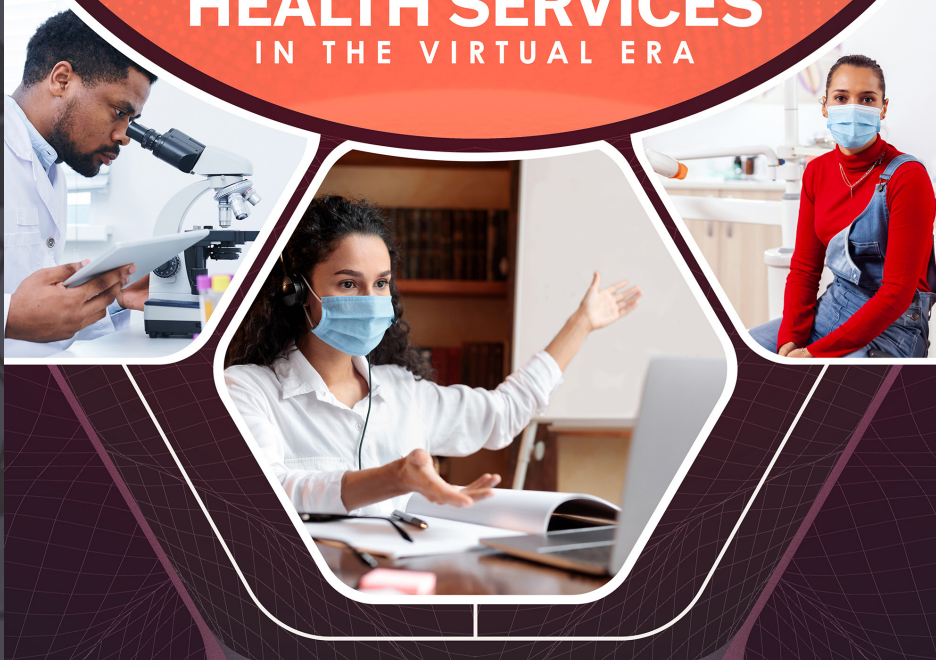


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**ABSTRACT
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Abstracts*

4200

COVID 19 and lung damage: Autopsy findings in an adolescent

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Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Disease is mostly mild, however, some patients may develop life-threatening disease that can lead to increased morbidity and mortality even after COVID-19 molecular tests are negative. We performed an autopsy on a 16 year old adolescent who died from COVID complications due to severe irreversible lung damage with diffuse pulmonary fibrosis even though in the course of hospitalization he had negative COVID-19 molecular tests. Chest computed tomography (CT) scans from days before death showed bilateral extensive ground glass opacities and alveolar disease. Although we did not have any previous imaging to confirm underlying lung disease, we did not have any reason to suspect this, based on the history and clinical examination. Autopsy disclosed irreversible diffuse alveolar damage and fibrosis. The authors have no conflict of interest within the scope of the submitted work.

4201

Metástasis de adenocarcinoma de ovario en la vagina: Estudio de caso en paciente postmenopáusica de 71 años.

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Propósito: El cáncer de ovario ocupa la séptima causa de muerte en Puerto Rico y es responsable de más fallecimientos por cáncer que cualquier otro cáncer del sistema reproductor femenino. Es muy raro que el cáncer de ovario se presente como una masa vaginal, pero este puede ser uno de los signos clínicos presentes de esta malignidad. El objetivo de este estudio de caso fue analizar los hallazgos citológicos e histológicos de una masa irregular en la vagina y correlacionar los mismos con el historial clínico de la paciente en conjunto con las pruebas auxiliares. **Descripción del caso:** El estudio de caso consiste en una citología en base líquida junto con una biopsia realizada a una masa vaginal en una mujer postmenopáusica de 71 años con historial previo de carcinoma de ovario. Los hallazgos citológicos e histológicos mostraron grupos de células glandulares atípicas de tamaño intermedio en un fondo inflamatorio con arreglo papilar, núcleos agrandados, alta razón núcleo-citoplasma, macronucleolo, bordes nucleares irregulares, cromatina gruesa, núcleos superpuestos, citoplasma denso y escaso, pero vacuolado y un pleomorfismo nuclear marcado. Las pruebas de inmunohistoquímica mostraron resultados positivos para WT-1, PAX-8 y ER y el p53 se expresó de manera normal. **Conclusión:** Las características citopatológicas y los resultados de las pruebas de inmunohistoquímica confirman el diagnóstico de este caso como una metástasis de adenocarcinoma de ovario. El resultado positivo de WT-1 y PAX-8 fueron esenciales para confirmar el origen anatómico de la malignidad. Nuestro estudio de caso aporta a la comunidad científica mostrando un caso inusual de un adenocarcinoma de ovario que se presenta como una masa vaginal. Este tipo de cáncer raramente hace metástasis en un área anatómica tan distante como lo es la vagina. Actualmente se desconoce la pronosis de la paciente.

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Comparison of U1-Sn and Lip E-lines with Orthodontic Standards

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AIMS: To examine and compare the Upper Lip-Esthetic line and Lower Lip-Esthetic line values in the lateral cephalometric radiographs of adult Puerto Ricans patients of the UPR-Graduate Orthodontics Clinic with cephalometric norms. **METHODS:** This is a Cross-sectional study of 34 orthodontic dental records and lateral cephalometric radiographs. The study was conducted by tracing pre-treatment lateral cephalometric radiograph in Dolphin Imaging Program of patients with normal inclination of maxillary incisors between 18-35 years old. We collected three variables: the axial inclination of the most labial maxillary incisor, the upper lip and the lower lip to a line from the nose's tip to soft tissue pogonion called esthetic line. Selection criteria include patients with U1-Sn measurement within the normal value ($102.9^{\circ} \pm 5.5^{\circ}$) according to the ABO 2012 cephalometric analysis and lips at normal rest position in cephalometric radiograph. Ricketts's soft tissue measurement values (in mm) were summarized in terms of means (standard deviations) and medians (interquartile ranges). The study group estimates were compared to the esthetic norms using one-sample t-test or one-sample median test (at $\alpha = 0.05$). Sample size will provide us with over 97% power to detect a 1 mm difference (with 1 mm SD) from the norm. **RESULTS:** Mean U1-Sn for females was 103.39 SD= 2.88 and for males 103.44 SD= 2.95. Mean Upper Lip-EL -1.32 SD= 2.01 for females and -2.51 SD=2.98 for males. Mean Lower Lip-EL was 1.81 SD=1.73 for females and 0.75 SD=3.63 for males. No statistical differences were found for gender and mean U1-Sn, Upper Lip-EL and Lower Lip-EL (p value 0.967, 0.18 and 0.29) respectively. Lips in the Puerto Rican sample studied are more procumbent than what cephalometric norms suggest. **CONCLUSION:** Clinical and statistical differences were found for Upper Lip-EL and Lower Lip-EL measurements in PR population compared to orthodontic standards. **ACKNOWLEDGEMENTS:** This research was supported by ADEA/ADCFP, UPR School of Dental Medicine: Damaris Molina-Negrón, DMD, and Jocelyn A. Medina-Paneto, Ph.D., Liason and Co-Liason of the ADEA/ADCFP. We thanks the academic support of Ginnette Izquierdo, DMD, - Acting Dean of Students' Affairs at University of Puerto Rico, School of Dental Medicine. Augusto R. Elías-Boneta, DDS, MSD, Professor and Assistant Dean of Research at the University of Puerto Rico, School of Dental Medicine. José A. Morales Díaz, DMD, Program Director of the Graduate Orthodontic Program.

4203

Development Of Glibenclamide Matrix Tablets Incorporating Its Extended Release Solid Dispersion With Combined Polymeric Carriers

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Background & Objectives: Although solid dispersion is a proven approach to improve release properties of poorly water-soluble drugs, it has not been fully explored to extend the release properties of various drugs for desired period of time. The present investigation was undertaken to utilize the solid dispersion approach in formulating extended-release solid dispersions (SDs) of a poorly water-soluble and BCS Class II oral antidiabetic drug glibenclamide (GLB) using combined hydrophobic and hydrophilic polymeric carriers. The studies sought to assess the potential of laboratory-developed dispersions in developing matrix tablets which can extend the GLB release for 12 h. **Methods:** SDs were prepared by solvent evaporation, suspending and dissolving methods employing hydrophobic ethyl cellulose (EC) and hydrophilic hydroxypropyl methyl cellulose (HPMC) in different weight ratios. The physical state of the drug in the polymer matrices were studied by classical techniques such as DSC, PXRD, SEM, FT-IR and in vitro dissolution.



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Selected SD formulation was employed to develop directly compressible matrix tablet and further evaluated for pharmacopoeial and pharmacotechnical parameters. Results: The homogeneous or heterogeneous conditions employed during the preparation governed the internal structures of the polymer matrices while retaining the drug in an amorphous form. Among F1-F9 formulations, F8 prepared with GLB:EC:HPMC (1:1:1) by dissolving method exhibited 91.01% of GLB release at 12 h with dissolution efficiency (0-12 h) of 64.20% and mean dissolution time of 3.72 h. F8-incorporated matrix tablets exhibited consistent tablet parameters displaying 94.08% release of GLB at 12 h with good linear fit to Higuchi matrix model ($r^2=0.9773$) indicating diffusion-controlled drug release from the polymer matrix. Conclusion: Solid dispersion of combined polymeric carriers is a vital approach for producing extended-release matrix tablets of consistent quality and release profile. The studies provided better forecasting and understanding of particulate systems to be incorporated to develop delivery systems. Acknowledgement: The support of IIT Roorkee and Punjab University, Chandigarh, India for DSC, PXRD and SEM analyses is acknowledged.

4204

Association between cumulative duration of breastfeeding and breast cancer in the Atabey study

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Background: Breast cancer in the female population is a public health problem worldwide; including Puerto Rico. The purpose of this study is to contribute to the current limited data about breast cancer risk and protective factors in the Caribbean region by researching the possible association between cumulative duration of breastfeeding and risk of developing breast cancer in the Atabey study. Methods: Secondary analysis of data about a population-based case-control study, which included 260 cases of invasive breast cancer and 299 population controls aged 30-79 years. The exposure was defined as the cumulative duration of breastfeeding duration during each participant's birth and categorized in 0, 1-23, and ≥ 24 weeks. We estimated the crude odds ratio (OR) and the OR adjusted by relevant breast cancer characteristics with their 95%CI. Results: There was an overall trend to a reduction in the possibility of breast cancer with an increased breastfeeding duration both overall (ORadj: 0.79, 95%CI: 0.51, 1.23), and by menopause status (ORadj: 0.54, 95%CI: 0.21, 1.39 among premenopausal and ORadj: 0.74, 95%CI: 0.42, 1.30 among postmenopausal). The associations were not statistically significant. Conclusion: Although, the 95%CI include the null value, our findings are consistent with the literature in terms of the relationship. Acknowledgments: The Epidemiology of Breast Cancer Study was funded by the CDMRP Grant W81XWH-07-1-0329 BCRP HBCU/MI Partnership Training Award. The study also was supported by the PRCTRC, NIMHD grant number 2U54MD007587. The authors declare no conflicts of interests.

