stress-induced cardiomyopathy is an increasingly reported syndrome characterized by transient systolic dysfunction of the apical and/or mid segments of the left ventricle. It mimics myocardial infarction in the absence of obstructive coronary artery disease and it is characterized by apical ballooning observed on left ventriculography. Clinical presentation is that of an acute coronary syndrome, usually preceded by a stressful emotional, medical or psychological event. The syndrome occurs predominantly in postmenopausal elderly women after an emotional or physical stressful event. Although the cause of this disorder is unknown, it is most likely related to adrenergic stimulation. Up to 88% of affected patients are women with a mean age of 58-77 years. Echocardiography usually reveals mildly to severely

decrease left ventricular function with anterior-apical akinesis or dyskinesis. Recovery of left ventricular function occurs over a period of days to weeks. Review of the literature only showed two reported cases with Stress-induced Cardiomyopathy secondary to Pancreatitis, both of which were on postmenopausal elderly women. To our knowledge this is the first case reported of Stress-Induced Cardiomyopathy secondary to Pancreatitis in men population. There should be no delay in management and invasive stratification in patients presenting with ST segment elevation. However, this case emphasizes the importance of a careful history and physical examination along the recognition of uncommon stressor that could lead to precipitants of cardiovascular complications.

#### **A-150 La Migración Interna en Puerto Rico: Los Grandes Flujos Internos Ignorados ante la Reciente Ola de Emigración**

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Trasfondo: Históricamente Puerto Rico ha tenido una población en constante movimiento geográfico. Sus habitantes se mudan en grandes cantidades fuera del país y la población que permanece también lo hace. Objetivo: analizar los flujos migratorios internos en Puerto Rico. Métodos: El análisis fue uno descriptivo. Fuente de datos: La Encuesta de la Comunidad de Puerto Rico, 2008-2012. Hallazgos: Unas 243, 562 personas cambiaron de residencia dentro de P.R. durante el período de estudio, 38% se mudó a un municipio diferente. Los municipios que recibieron el por ciento más alto de inmigrantes internos fueron: Fajardo (5.4%), Río Grande (5.1%), Las Piedras (5.1%), Luquillo (4.9%) y Hormigueros (4.3%). De estos, 4 presentaron un saldo migratorio neto interno positivo, se mudaron a estos más personas que las que salieron a otro municipio. La única excepción fue Luquillo, del cual emigraron más personas de las que entraron. Los municipios con altos por cientos de inmigrantes están localizados en la zona este, excepto Hormigueros. Los movimientos tanto de salida como de entrada de población migrante, se concentraron mayormente entre municipios aledaños, manteniendo los flujos en zonas geográficas particulares. La población emigra a zonas de mayor desarrollo económico. San Juan recibió una proporción considerable de inmigrantes procedentes de los municipios con mayor emigración. Conclusión: Las migraciones internas planificadas producen entre otros aspectos, altas densidades poblacionales en el País. Es imprescindible el análisis de los movimientos internos de población para lograr una mejor planificación de servicios dirigidos a lograr el bienestar social general.

#### **A-151 Molecular Characterization of Colorectal Tumors in Caribbean Hispanics**

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Background & Objectives: Accumulating evidence supports that colorectal cancer (CRC) is comprised of different genetic diseases affecting the same organ. CRC displays distinct characteristics depending on the molecular subtype, which may affect treatment response, prognosis and survival, among others. CRC is the leading cause of cancer death among Puerto Rican Hispanics (PRH). The aim of this pilot study was to characterize colorectal tumors at a molecular level in a cohort of PRH in order to determine the most common carcinogenesis pathways. Methods: The molecular markers evaluated were: microsatellite instability (MSI), CpG island methylation phenotype (CIMP), and mutations in oncogenes KRAS and BRAF. In addition, HPV infection status was assessed as it has been associated with CRC. Results: Forty-seven colorectal tumors (mean age at diagnosis 63 years; 32 males) were evaluated. Results showed that the tumors studied were all microsatellite stable (100%) and predominantly CIMP low (63.8%). In addition, a higher proportion of tumors had KRAS mutations (23.4%) compared to BRAF mutations (10.6%). HPV infections were detected in 66.0% of tumors. Conclusions: The preliminary results generated provide an overview of the prevalence of the molecular characteristics of CRC tumors in PRH. Furthermore, the predominant CRC subtype observed was MSI stable and CIMP low, different from other racial/ethnic populations. Future studies should be performed to have a comprehensive understanding of the molecular composition of CRC tumors in PRH in order to devise strategies for the clinical and therapeutic management of this population. Funding: National Institute on Minority Health Disparities Award Number 8U54MD 007587-03 and U54MD007587; NCI Award Number 5K22CA115913-03, R21CA167220-01, and U54CA096297; Center for Collaborative Research in Health Disparities RCMI Award Number G12MD007600. Acknowledgements: This work was partially supported by the Research and Development Service, the Gastroenterology Department and Department of Veterans Affairs, Caribbean Healthcare System San Juan, P.R. The contents of this manuscript do not represent the views of the VA Caribbean Healthcare System, the Department of Veterans Affairs or the United States Government.

#### **A-152 Engineering the FabA and FabZ Fatty Acid Dehydratase Domains from Escherichia Coli into Dimeric Artificial Constructs**

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