4205

Altered sleep quality and related factors in a cohort of Hispanics with Inflammatory Bowel Disease in Puerto Rico.

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Background & Objectives: Sleep is a crucial component of health and a fundamental environmental and behavioral factor influencing the immune system. Patients with Inflammatory Bowel Disease (IBD) are susceptible to sleep disturbances due to mood alterations, symptoms, and drug side effects. Sleep deprivation increases inflammatory



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cytokines aggravating inflammation in IBD patients. Moreover, 70 million Americans suffer from sleep disorders, and above 75% of IBD patients disclose sleep problems. We describe the sleep quality and prevalence of sleep disturbances in Hispanics with IBD in Puerto Rico. Methods: Patients with IBD who consented to participate completed the Pittsburgh Sleep Quality Index (PSQI), IBDQ Quality of Life Questionnaire, IBD Questionnaire, and a Chronotype Questionnaire. We report the results of the PSQI, which measures sleep quality and disturbance within the last month. A global score >5 is considered indicative of acute sleep disturbances. Variables analyzed were demographic and sleep characteristics. Descriptive statistics were calculated for interval and ratio variables. Frequencies and percentages were calculated for nominal variables. The MSC-IRB approved this study. Results: Of 51 participants, 31.4% (n=16) had Ulcerative Colitis (UC), 60.8% had Crohn's Disease (CD), and 7.8% (n=4) indeterminate colitis. 45 patients completed the whole questionnaire and 76% (n=34) had a PSQI >5 (average=9.3) indicating poor sleep. Subjects reported prolonged sleep latency (82%), disruptions (88%), lack of enthusiasm for daily tasks (72%), difficulty staying awake (37%), and 38% used medication to sleep within the previous month. Waking to use the bathroom (82%) and nighttime pain (66%) were the most frequent reasons for interruptions. Conclusions: Results show many IBD patients suffer from sleep disturbance for various reasons. Needing to use the bathroom and pain being most frequent, and impact on daily activities were found. More extensive studies to define the nature, causes and impact of poor sleep on patients with IBD are needed. Acknowledgements: This project is supported by Award Number Grants 5S21MD000242 and 5S21MD000138, from the National Center for Minority Health and Health Disparities, National Institutes of Health (NCMHD-NIH). We thank Rafael Martínez for the statistical analysis.

4207

Surgical Management of Thyroid Illnesses in Children

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Background and Objectives: Thyroid disorders account for a large proportion of pediatric endocrine disorders, being the second most common worldwide. Surgery is used to manage thyroid illnesses such as: cancer, goiter, hyperthyroidism, and solitary non-toxic nodules. This study describes the surgical experience of 108 consecutive pediatric patients who underwent thyroidectomies between 2001 and 2018 by the senior author (HLV) at the University Pediatric Hospital in San Juan PR, and how the use of novel techniques can reduce complications. **Methods:** Recorded data include age, gender, race, weight, past medical history, type of thyroid illness, nodule size, pre-operative ultrasound findings, pre-operative FNA findings, radiation exposure history, type of thyroid resection, surgical operation time, novel technique used, recovery time, complications, need of further surgery, remission, relapse rate post resection, radioactive iodine therapy, and follow up. This study was approved by the UPR-IRB. **Results:** Thyroid illness diagnosis included differentiated thyroid carcinoma (39%), Hashimoto's disease (16%), and Grave's disease (12%). Most common procedures were hemithyroidectomy with isthmusectomy (36%), total thyroidectomy with central lymph node removal (32%), and total thyroidectomy (20%). Seven children suffered complications; recurrent laryngeal nerve injury (2%) and neck hematoma (2%) were the most prevalent. Recurrent Laryngeal Nerve Identification and Intraoperative Nerve Monitoring were two of the most utilized novel surgical techniques. **Conclusions:** Children with thyroid disorders benefit from a thyroidectomy depending on the nature and stage of illness. Proper diagnosis, surgical intervention, and use of novel techniques led to 108 successful resections with only seven complications which were all managed during surgery or post-op care. Intraoperative nerve monitoring coupled with surgical technique reduced the incidence of recurrent laryngeal nerve injury. Vessel sealers reduced operative time. **Acknowledgements:** This researched did not receive any funding, and there was no conflict of interest.



4208

Multiple Evanescent White Dot Syndrome Following Administration of Human Papilloma Virus and Meningococcal Vaccines

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Purpose: To report a case of multiple evanescent white dot syndrome (MEWDS) following the administration of a conjoint first dose of human papillomavirus (HPV) and meningococcal vaccines (MCV4). **Case description:** A 17-year-old female complained of flashes and decreased vision in her left eye, 16 days following the conjoint administration of HPV and MCV4 vaccines. She presented with a best-corrected visual acuity of 20/40 and white dots in the macula and the nasal periphery consistent with a diagnosis of MEWDS. Ancillary testing, including fundus autofluorescence, fluorescein, and indocyanine green angiography, and optical coherence tomography, supported the diagnosis. Her visual acuity returned to 20/20 and her lesions resolved following 8 weeks of monitoring without any therapy. She subsequently received her second and third doses of the HPV vaccine without any sequelae or reactivation of MEWDS. **Conclusions:** Although the etiology of MEWDS remains unknown, post-vaccination cases such as ours add to the amount of evidence suggestive of a post-infectious etiology for this condition. To our knowledge, this is the second case of MEWDS following a conjoint HPV and MCV4 vaccination and the only such case reporting no recurrences following an immune challenge with subsequent dosages of the HPV vaccine. **Acknowledgements:** None.

4210

HLA-A29-Associated Retinal Vasculitis Without Choroidal Lesions

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Background & Objectives: Birdshot retinochoroidopathy (BSRC) is characterized by multifocal choroidal lesions, retinal vasculitis, and macular edema. However, some patients may present with HLA-A29-associated retinal vasculitis without choroidal lesions. We aim to test the hypothesis that these patients may share clinical features with birdshot retinochoroiditis, including the need for systemic immunosuppressive therapy. **Methods:** A retrospective medical chart review of patients who were HLA-A29 positive and had retinal vasculitis, yet no birdshot lesions was performed. Demographic, clinical, and therapeutic data were entered into a new database for analysis. The University of Puerto Rico, Medical Sciences Campus Internal Review Board reviewed and approved this protocol. **Results:** Five patients who had HLA-A29-associated retinal vasculitis without choroidal lesions were identified. The median age at presentation was 52 years (range 14 - 71); 60% were female. At presentation, four patients had a visual acuity of 20/50 or better in both eyes. All eyes had mild vitritis, while 3 eyes (30%) had cystoid macular edema. One patient presented with bilateral optic nerve swelling. All patients required treatment with systemic steroids and immunosuppressive therapy. **Conclusions:** HLA-A29-associated retinal vasculitis without choroidal lesions appears to share many clinical features with birdshot chorioretinitis, including the need for systemic immunosuppressive therapy. Whether this entity represents an early form of birdshot retinochoroiditis or a more localized variant of the disease is a topic for further studies. **Acknowledgements:** None.



4211

Aflibercept for Treatment of Secondary Central Serous Chorioretinopathy in Patient with Myasthenia Gravis

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Purpose: To report a case of central serous chorioretinopathy treated and resolved with aflibercept. **Case description:** A 44-year-old female patient with a systemic history of myasthenia gravis and an ocular history of strabismus amblyopia on her right eye developed a central serous chorioretinopathy (CSCR) in her left eye. A retrospective review is presented. **Results:** The patient opted to receive an intravitreal aflibercept injection in her left eye as a means of treating the central serous chorioretinopathy. The central serous chorioretinopathy resolved and the patient's visual acuity drastically improved. Interestingly, the patient's amblyopia resolved as well due to the treatment. **Conclusion:** Our case suggests aflibercept may be considered as an alternative for the treatment of recalcitrant cases of CSCR. Additionally, it also serves as a reminder that amblyopia may often be reversible in the adult population. **Acknowledgements:** None.

4212

Risk Factors Leading to Evisceration or Enucleation in Patients with Endophthalmitis

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Background & Objectives: The treatment of endophthalmitis consists of intravitreal antibiotics injections and, in selected circumstances, pars plana vitrectomy. However, severe or refractory cases may require an enucleation or evisceration (ENEV) to control the infectious process. Our study seeks to identify risk factors leading to enucleation or evisceration in patients with infectious endophthalmitis. **Methods:** Medical records in a tertiary referral hospital in Puerto Rico were retrospectively reviewed. Charts of patients with a clinical diagnosis of infectious endophthalmitis were selected for analysis. Affected eyes were stratified into two groups; those undergoing ENEV and those in which the globe was preserved (EP). Accordingly, the frequencies of clinical characteristics in each of the two groups were compared and statistically analyzed. Approved by IRB. **Results:** A total of 69 patients diagnosed with endophthalmitis were included in our analysis, of which 32 underwent ENEV. The median age was 70, and 40.6% were female. There was a higher frequency of exogenous endophthalmitis in the ENEV group versus the EP group (56.2% and 13.5%, $p=0.0002$). However, there was a lower post-surgical endophthalmitis frequency in the ENEV versus the EP groups (21.9% vs. 51.4%, $p=0.014$). A visual acuity of no light perception was most common in the ENEV vs. the EP group (46.9% vs. 5.4%, $p=0.00003$). While a visual acuity of finger counting or better was less common in the ENEV group vs. the EP group (9.4% vs. 32.4%, $p=0.04$). Orbital involvement (panophthalmitis) was more frequent in the ENEV versus the EP group (37.5% vs. 5.4%, $p=0.002$). **Conclusion:** Our study suggests that eyes with endophthalmitis that present with a visual acuity of no light perception, panophthalmitis, or exogenous etiology have a higher risk of ENEV. Conversely, patients with a post-surgical etiology or a visual acuity of finger counting or better may be at a lower risk of ENEV. **Acknowledgements:** None.



4213

**Characteristics upon Presentation of Herpes Simplex Virus Associated Uveitis Patients
in the Hispanic Population**

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Background & Objectives: Herpes family viruses represent a well-established etiology for infectious uveitis. Information regarding such patients' demographic and presentation characteristics in Hispanic populations is scarce. We aim to describe the demographic and clinical characteristics in a cohort of Hispanic patients with Herpes Simplex Virus (HSV) associated uveitis who live in Puerto Rico. **Methods:** We performed a retrospective medical chart review of patients with a clinical diagnosis of Herpetic Uveitis at two private uveitis practices in Puerto Rico. All patients underwent an appropriate medical workup; those whose uveitis diagnosis could be explained by any etiology other than HSV were excluded from the study. The demographic characteristics and ocular findings were recorded and moved to an external database for analysis. **Results:** The analysis included 145 patients who met the criteria for HSV-associated uveitis. The median age at presentation was 65 years; 62.86% of the patients were female, and 100% were Hispanic. Prior diagnosis of glaucoma was present in 61.43% of patients. From those patients whose serological data were available, 93.67% of patients were positive for HSV1 IgG (N=79), 26.92% were positive for HSV1 IgM (N=52), 44.16% were positive for HSV2 IgG (N=77), and 28.57% were positive for HSV2 IgM (N=49). Seventy-three percent of patients presented with unilateral uveitis. Visual acuity was equal or better than 20/50 in 78.93% of the involved eyes. Active anterior uveitis was present in 91.43% of eyes, while 41.41% were pseudophakic, 32.86% had keratic precipitates, 16.43% had cells in the anterior vitreous, and 12.86% had iris atrophy with transillumination defects. **Conclusion:** Our study suggests that HSV-associated uveitis most commonly affects females and occurs unilaterally. Interestingly, over half of the patients with HSV-associated uveitis had a past ocular history of glaucoma, suggesting a possible association between conditions. In general, we found our cohort's clinical and demographic characteristics similar to those of Caucasian cohorts. **Acknowledgements:** None.

4214

Infectious Scleritis: A 30 years Retrospective Study

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Background & Objectives: Infectious scleritis is a rare disease with few large series reports in the literature and an etiology that varies based on geographic region and different climates. In addition, knowledge of disease epidemiology and predisposing factors is scarce. Since there is no previous study describing this ocular infection in Puerto Rico, we decided to determine the etiology of infectious scleritis, predisposing factors, complications, treatment strategies, and final disease outcomes in a cohort of patients living in Puerto Rico. **Methods:** A retrospective chart review of



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infectious scleritis cases of three cornea specialist practices in Puerto Rico was performed. Both culture-proven, as well as cultures-negative cases, were included in the study. Demographic characteristics were recorded. Approved by IRB. Results: Forty-five patients who met the research criteria for a diagnosis of infectious scleritis were identified and included in the analysis. The most common ocular sign was hyperemia (87%) and the most frequent symptom was pain (87%). Visual acuity at presentation was worse than 20/200 in 36% of eyes. The median duration of therapy was 112 days. Surgical intervention was performed on 17% of eyes which consisted of debridement (4%), tenoplasty and amniotic membrane graft (4%), corneal/scleral patch graft (2%), removal of a hardware device (6.7%, 3 scleral buckles), and pars plana vitrectomy (2%). Final visual acuity was 20/200 or better in 69% of eyes. 100% of the patients were able to save their eye from infection and 69% maintained useful vision. Conclusion: Our findings are consistent with previous reports. Pterygium surgery was the most common surgical intervention associated with the subsequent development of infectious scleritis, followed by glaucoma surgery. *Pseudomonas aeruginosa* is the most common bacteria in the widespread use of adjunctive therapies, like mitomycin C, in these two ophthalmic procedures, which may explain the high incidence of infectious scleritis after these surgeries. Acknowledgements: None.

4215

Bilateral Acute Iris Transillumination Associated to Moxifloxacin/Antibiotic Use

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Background & Objectives: Bilateral Acute Iris Transillumination (BAIT) has a documented association with antibiotic use, particularly systemic moxifloxacin. The data regarding predisposing factors and demographic characteristics in the Latino population is limited. Our study aims to report risk factors leading to BAIT in our population. **Methods:** A retrospective review of patients diagnosed with BAIT was performed in two private ophthalmology practices in San Juan, Puerto Rico. Prior to the diagnosis, all patients underwent an extensive systemic workup to rule out other possible etiologies such as HSV, syphilis, tuberculosis, and sarcoidosis; no evidence of these or other systemic conditions to explain the diagnosis of BAIT was found. **Results:** A total of 72 eyes of 36 patients with BAIT were identified. The total antibiotic use within our BAIT cohort was 83%, of which 66% reported the use of moxifloxacin. The median age at presentation was 53 years; 80% of the patients were female. The most common systemic conditions were hypertension (31%) and chronic obstructive pulmonary disease (17%). Seventy-two percent of eyes had a best-corrected visual acuity greater than or equal to 20/50. At presentation, the median intraocular pressure (IOP) was 18 mmHg (range 8-50); 20 eyes (27%) had IOP greater than 21 mmHg, and 18 had IOP greater than or equal to 30 mm Hg. The most commonly associated ocular finding was the presence of anterior uveitis and pigmented cells in the anterior chamber, which findings were present in 38% of eyes. Transillumination was diffuse in 59% of patients, and 63% also had pupillary sphincter atrophy. **Conclusion:** As reported in prior studies, within our cohort, BAIT was more common in women, and the most common antibiotic predisposing to BAIT was moxifloxacin. To our knowledge, this is the first retrospective epidemiologic study of BAIT in the Puerto Rican population. Acknowledgments: None.



4217

Guía para el Desarrollo de Protocolos Culturalmente Sensibles Basados en Evidencia para el Enlace y Retención del Tratamiento del VIH

Torres Báez, Lourdes

Aunque ha habido grandes avances para hacer frente a la epidemia del VIH, la estigmatización sigue siendo una barrera de acceso a servicios y tratamiento de la condición. Las personas con diagnóstico positivo a VIH continúan sufriendo discriminación por su estado de salud, nivel socioeconómico, edad, orientación sexual o identidad de género, entre otros. La prestación de servicios culturalmente sensibles promueve el acceso y fomenta la adherencia al tratamiento del VIH. Ante esto, el Programa Ryan White Parte B/ADAP del Departamento de Salud, en colaboración con miembros de la comunidad de personas con diagnóstico positivo a VIH, proveedores de servicios de salud, agencias gubernamentales y la Academia, desarrolló en el 2018 la Guía para el desarrollo de Protocolos Culturalmente Sensibles Basados en Evidencia para Enlace y Retención del Tratamiento del VIH (GDPCS). Esta herramienta ofrece recomendaciones sobre prácticas culturalmente sensibles aplicables a diferentes escenarios para aumentar el acceso y mejorar la adherencia a los servicios de salud VIH. Incluye, además, recomendaciones específicas para poblaciones vulnerabilizadas como la población trans, hombres que tienen sexo con hombres y personas que se inyectan drogas. Al presente, se han adiestrado presencial y virtualmente sobre 250 proveedores de servicios de VIH y grupos comunitarios sobre cómo utilizar esta herramienta como base para el diseño de servicios de salud. En el 2020, la guía incluyó herramientas adicionales para integrar principios de sensibilidad cultural en la telesalud. En la actualidad, las discusiones generadas sobre el contenido del GDPCS reafirman su relevancia, así como la necesidad de educar y sensibilizar sobre el valor de la competencia cultural en la prestación de servicios de salud, atemperando sí su contenido a la era virtual. Esta iniciativa abre el camino para el desarrollo e implementación de mejores prácticas y servicios de salud para personas con diagnóstico de VIH en PR. Agradecimientos: Programa Ryan White Parte B / ADAP del Departamento de Salud, auspiciado por la agencia federal Health Resources and Services Administration (HRSA).

4218

Unilateral Focal Retinitis Presentation of Cat Scratch Disease: A Case Report

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Purpose: To report on a case of focal retinitis as the initial manifestation of cat-scratch disease. **Case description:** A 56-year-old Hispanic woman presented for a routine follow-up examination. Fundus examination of the right eye revealed a white retinal lesion along the inferotemporal artery, which was noted to progress upon a one-week observation period. The patient reported she had seven cats at home on further inquiry, some of which were less than 6-months old and had recently scratched her. She received empirical treatment for focal retinitis with azithromycin 500 mg daily and valacyclovir 1 g daily. She was lost to follow-up examination for three months; however, she continued the antibiotic and antiviral treatment during that period. Upon follow-up, the lesion had resolved. The initial work-up revealed positive *Bartonella henselae* IgM (1:20) and IgG (1:512), and *Bartonella quintana* IgG (1:256). *Bartonella quintana* IgM was negative. After a four-month follow-up, the *Bartonella Henselae* IgM was negative, and the IgG had decreased from 1:512 to 1:64, while the *Bartonella quintana* antibody test was negative for IgM and IgG, all consistent with an adequately treated case of cat-scratch disease. **Conclusion:** Focal retinitis can be a rare initial manifestation of cat-scratch disease. It should be considered part of the differential diagnosis in cases of focal retinitis, especially in patients with a history of close contact with young cats. Additionally, oral azithromycin may be considered as treatment for some cases of cat-scratch-associated focal retinitis. **Acknowledgements:** None.



4220

**Assessment Of The Availability Of A Prehospital Pediatric Emergency Care Coordinator (Pecc)
And The Use Of Pediatric Specific Equipment By Emergency Medical Services (Ems) Agencies
At Puerto Rico During 2021**

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Background & Objectives: The lack of standardization for specific training on pediatric emergency care on PR EMS agencies, including limited knowledge regarding medications dosages and resuscitation equipment use, compromises the quality of medical care in the prehospital setting. In 2006, IOM recommended to every US EMS agency to have a pediatric emergency care coordinator, known as a PECC. Currently, there is no evidence of specific role meeting criteria of a PECC on PR EMS agencies. Our study assesses data collected about the readiness level of PR EMS agencies regarding the presence of or intention to add a PECC and evaluates the current availability and training status on use of specific pediatric emergency equipment by PR EMS agencies. **Methods:** A Cross-sectional study design was used to evaluate variables of interest in the total 50 local EMS agencies at PR during the 2021 year. Standardized EMS surveys from the National EMS for Children Program were provided by PR-EMSC to every director of each identified EMS agency. **Results:** A 100% response rate was achieved from all 50 surveyed local EMS agencies in Puerto Rico in 2021. 12 of 50 of EMS agencies reported having a designated individual who coordinates pediatric emergency care. 16 of 50 of EMS agencies reported use of specific pediatric emergency equipment in their units. 13 of 50, PR EMS agencies reported having no training or very little training on pediatric-specific equipment. **Conclusion:** Significant increment in rate response by all surveyed PR EMS agencies, when compared to 2017-2018. A small number of PR EMS agencies refer to a person with duties like a PECC. Further efforts are needed to support local EMS agencies on the establishment of a PECC. There is limited training on the use of specific pediatric emergency equipment to field providers on most local EMS agencies. **Acknowledgements:** -Health Resources and Services Administration (HRSA) H33MC06720, -Emergency Medical Services for Children (EMSC), -National EMSC Data Analysis Resource Center (NEDARC), -Puerto Rico 911 System-UPR- School of Medicine-Pediatrics Residency Program.

4221

**Modelo de mentoría para monitoreo y asistencia técnica individualizada hacia el cumplimiento
de objetivos de Programas de Gerencia de la Calidad**

Piar Reyes, Mayra

La calidad del servicio es clave en el tratamiento a personas con diagnóstico positivo de VIH. La supresión viral ayuda a las personas seropositivas a mantenerse saludables, a tener mejor calidad de vida y a reducir la probabilidad de que transmitan el VIH a otros. El Programa Ryan White Parte B/ADAP (PRWPBA) del Departamento de Salud (DS) de Puerto Rico, implementa el Modelo de Mentoría de Calidad desde 2010 brindando asistencia personalizada a las Clínicas del DS y Organizaciones de Base Comunitaria adscritas al PRWPBA. Representantes del Programa de Gestión de Calidad sirven como mentores en la evaluación del desempeño y ofreciendo orientación sobre estrategias para mejorar la calidad del servicio. Los Mentores de Calidad brindan asistencia y adiestramiento identificando oportunidades de mejora utilizando la metodología del Ciclo Plan Do Study Act para mejorar el desempeño y lograr los resultados esperados. También sirven como enlace con el PRWPBA garantizando un intercambio de información



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ágil facilitando la implementación de sus planes de gestión de calidad. Esto permitió adaptarse eficazmente ante la pandemia del COVID-19, logrando ajustar al modo virtual sobre 30 actividades educativas y logrando mayor participación de proveedores, consumidores y colaboradores en la gestión programática. Informes y medidas de desempeño generados por el sistema de datos del Programa, a través de la plataforma llamada CAREWare, sirven como guía en la implementación y evaluación de efectividad de las estrategias de calidad demostrando su eficacia en el fortalecimiento de destrezas como comprensión y análisis de datos, identificación de oportunidades de mejora e implementación de planes de gestión de la calidad de los servicios clínicos. Desde 2015, se ha observado un aumento de casi 6 unidades porcentuales en la supresión viral, en las diferentes clínicas del DS, adscritas al PRWPBA. A junio de 2021, las clínicas lograron una supresión viral del 87%. Agradecimientos: Programa Ryan White Parte B / ADAP del Departamento de Salud, auspiciado por HRSA.

4222

Guardianes de la Salud: Intervención Educativa Virtual contra el Mosquito *Aedes aegypti* ante la pandemia del COVID-19.

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Trasfondo y Objetivos: En Puerto Rico, el mosquito *Aedes aegypti* es el vector de los virus del dengue, Zika y chikungunya, provocando epidemias a través del tiempo. Organizaciones de salud internacionales recomiendan la combinación de esfuerzos, incluyendo la participación de la comunidad, para mitigar el impacto combinado del COVID-19 y las enfermedades arbovirales. Se implementó una intervención educativa virtual denominada Guardianes de la Salud. Los objetivos de esta fueron: Educar sobre el mosquito *Ae. aegypti* y enfermedades arbovirales; Evaluar el cambio en conocimiento de los participantes; y Promover la participación ciudadana a través de la movilización comunitaria. **Métodos:** Durante el 2020 y 2021 se capacitó, gratuitamente, a siete grupos. Grupos compuestos de individuos de Puerto Rico y otros países. El proyecto constó de dos etapas. En la primera los participantes completaron cuatro días de talleres virtuales de dos horas, con un enfoque participativo. En la segunda los participantes seleccionaban una intervención de alcance comunitario: visitas casa a casa o charla educativa en una comunidad identificada por ellos, con el fin de educar y promover el mensaje de prevención. Completada ambas etapas, el participante reportó en la plataforma de "ArcGIS Survey123" el impacto de las intervenciones para otorgarle la certificación de Guardián de la Salud. **Resultados:** En este taller se capacitaron 114 personas de Puerto Rico, El Salvador, Perú y Ecuador mostrando un aumento en conocimiento de 6.10 a 8.52 en una escala de puntuación máxima de 10. Los participantes han impactado un total de 387 personas. **Conclusión:** El proyecto logró el objetivo de educar y potenciar las capacidades de los participantes para atender la problemática del mosquito. Considerando el impacto de la pandemia, las capacitaciones movilizaron la participación ciudadana en las comunidades. Debido al impacto positivo, continuaremos ofreciéndolas. Agradecimientos: Al Equipo de Movilización Comunitaria y Promotores Comunitarios de la Unidad.



4223

Estudio observacional del ciclo de vida del *Aedes aegypti* por estudiantes de escuela intermedia en Puerto Rico

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Trasfondo y Objetivos: Aproximadamente el 40% de las casas en Puerto Rico tienen mosquitos *Aedes aegypti* reproduciéndose dentro o en sus alrededores; educar a los estudiantes para reconocer y eliminar este vector es crucial para reducir la transmisión de enfermedades arbovirales. La estrategia educativa se denominó "Todo sobre el mosquito". Los objetivos fueron: Evaluar el cambio en conocimiento de los estudiantes sobre el *Ae. Aegypti*; Promover la concienciación entre los estudiantes sobre la biología, el control y la prevención del mosquito. Método: Se desarrolló un kit que contenía: huevos de *Ae. aegypti*, bandeja para criar y alimentar las larvas, alimento para larvas, un larvicida a base de Bti, criadero de mosquitos, lupas, pipetas, gafas de seguridad, guantes y cuaderno de investigación. Debido a la pandemia del COVID-19, los estudiantes criaron los mosquitos, observaron el ciclo de vida y registraron los datos en sus hogares. Se realizaron dos charlas educativas virtuales y un video para los alumnos y profesores. Los estudiantes observaron el comportamiento y la morfología de larvas, pupas y mosquitos adultos. Se entregaron un total de 49 kits en persona y correo postal. Realizamos una encuesta de Conocimientos, Actitudes y Prácticas (CAP) para medir el conocimiento adquirido por los estudiantes. Resultados: De los 49 estudiantes, 39 estudiantes, de seis escuelas de nivel intermedio, pudieron completar el proyecto de observación, y 32 completaron la encuesta pre y post CAP. Observamos un aumento significativo en el conocimiento (8.13 a 9.78) ($p < 0.05$). Conclusión: A través de este proyecto los estudiantes aumentaron sus conocimientos sobre el ciclo de vida del *Ae. aegypti* y cómo pueden reducir la población de mosquitos. Los estudiantes mencionaron que tuvieron una buena experiencia y que estaban dispuestos a reducir los criaderos en sus casas reconociendo que el control de vectores es responsabilidad de todos. Agradecimientos: Esta investigación fue posible a la subvención del Fondo Chrysalis de la Sociedad Entomológica de América.

4224

An Unusual Presentation of a Left Anterior Descending Coronary Artery Obstruction, a deadly disease

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Purpose: Chest pain is the second most common complaint that presents to the Emergency Department in the United States accounting for 7.6 million annual visits. It is of paramount importance to stratify all patients with respect to the risk of myocardial infarction due to the high mortality it carries. Left anterior descending artery obstruction represents 32.8 per cent of myocardial infarctions in the United States and carries a mortality of 27 per cent. It also carries the worst prognosis of all. The ischemic changes present in electrocardiograms suggestive of myocardial ischemia have been very well documented. These are called dynamic changes which signify that they were not present in previous electrocardiograms. It is of towering importance to recognize these changes as missed myocardial infarctions account for one of the most common cause of medical malpractice law suits. We present a case where these ischemic changes were transient. Case: 62-year-old man with past medical history of type 2 diabetes mellitus and hypertension presented to the Emergency department with chest pain after 1 hour. Upon history patient stated he was cutting the grass when the pain started beneath his sternum. Physical exam was unremarkable. He was connected to a cardiac monitor; initial



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electrocardiogram was normal. Suddenly hyper acute T waves and mild ST elevation were noticed on the cardiac monitor prompting staff to repeat the electrocardiogram. New electrocardiogram showed hyperacute T waves in anterolateral leads with mild ST elevations. These changes disappeared after one minute with three subsequent normal. Patient was transferred to an institution where percutaneous coronary intervention was available. Patient had a 90% defect in the left anterior descending coronary artery and was subsequently stented. Patient made a full recovery and will follow up with cardiologist in the coming weeks. Conclusion: Cardiac monitors are essential in-patient care.

4225

Collapsing Focal Segmental Glomerulosclerosis associated to Cytomegalovirus infection in an immunocompromised pediatric patient

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Purpose: The collapsing variant of Focal Segmental Glomerulosclerosis has been associated with worse outcomes when compared to other types of FSGS. It is most commonly caused by HIV, but can be associated to other viral infections. **Case Description:** We present the case of 16-year-old male with complex medical history, including Congenital dyskeratosis, who developed Collapsing type FSGS associated to CMV infection. Patient was hospitalized due to severe herpetic gingivostomatitis receiving antiviral therapy, when he presented with lower-extremity edema, nephrotic-range proteinuria, creatinine of 0.8 mg/dL, albumin 1.5 g/dL, and urine protein to creatinine ratio of 9.1. Renal biopsy revealed Focal Segmental Glomerulosclerosis, Collapsing type. Negative serologies for Hepatitis B and C, HIV, and syphilis; normal complement levels. CMV PCR was 299,472 (reference range <200 IU/mL) and patient presented with multi-system involvement, including retinitis. SARS-CoV-2 antibodies positive only for IgG, indicating prior Covid-19 infection. Patient received treatment with Acyclovir and Gancyclovir, with improvement in proteinuria and decreased but stable renal function. CMV count decreased to 10,786. Patient was discharged home on Valgancyclovir. Months later he returned to our institution with significant CMV viremia due to non-compliance with medications and died from multi-organ complications. **Conclusion:** Steroids, which are the first-line therapy for nephrotic syndrome, would have worsened viremia in this patient. CMV should be considered as a possible etiology for nephrotic syndrome, especially in immunocompromised patients, as they may respond to antiviral therapy. **Acknowledgements:** No conflicts of interest to disclose.

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Improving Access to Healthcare in 18-20 Year Olds: Development of a Legislative Project

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Background and objectives: Currently, people in Puerto Rico between the ages of 18-21 cannot legally consent to the majority of healthcare services, without the approval of their parents or legal guardian. The Civil Code of Puerto Rico establishes the age of legal majority as 21 years old. Given that people in the aforementioned age bracket may live separately from their parents, the current law presents a major barrier to healthcare for a substantial portion of the population. The objective of this project was to develop a legislative project that would eliminate this barrier to healthcare. **Methods:** The portions of the Civil Code pertinent to the research objective were analyzed. Current laws in Puerto Rico that allowed people younger than 21 years of age to consent to medical care were analyzed. The Office of



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Legislative Services website was used to find relevant laws and documents. Results: Using the information gathered, a legislative project was developed. An amendment to article 595 of the Civil Code was proposed. Article 595 establishes conditions for the consent to medical care. The proposed amendment would allow people 18 years of age and older to consent to medical care. Conclusions: Given the positive impact the project would have if passed, it is imperative that the project be presented in the Puerto Rico legislature. The authors of this study are already taking steps to achieve that. Acknowledgements: We thank Dr. Humberto Guiot and the Public Policy Committee of the UPR Medical Sciences Campus for their assistance and support.

4227

Mental Health Provider's experiences with Telehealth during the COVID-19 Pandemic

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Background: Telehealth is a viable approach to patient-care through audio and video interactions. In order to understand the viability of Telehealth in Puerto Rico, we need to assess the perspectives and experiences of provider's, patients, government, and health insurance agencies. **Methods:** The research is quantitative with an exploratory, descriptive, and cross-sectional design. Subjects were recruited by-convenience and interviewed with a RedCap questionnaire. **Results:** 231 providers responded. 70.1% were psychologists, 10.3% social-workers, 8.0% psychiatrists, 5.8% counselors, and 2.2% general-practitioners. 94.8% live in Puerto Rico. 36.1% used Telehealth prior to COVID-19 pandemic. The most common platforms used were: Zoom (54.0%), Doxy.me (45.5%), and Teams (27.8%). 57.9% always use video. Providers used Telehealth with children (45.8%), adolescents (58.9%), young adults (65.4%), adults (78.0%), and the elderly (39.3%). Appointment reminders were sent via text message (63.2%), email (45.4%), virtual calendars (12.6%), and Telehealth platforms (7.5%). 84.9% used email to send patients information [73.8% sent consent forms, 50.6% homework, 37.5% screening tests, and 36.9% acceptance of services]. 55.6% of providers accept health insurance. 94.6% reported that insurance covered Telehealth sessions [20 minute (50%) and 45 minute sessions (40.9%)]. 58.6% referred health-insurance Telehealth coverage hasn't changed. Some health-insurances covered Telehealth [MCS-62.1%, First-Medical-48.3%, Humana-40.2%, Federal SSS-40.2%, SSS-Advantage- 36.8%, MMM-Advantage-34.5%, Medicare-33.3%, PSG-SSS-25.3%, and MMM-Private-20.7%]. Providers charged mostly via ATH movil (66%), Paypal (26.4%), and cash (25%). 98.3% (175) responded to all use of Telehealth services questions. **Conclusions:** By understanding the experiences providers have with Telehealth, we can aim to improve its viability in an effort to increase patient access to mental health care services throughout Puerto Rico.

4229

Changes In Health Care Workers Infection Control Behavior During The Covid-19 Pandemic

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Introduction: The current COVID-19 pandemic has seen a focus of education and information on hand hygiene aimed both at people working within the health sector as well as to the public. In addition to the standard precautions in-hospital protocols, surgical mask and protective eyewear or face shield have been added to the required personal protection equipment when providing healthcare. **Objective:** To determine changes in health care workers infection control behavior during the COVID-19 pandemic. **Methods:** Health care professionals working at the University



Pediatric Hospital Neonatal Intensive Unit answered an anonymous survey which included demographic data and infection control measures taken due to the pandemic. Statistix 8.0 used for analysis. IRB approved. Results: Subjects included 28 professionals (nurses 68%, physicians 14%, respiratory therapists 18%) ages 20-61 with up to 38 years of working experience. All feared contracting COVID-19 at work. Social distancing was reported by 79%. Reported changes in infection control behavior because of the pandemic included an increased frequency of: hand-washing (86%), hand sanitizing (92%), disinfecting work area (65%) and hand washing after touching surfaces (82%). Conclusion: The COVID-19 pandemic is an unprecedented challenge for healthcare professionals. With this survey, we explored changes in healthcare workers infection control behavior during this pandemic. Surprisingly, even when all healthcare workers responded that they feared getting COVID-19 infection at work, only 79% were following social distancing protocols. Overall, most respondents made changes in their infection control behavior due to the COVID-19 pandemic.

4230

Human Papillomavirus Mediated Penile Cancer Overexpress NOTCH2 and JAG1

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Introduction: Human papillomavirus infection (HPV) has been identified in 48% of Penile Cancer (PeCa) cases in PR. Understanding the role of genes and pathways that are differentially expressed in HPV+ vs. HPV- PeCa could aid development of novel therapeutic agents. We identified Notch signaling among the most enriched pathways for HPV+ PeCa. Our objective is to validate the enrichment of Notch signaling in HPV+ PeCa. Methods: PeCa tissue was obtained from UPR's surgery cases. HPV genotyping, Gene expression profile and expression of JAG1 and NOTCH2 were done using INNO-LiPA HPV Genotyping, Affymetrix GeneChip® Human Gene 2.0 array and immunohistochemistry analysis, respectively. Univariate and multivariate analysis was performed. Results: Twenty-eight patients (11 HPV+, 17 HPV-) aged 46 to 81 years-old were used for microarray analysis. Seventy-seven percent of patients had a histologic grade 1, 11.5% grade 2 and 11.5% grade 3 tumors. JAG1 expression was significantly higher in HPV+ tumors (5.00 vs. 6.62, $p < 0.01$) while NOTCH2 expression trended to be higher (3.87 vs. 4.60, $p = 0.07$) in HPV+ tumors. In the multivariate regression analysis, JAG1 expression remained significantly higher in HPV+ tumors ($p < 0.01$) and showed a trend for increased expression in tumors with metastasis ($p = 0.06$) (Model $R^2 = 0.37$, $p < 0.01$). NOTCH2 expression was significantly higher in HPV+ tumors ($p = 0.02$) and higher expression level in tumors with metastasis ($p = 0.05$) (Model $R^2 = 0.24$, $p = 0.02$). Immunohistochemistry analysis of HPV+ and HPV- tissues confirmed that JAG1 and NOTCH2 were significantly over expressed in HPV+ tumors ($p < 0.05$). Conclusions: NOTCH2 and JAG1 expression was validated to be overexpressed in HPV+ PeCa tumors when compared to HPV- PeCa tumors. Data provides evidence to support targeting this pathway as a potential approach to specifically impairing the progression of HPV+ PeCa. Funding: 1. NIH/NCI: U54CA096297/CA096300, 2. Comprehensive Cancer Center of the UPR. Conflict of Interest: JC reports advisory board for Pfizer, Aveo and Exelisis



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Adolescent Male with Unusual Toxic Neuropathy after E-cigarette Liquid Ingestion Containing Synthetic Cannabinoids: A Case Report

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Purpose: Prevalence of synthetic cannabinoids (SCs) use among adolescents has been increasing, aided by easy access of liquids sold to be vaporized in e-cigarettes. Significant concern exists about the use of these recreational drugs by young patients and its potential adverse effects when combined with high-risk behaviors. We report a case of complex toxic neuropathy, including severe upper gastrointestinal dysmotility, after intentional ingestion of SCs containing e-cigarette liquid in a male adolescent. Case description: A previously healthy 16 years old male presented with sudden onset severe neck pain and mid-to-lower back pain, followed by progressive dysphagia to solids. Few days later, patient developed persistent bilious vomiting, along with voiding difficulty and constipation. Associated refractory sinus tachycardia and hypertension were also identified. He reported intentional ingestion of liquid from an e-cigarette two days prior to onset of symptoms. Severe esophageal aperistalsis with silent aspiration was confirmed by barium swallow study. Electrodiagnostic evaluation was consistent with predominantly distal asymmetric sensorimotor neuropathy with mixed axonal and demyelinating features. Full diagnostic workup for infectious, autoimmune, rheumatologic and inflammatory etiologies, including neuroimaging, were unremarkable. Further analysis of e-cigarette liquid revealed the presence of two different SCs of the Pinaca and Butinaca family, along with other chemical compounds. Conclusion: Little knowledge exists about adverse health effects from direct ingestion of SCs and other complex chemical agents used for liquids on e-cigarettes, making it difficult for healthcare providers to properly address them. New compounds are rapidly appearing, making legal control and analytical detection difficult as well. SCs use do not appear to be abating anytime soon, thus collaborative effort from clinicians, law enforcement officials and analytical scientists is needed to educate about the topic and advocate for stronger supply control. Acknowledgements: We would like to thank all the pediatric residents, medical students and attendings that helped in the care of our patient. In particular, we profoundly appreciate their help in the care for the mental health wellbeing of our patient.

4232

Attitudes towards vaccines of pregnant women living in Puerto Rico.

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Background and Objectives: Increasing negative and/or hesitant attitudes towards vaccines have led to a decrease in vaccination coverage in several countries and poses a major global health issue.^{1,2} A decline in vaccination rates increases the risk of disease outbreak, decreases the effects of herd immunity, and presents major barriers to the management of global pandemics such as that of COVID-19.³ The aim of this study is to evaluate the attitudes towards vaccines of pregnant women living in Puerto Rico in an attempt to understand the source of this mistrust for



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this particular cohort. Methods: We conducted a cross-sectional analysis of female patients at the Adult University Hospital (AUH) prenatal clinics in Puerto Rico using two previously validated instruments to assess our population's knowledge and attitudes towards vaccination, as well as each patient's sociodemographic characteristics. Results and Conclusions: The results of this study suggest that attitudes towards vaccines are generally positive, with at least 70% of participants agreeing on the importance and safety of immunization, as well as the validity of healthcare providers' recommendations. However, less than half of these women trust the government or pharmaceutical companies to provide safe vaccines, and 49% of women expressed they didn't receive enough information about vaccines and their safety. Moreover, the results suggest that lack of information may be more prevalent in pregnant women since, even though 92% of participants reported having been vaccinated, only 35% had done so during pregnancy. With the use of this information, we can redirect educational strategies to achieve greater vaccination rates, especially for pregnant women. Acknowledgements: N/A

4233

Not just another Case of Vertigo: Importance of HINT Exam in the ED

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Purpose: Dizziness/Vertigo account for 4% of all Emergency Department (ED) visits, while most visits have benign causes, up to 30% of patients have a serious disorder. Among demyelinating diseases there is tumefactive acute demyelinating encephalomyelitis (ADEM) or multiple sclerosis (MS) presentation which is described here. Here we report a 31-year-old female with demyelinating disease debuting as AVS with symptoms that mimic peripheral causes. Case description: 31-year-old Puerto Rican female patient, no prior medical conditions or medications presents to the ED with a complaint of vertigo for 3 hours prior to arrival at ED. She had severe nausea and vomiting episodes that worsen with eye opening, head/body movement. Falls to left side when standing. No recent illness. No prior neurologic episodes. Physical: HINT: Head Impulse Test(HIT): No saccade. Nystagmus: Unidirectional left-beating horizontal-torsional, grade 3 (primary, left and right gaze). Test of Skew: No skew. Neck: No neck rigidity. Cerebellar: Normal finger to nose. Only finding suggestive of central etiology was negative HIT. Symptomatic management for vertigo was given at ED with mild improvement. Initial laboratory workup, LP and CT scan were negative, patient was consulted to IM service for suspected central etiology. MRI was remarkable for multiple lesions consistent with tumefactive MS vs ADEM. Patient was started on IV steroids with symptom resolution after 12 days of admission. Conclusion: Acute vestibular syndrome (AVS) is a single prolonged episode of vertigo, with nausea/vomiting, head-motion intolerance and nystagmus lasting from days to weeks. Demyelinating diseases account to 4% of total cases and up to 10% of central cases. Detailed physical exam, including HINT is paramount to differentiating peripheral causes from central causes and invaluable tool for emergency physicians. AVS caused by central causes may mimic peripheral symptoms. One should be aware of this presentation, since these patients often require further workup and specialists.



4234

Miller-Fisher syndrome and Chronic Lymphocytic Leukemia- Associated paraneoplastic syndrome with unique therapeutic strategy.

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Miller-Fisher Syndrome (MFS) is an uncommon immune-mediated inflammatory disease of peripheral nervous system characterized by axonal and sensory polyneuropathy. With triad of ophthalmoplegia, ataxia and areflexia, is considered a Guillain-Barre Syndrome (GBS) variant. Rarely, a hematological paraneoplastic syndrome such as Chronic Lymphocytic Leukemia (CLL) may be the precipitating condition. A 50-year-old man who came to ER with face, tongue and mouth numbness associated with dysgeusia, imbalance and ataxia of 5 days of progression. Visited other emergency departments and treated with analgesics without patient admission. As symptoms worsened, was admitted with unilateral ptosis, left 7th cranial nerve palsy, decreased handgrip, slurred speech and ataxia. Imaging of Central Nervous System revealed no acute abnormalities. Neurology service was consulted and lumbar puncture showed albuminocytologic dissociation consistent with GBS. Patient was treated with IV immune globulin with improvement of neurological functions but persistent motor deficit. Patient presented persistent lymphocytosis since admission, which raised concern for an ongoing lymphoproliferative neoplasm. Given that CLL may be associated with autoimmune disorders, was treated for CLL with tyrosine kinase inhibitor Acalabrutinib. After the first four weeks, patient felt improvement in ambulation and slurred speech. Obinotuzumab was started two weeks after with neurological positive response. Physician awareness of atypical presentation of MFS is important given that treatment should not be delayed. After getting a clinical history, patient with several emergency department visits was promptly diagnosed with non-commonly seen MFS due to CLL, properly treated with a good prognosis. Atypical neurological presentation represents a challenge to clinicians, but when related to a malignancy, prompt and accurate diagnosis is critical in changing long-term outcomes. The association of diagnosis of MFS concomitant with CLL could vary in onset of presentation, both at same time or different, but an accurate diagnosis could be the difference in positive evolution of symptoms and prognosis.

4236

Impact Of Challenges Faced During Covid-19 Pandemic In The Wellbeing Of Healthcare Workers.

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Introduction: The stresses health care workers continue to face in response to the COVID-19 pandemic are real. The current COVID-19 pandemic has seen a focus of education and information on infection control measures aimed both at people working within the health sector as well as to the public. There has been less focus on the mental health issues of healthcare workers during this pandemic. Objective: To determine perception of healthcare workers about their wellbeing during the COVID-19 pandemic. Methods: Health care professionals working at the University Pediatric Hospital Neonatal Intensive Unit answered an anonymous survey which included demographic



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data and concerns to their wellbeing, Statistix 8.0 used for analysis. IRB approved. Results: Subjects included 28 professionals (nurses 68%, physicians 14%, respiratory therapists 18%) ages 20-61 with up to 38 years of working experience. All respondents believed they could get COVID-19 at work and they could transmit it to their family members. All health care workers felt high levels of stress at the beginning of the pandemic having to go to work during a lockdown with 68% reporting high levels of stress currently. Conclusion: The COVID-19 pandemic is rising the stressors on the health care workforce to unprecedented levels. During this challenging time, we should all strive to follow clear strategies, both as health care leaders and as individual, to help sustain the well-being of healthcare workers in the midst of the COVID-19 pandemic. Psychological support should be a critical part in the management of stress associated to COVID -19 pandemic.

4237

Pre and intraoperative Forced-Air Warming on Adult Patients Undergoing Surgical Procedures Requiring Anesthesia

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Clinical Question: In adult patients undergoing elective surgical procedures (P), how does the addition of preoperative active warming utilizing a forced-air warming device (I), compared to standard practice of only intraoperative warming (C), impact the development of shivering and normothermia (O) during perioperative period (T)? Scope: Millions of patients undergo surgery requiring anesthesia every year in the United States. Administration of anesthesia can produce redistribution hypothermia and loss of intrinsic thermo-regulatory mechanisms. Hypothermia in the surgical patient can lead to prolonged healing times, coagulopathies, increased lengths of stay and increase the risk for serious morbidities and mortalities. Literature review: Most of the studies reviewed suggest that prewarming patients with forced-air warming blankets can help prevent or lessen hypothermia intraoperatively. Project implementation: This project was implemented in the preoperative, surgical, and postoperative areas of a local affiliated hospital. Demographic, categorical, baseline and recovery temperature data were obtained as well as intraoperative temperatures every fifteen minutes. Results: In accordance with the article appraisals, using a forced-air warming device has successfully proved to provide better patient outcomes with regards to hypothermia and shivering, as well as increasing overall patient satisfaction. The information recorded shows that over 90% of the patients had an increased core temperature compared to their baseline. No patients experienced shivering during this project. Practice Implications: The results of this project suggests that standardizing preoperative warming of patients could aid providers in the prevention and management of hypothermia and its associated complications. At the very least, application of warming devices in the preoperative period can increase patient comfort and satisfaction. Acknowledgements: We would like to acknowledge and thank the anesthesia team and patients at the Hospital of the University of Puerto Rico - Dr. Federico Trilla for their support and participation in the development and implementation of this project.

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Improving Breastfeeding Knowledge In The Newly Mothers At The Nursery Of The University District Hospital In San Juan, Puerto Rico.

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Introduction: The American Academy of Pediatrics emphasizes the importance of exclusive breastfeeding for children up to six months of age. It is well known that breastfeeding help to prevent multiple infections in the newborn, and promote mother to child relationship. The Academy of Breastfeeding Medicine has a protocol that explains the importance of



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anticipating and addressing parents' concerns regarding breastfeeding prior to being discharge from the nursery. This can be quite challenging, given the short time period a term newborn stays at the nursery. Currently at our nursery, the information transmitted to the mothers by first year pediatric residents, lacks consistency and visual examples. Our goal is to improve mother's breastfeeding knowledge, through a series of animated short videos created for the project. Methods: Six multiple choice questions were administered, as pre-test and post-test after watching the videos. A QR code with the videos was placed on the nursery breastfeeding area. After watching the videos, a post-test was given. To implement the project, we established the following: a check mark section on the patient's chart, an online order of Education breast-feeding on the medical record and the post-test was asked as discharge requirement. Pearson chi-square was used for the data analysis. The project is IRB approved. Results: A total of 62 questionnaires were answered. Post-test questionnaires showed a major quantity of correct answers. Nevertheless, only two questions had a p-value <0.05. Those questions asked about the specific time of exclusive breastfeeding and about milk production at the beginning of breastfeeding. Conclusion: Before watching the videos, the mothers had an erroneous understanding of the appropriate time of exclusive breastfeeding and suspected abundant production of breastmilk during the first days of the newborn. Mothers should receive the necessary tools to ensure successful breastfeeding, that eventually translate into appropriate care of the newborn. Acknowledgements: We would like to thank the pediatric residents and medical students that helped in the data collection and Dra. García-Fragoso for the data analysis.

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Assessing Factors That Promote Successful Breastfeeding In The Neonatal Intensive Care Unit

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Background & Objectives: The American Academy of Pediatrics emphasizes the importance of exclusive breastfeeding for children until six months of age. Unfortunately, for patients inside the neonatal intensive care units (NICU), the complexity of the care provided in these facilities often limits the mother to child relationship. Beneficial effects of feeding preterm infants with human milk includes lower rates of sepsis, necrotizing enterocolitis, and severe retinopathy of prematurity and fewer hospital readmissions after NICU discharge. Nevertheless, expressing human milk for an extended period can be challenging for mothers. From 2019 to 2021, at our NICU, only 28% of infants were fed breastmilk with only 15% being exclusively breastfed. The objective of our study is to identify factors associated with breastfeeding infants admitted in the NICU. Methods: A questionnaire was administered during 2020-2021 to mothers with infants admitted at the University Pediatric Hospital NICU. Statistix 8.0 was used for the analysis. Research is IRB approved. Results: Subjects included 114 mothers. Median age was 29 (range 19-44). Median gestational age 36 weeks (range 23-41). Women who planned to breastfeed were more likely to have post high school education (69% vs 42%, p=0.0121), feel confident in succeeding (91% vs 38%, p=0.0000), have a breast pump (95% vs 63%, p=0.0006) and have support from family/partner (97% vs 75%, p=0.0085). There was no significant association between intent to breastfeed and gestational age, birth weight, health insurance, occupation status, transportation means, prior experience or orientation during pregnancy. Conclusion: Mothers having a higher education, accessibility for milk extraction and family support were more eager to start breastfeeding. It is important to identify the factors associated to breastfeeding to develop strategies to encourage and support mothers in providing breast milk to their infants in the NICU. Acknowledgements: We would like to thank the pediatric residents and medical students that helped in the data collection and the care of our pediatric patients.



4243

Surveying race and racism in Puerto Rican medical education

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Background & Objectives: Intrigued by the way race is taught and conceptualized within medical education - often teaching to associate diseases with certain races and mentioning race/ethnicity in a question stem without any intentional educational objective - and how the socio-cultural context of trainees in Puerto Rico (PR) differs, we were interested in exploring if their experience reflects the continual bias and discrimination that permeate healthcare and medical education in the continental US. **Methods:** We propose an inter-institutional nationwide survey across 3 medical schools in PR. **Results:** A total of 174 responses were documented, with 58% of respondents being female. The age for most medical students ranged between 25-34, followed by 18-24, with the majority being first year students. Regarding traditional racial categories, as those used in the US Census, 59% of participants selected “white”. Aside from the traditional racial canons, we asked participants to describe their skin color in their own words. 140 participants out of 174 provided an answer. While “white” proved to be the predominant racial descriptor with 51% among respondents, participants describe themselves with “moreno/a”, “mestizo”, “mulato”, “trigueño/a”, among others, proving that going beyond the one size fit all category yields a richer avenue of contextualized descriptors that lessen the conflictive process of racial self-identification in PR. In terms of racial discrimination, 97% agreed that racism exists in PR, while only 35% of had experienced it. Interestingly, 90% agreed that racism exists in PR’s healthcare but only 18% had experience it; predominantly at their medical school, followed by rotations. **Conclusion:** This study provides an important starting point, being the first to explore the medical demographics of medical students and whether they believe racism to exist in PR’s medical field, and whether they are aware of the prevalence of racism in Puerto Rican society. **Acknowledgement:** This project was funded by the 2020-2021 Fellowship in Narrative Medicine, sponsored by Columbia University’s Department of Medical Humanities and Bioethics.

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Granulomatosis with polyangiitis as a mimicker of Myeloproliferative disease.

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Purpose: Granulomatosis with Polyangiitis (GPA) is a vasculitis with heterogeneous presentation that may resemble infectious or neoplastic etiologies. We presented a 31-year-old man with GPA whose initial symptoms included severe thrombocytopenia, and splenic infarcts (SI) that mimicked a myeloproliferative disease (MPD). **Case Presentation:** A 31-year-old man developed cyanosis of the fingers and toes associated to fever and sweats one month prior to admission. At admission, cyanosis in the 2nd and 3rd finger of the right hand and 3rd and 4th toes of the left foot, splinter hemorrhages in the nails, Raynaud’s phenomena (RP), and an ulcer in the dorsum of the left foot were observed. Laboratories showed leukocytosis, thrombocytopenia in the range of 800,000 to 1,200,000 Thou/uL, C-reactive protein of 16.1 mg/L and ESR of 36 mm/Hr. Abdominopelvic CT scan revealed multiple SI vs tumoral infiltration. CTA of extremities were unremarkable. Bone marrow reported findings suggestive of a myeloid disorder with features of chronic myeloid leukemia and essential thrombocytosis. Blood cultures; JAK 2, CALR, and MPL mutations were reported negative. The anti-PR-3 antibody was reported positive, and hematuria and proteinuria were found to be present. GPA was diagnosed and treatment with rituximab, high-dose steroids, and full anticoagulation started. **Conclusion:** The initial diagnostic considerations upon admission were MPD and vasculitis. MPD was considered more likely based on the extreme platelet elevation, rarely seen in reactive thrombocytosis, and the SI. The diagnosis of GPA was made when anti-PR-3 Ab came positive and JAK2, CALR, MPL mutations negative. Clinicians must be aware mimickers may cause a misdiagnosis leading to error in treatment and increased patient morbidity.



4245

Assessment of Food Insecurity among patients with Inflammatory Bowel Disease in the University of Puerto Rico- IBD Clinics.

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Background & Objectives: Inflammatory bowel diseases (IBD) are immune-mediated gastrointestinal diseases including Crohn's disease and ulcerative colitis. Diet is a modifiable factor in their management; nonetheless, healthier diets require higher costs. A 2021 study concluded that 1/7 IBD patients in the United States (US) do not have access to nutritionally adequate food or are food insecure. Food insecurity (FI) is defined as limited or uncertain access to sufficient food rations. Neither dietary patterns nor FI have been studied in Puerto Ricans with IBD. Assessing this social determinant will help determine if IBD patients can efficiently follow and benefit from a healthy, yet expensive diet. **Methods:** A 19-question tool from the USDA's U.S. Household Food Security Survey Module was administered to participants. The questionnaire classifies participants as having high, marginal, low, or very low food security, the last two indicating FI. We analyzed IBD type, age, gender, health insurance, and income. These were cross tabulated against food security status, stratified as Food Secure (FS) vs FI. Statistical significance between groups was determined by a Fisher exact test. The protocol is approved by the MSC IRB. **Results:** Of 57 subjects, 17.5% demonstrated FI. Very low food insecurity was reported in 10.5% cases. FS and FI groups showed no statistical difference in diagnosis, age, marital status, income, living area, and government assistance. However, most food-insecure patients were females (90%, $p = 0.013$). All subjects with an income greater than \$50,000 were food secure. **Conclusions:** We found a slightly higher frequency of FI amongst our patients with IBD compared to the US (17.5% vs 14%). FI causes disruption of eating patterns and reduction of food intake, affecting adequate IBD management. Developing an appropriate and accessible diet for Puerto Ricans will minimize this disparity in the management of our patients with IBD. **Acknowledgments:** The authors have nothing to disclose. We are grateful to the patients for their collaboration in this project.

4246

Experiences of Puerto Rican Healthcare Workers During the COVID-19 Pandemic: A Quality Approach

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Background: COVID-19 has taken a toll on frontline health care workers. To prevent the worsening of health disparities from COVID-19 and from future pandemics, we need a workforce that functions at the highest levels to address patient's needs, particularly for underserved and marginalized populations. Understanding the experiences of frontline workers during this pandemic is critical for identifying solutions to mitigate burnout and enhance support in future crises. **Objective:** To understand and describe how frontline health care workers were affected by the pandemic both professionally and personally. **Methods:** Qualitative descriptive study. Sixteen nurses working in inpatient and outpatient settings in Puerto Rico participated in the study. A sociodemographic questionnaire was administered, which also contained questions about stress levels, access to food, among others. Then, in-depth, semi-structured phone interviews were conducted. **Results:** The interviewed nurses experienced increased workloads due to staffing shortages, and at the same time received less instrumental and emotional support from health care leadership. Nurses also had a lot of concern about not only contracting the virus but also potentially transmitting it to families. Feelings of hopelessness were common, especially early on when they could no longer offer the emotional support they used to provide for patients, and because they were unable to offer the reassurance of complete recovery to those who were infected with COVID-19. Participants also reported moderate (47%) and severe (23.5%) levels of psychological distress, increased family stress and discord



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(47%), decreased access to mental health treatment (30%), and decreased access to food (76.4%). Conclusions: Our findings suggest that nurses experienced increased stress in multiple domains without options for needed support. Such experiences have implications not only for the well-being of frontline workers but also for the care they provide. Acknowledgements: Funder: Johns Hopkins Alliance for a Healthier World. The Authors declares no conflict of interest.

4247

Influenza vaccine acceptability among undergraduate and graduate students, and healthcare workers

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Background and objectives: Influenza is a respiratory illness that has the potential to cause epidemics. Infection may result in hospitalization and death, especially among high-risk groups. Influenza can be prevented by the administration of the vaccine. Healthcare workers (HCW's) need to be protected against influenza because they can transmit the infection to their patients and family members. Many studies report a high level of influenza vaccine acceptance among HCWs; however, there are HCWs that are skeptical about getting vaccinated. The purpose of this study was to examine the acceptability of the influenza vaccine among undergraduate science major students, medical students and HCW's. The study will provide information about the educational needs of this population to design interventions that increase influenza vaccine acceptability. **Methods:** A descriptive cross-sectional survey using the Survey Monkey Platform was conducted from August to December 2021. The survey link was sent electronically to undergraduate science major students from the University of South Florida and the University of Puerto Rico (UPR); medical students from the UPR; and residents, faculty and nurses from the University Pediatric Hospital in San Juan. **Results:** A total of 206 participants completed the survey. A 92.2% had received the influenza vaccine in the past. Acceptability increased with the level of education and was higher for HCW's compared to students. The most common reasons for refusing the vaccine were the perception that the immune system will provide protection against influenza, followed by lack of time, and experiencing adverse reactions to the vaccine in the past. **Conclusions:** The acceptability to the influenza vaccine increased significantly during the COVID-19 pandemic. The pandemic increased the awareness of the potential seriousness of influenza. By identifying the myths and barriers at the undergraduate and medical school level, the educational needs can be addressed early in order to increase influenza vaccination rates.

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Seronegative Inflammatory Oligoarthritis Secondary to Vitamin D Deficiency

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Purpose: Vitamin D regulates calcium metabolism, but also is an immunomodulatory hormone that appears to have a protective role against inflammatory diseases. Conversely, vitamin D deficiency causes a shift from T_H2 to T_H1/T_H17 response increasing the expression of proinflammatory cytokines such as IFN- γ , TNF- α , and T_H17 . Furthermore, low levels of vitamin D are associated with an increased risk of rheumatoid arthritis (RA). Although a robust clinical and epidemiological data evidence supports the link of vitamin D and RA, very little is known about the association with seronegative inflammatory arthritis. Herein, we report a patient who developed seronegative inflammatory arthritis secondary to vitamin D deficiency. **Case Description:** A 31-year-old woman with no history of medical illnesses presented



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with a five-year history of severe bilateral ankle and heel pain. Pain was persistent, limiting, and unresponsive to non-steroidal anti-inflammatory drugs. On exam, ankles were swollen and tender to palpation. Thyroid function tests, angiotensin converting enzyme, and uric acid levels were normal. She had low-positive antinuclear antibodies, but rheumatoid factor and anti-CCP, anti-dsDNA, anti-Smith, anti-SSA, anti-SSB, anti-RNP, and anticardiolipin antibodies were negative. Levels of 25-hydroxyvitamin D were low at 13 ng/mL. Radiographs of the ankles were unremarkable. She was treated with vitamin D 10,000 IU orally daily for five weeks. Two weeks later, she had almost complete resolution of arthritis. She continued vitamin D 10,000 IU four times per week. Repeated 25-hydroxyvitamin D levels were normal at 39 ng/mL. After six months, she remained asymptomatic. Conclusion: To the best of our knowledge, this is the first case of hypovitaminosis D presenting with seronegative inflammatory arthritis. The differential diagnosis of inflammatory arthritis is broad but does not usually include vitamin D deficiency. Thus, it is important to obtain 25-hydroxyvitamin D levels as part of the work-up in patients with inflammatory arthritis. Acknowledgments: None

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B cell function in a preclinical model of HPV+ oropharyngeal cancer

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Background and objectives: Oropharyngeal cancer (OPC) is associated with infections of oncogenic strains of human papillomavirus (HPV). Although cancer therapies exist for these patients, the 5-year survival rate remains at 49%. Therefore, novel therapies are needed to improve their survival. Different immune cells within the tumor microenvironment could have tumor-promoting or tumor-protective immune functions. Among the immune cells within the tumor microenvironment, CD8⁺ T cells are known to exert an anti-tumor response. In addition, B cells have been found in tumors including OPC, and some induce activation of effector T cells, others inhibit anti-tumor responses through suppression of CD8⁺ T cells. However, the role of B cells in OPC development remains unclear. This study was performed to explore the role of B cells in HPV+OPC. In the preclinical mouse model of HPV+ OPC, tumor cells (named mEER) implanted in the tongue partially respond to immunotherapies (sensitive), whereas tumor cells implanted subcutaneously in the flank do not respond to immunotherapies (resistant). Methods: By using the mEER mouse model, T cells and B cells were quantified in tongue and subcutaneous tumors by flow cytometry. Tumor growth and survival of mice bearing tongue or subcutaneous tumors were compared between wild-type (C57BL/6) and B cell-deficient mice (μ Mt). Results: Tongue tumors contained more CD8⁺ T cells and lower B cell frequencies than subcutaneous tumors which contained a higher proportion of B cells compared to T cells. Mice μ Mt with subcutaneous or tongue tumors had delayed tumor growth and longer survival compared with wild-type mice. Conclusion: Our results suggest that B cells have a pro-tumorigenic role in a preclinical model for HPV+ OPC. Further research can elucidate mechanisms by which B cells may promote tumor growth and targeting B cells may be a promising therapeutic to enhance the efficacy of immunotherapies for HPV+ cancers. Acknowledgments: We thank Dr. Paola Vermeer, for kindly providing the HPV+ mEER cell line. This work was supported by the Center for Collaborative Research in Health Disparities (CCRHD), University of Puerto Rico Medical Sciences Campus - RCMI Grant NIMHD U54-007600 and the Comprehensive Cancer Center Seed Money. This work was approved by IBC #91620 and IACUC #A630120.



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Use of aspirin prophylaxis during pregnancy in Puerto Rico to prevent risk of preeclampsia: preliminary findings

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Objective: In 2019, there were 20,409 live births in Puerto Rico with 11.9% premature birth rate. One of the risk factors for premature birth is preeclampsia, present in 4.8% of pregnancies. Low-dose aspirin reduces the risk of preterm birth (before 37 weeks) by 11% and early preterm birth (before 34 weeks) by 25% among first-time mothers. This study aimed to determine the maternal risk level for preeclampsia and determine if the recommendation of low-dose aspirin use is promoted in pregnant women with risk factors. Methods: Cross sectional study of post-partum mothers in Puerto Rico. Eligible mothers were contacted in person or by telephone, to complete a questionnaire. Excel and Statistix 8.0 were used for analysis. IRB approved (0420319). Results: A total of 729 mothers of newborns who delivered at participating institutions were recruited. Aspirin was recommended to 31% of participants and 91% used it during pregnancy. A significant number of women at risk of preeclampsia (39%) used low dose aspirin (81mg/day) after 16 weeks of pregnancy. The most common risk factors to recommend prenatal aspirin were autoimmune disease (57%), history of preeclampsia (62%), multiple gestation (63%), obesity (52%), hypertension (59%), renal disease (48%) and black race (31%). Conclusion: In this group of participants, we identified multiple risk factors for developing preeclampsia. A significant number of mothers did not start the prophylaxis in a timely manner. The reinforcement on the low dose aspirin use will reduce the risk of preeclampsia from 4.3% to 3.6%, hence decreasing the risk for prematurity in 107 to 245 live births. These results suggest that there is still room for offering the right tools for women with risk factors for preeclampsia into seeking aspirin prophylaxis in future pregnancies.

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Panorama de los resultados adversos del embarazo relacionados a nacimientos en Puerto Rico

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Trasfondo: Los indicadores de salud materno-infantil reflejan, en parte, el estado de salud de un país. Objetivos: 1) Describir la proporción de resultados adversos del embarazo relacionados a nacimientos: bajo peso al nacer (BPN), pequeños para su edad gestacional (PEG), prematuros, con defectos congénitos y por cesárea en Puerto Rico (PR). 2) Comparar los resultados adversos del embarazo entre PR y Estados Unidos (EU). Metodología: Análisis descriptivo utilizando la base de datos PRAMS-PR 2017-2018 (Nw=37,286). Resultados: La proporción de nacimientos BPN,



PEG, prematuros, con defectos congénitos y por cesárea fue de: 9.8% (9:10 bajo peso moderado), 16.3%, 10.5% (7:10 prematuros tardíos), 0.7% y 43.5% (35.3% cesáreas en embarazos a término completo, 32.2% cesáreas en embarazos a término temprano, 30.9% cesáreas en embarazos antes de término y 1.6% cesáreas en embarazos a término tardío), respectivamente. Al comparar estos datos con EU, se observó que la proporción de nacimientos para las siguientes características fue: BPN, más alta (9.8% vs. 8.3%); PEG, casi la mitad (16.3% vs. 29.9%); prematuros, similar (10.5% vs. 10.0%); con defectos congénitos, más baja (0.7% vs. 3.0%); y por cesárea considerablemente más alta (43.5% vs. 32.0%). Conclusión: Los resultados adversos del embarazo presentan variaciones con respecto a lo observado en EU, reflejando mayores desigualdades para los nacimientos por cesárea y PEG. Los resultados de subcategorías sugieren áreas de mayor enfoque para nacimientos BPN, PEG y por cesárea. Resulta imperante atender cada indicador en pro de un estado de salud comunitario óptimo. Agradecimientos: Datos extraídos de disertación doctoral. No conflicto de interés.

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Impact of IBD on Daily Lives: A Descriptive Insight into Patient's Experience in the Work and Study Settings

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Background: Persons with inflammatory bowel diseases (IBD), Crohn's disease (CD) and ulcerative colitis (UC) endure uncomfortable symptomatology while carrying out daily activities. Since IBD is not physically distinctive, it may be overlooked and lead to discrimination in the workplace and school. We describe work and study experiences in patients with IBD. Methods: A questionnaire containing sociodemographic, psychological, and medical inquiries was administered to patients with IBD in a tertiary care clinic. The survey captured past and present employment and scholarly status. Qualitative and quantitative data were analyzed using descriptive statistics. The study is approved by the UPR-MSU IRB. Results: 120 patients (59M/61F, mean age: 27.00 ± 9.71, 91CD/29UC) were recruited. At the time of interview, 83 patients were working. 19% did not tell the employer of their IBD, 19% felt discriminated at work, and 38% said the disease has limited their work goals. Of those working, 74(89%) had to leave early or absent themselves due to disease manifestations. Patients with UC were significantly more prone to work absences than patients with CD (P=0.0243). 69 patients were studying while having the condition. 14% did not inform of their IBD at school, 12% felt discriminated because of their condition and 32% said the disease has limited their educational goals. 87% of those studying had to miss or leave school early due to disease manifestations. School absences were not significantly different between subjects with CD and UC (P=0.384). 22% of participants deemed themselves as a person with a disability given their condition, while 8% did not know whether they should consider themselves as such. Perception of disability was not significantly different between patients with CD and UC (P=0.870). Conclusions: Absenteeism is a significant factor affecting productivity in patients with IBD. Perception of disability may also impact work and study experiences. This study was supported by the UPR Endowed Health Services Research Center through grants 5S21MD000242 and 5S21MD000138, from the National Center for Minority Health and Health Disparities, National Institutes of Health (NCMHD-NIH). Its contents are the sole responsibility of the authors and do not necessarily represent the official views of NCMHD-NIH. The authors have no potential conflict of interest to disclose.



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Lower Income Levels in Puerto Ricans with IBD: A Sociodemographic Characterization of a Hispanic Cohort

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Introduction: Prevalence of Inflammatory Bowel Diseases (IBD) is increasing in Hispanics, but there is limited information regarding sociodemographic characteristics of this cohort. Sociodemographic factors may provide an insight as to how the IBD population compares to the general population. We aim to describe a Puerto Rican cohort. **Methods:** The study subjects were Puerto Ricans participating in EPILATAM, a multicenter study of IBD in Latin America. A questionnaire with sociodemographic variables including age, sex, IBD type, education, income, and employment status was administered. Results were compared to the Puerto Rico Department of Labor and Human Resources 2017 statistics. The study was approved by the UPR-MSB IRB. **Results:** 160 patients (87M/73F, mean age: 39, 115CD/45UC) were recruited. 44% were employed, 25% were unemployed, 17% were students, and 14% were retired. 5% had only elementary school education, 7% achieved middle school, 31% completed high school, and 57% obtained a degree beyond high school. In terms of yearly income (USD), excluding the students, 19% reported having no income, 23% earn between \$1,000 and \$10,000, 29% earn between \$10,001 and \$20,000, 16% earn between \$20,001 and \$30,000, and 13% earn more than \$30,000. The average annual income was \$17,000. 51% of patients reported having lost work time due to IBD. **Conclusions:** Results suggest that this cohort is diverse in terms of education and income. Compared to the general population, employed and unemployed patients show no remarkable differences. Yearly income in IBD patients is varied, with a notable difference compared to the general population. The average yearly income of the general population was \$27,532. The difference of \$10,532, coupled with a high number of patients that reported having work time lost due to IBD, may signify a disparity in the labor setting, compared to the general population. **Acknowledgement:** We thank the EPILATAM study group for the opportunity of participating in this project.

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Anatomical Survey in Patients with Chronic Pelvic Pain and Endometriosis Undergoing Surgical Management at a Teaching Hospital in Puerto Rico

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Background & Objectives: Multiple studies have described the prevalence of extrapelvic endometriosis in patients with chronic pelvic pain (CPP) and endometriosis and have shown that it is not as rare as previously thought. The goal of surgical management is to remove all visible disease. In order to do this, the abdomen and pelvis must be thoroughly evaluated for abnormalities that could potentially contribute to pain. For example, the appendix should be carefully evaluated and described among all patients undergoing endometriosis surgery as studies have shown that the probability of appendiceal disease positively correlates with the number of pelvic implants. Our aim is to determine if comprehensive anatomical surveys are being performed and reported in these patients in hopes to improve resident surgical teaching and patient outcomes. **Methods:** IRB approval was obtained. A retrospective chart review identified women undergoing gynecologic procedures for CPP and/or endometriosis at a community hospital in Puerto Rico during 2015-2021. Operative reports were reviewed for description of abdominopelvic anatomy, with special attention to description of appendiceal appearance. Patients with previous appendectomy were excluded. **Results:** A total of 104 patients underwent benign gynecologic procedures for CPP of which 45 had confirmed endometriosis. Seven patients (7%) underwent appendectomy due to abnormal appearance as described in the operative note. The remaining 97



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(93%) operative reports did not describe the appearance of the appendix nor upper abdominal structures. Conclusion: One of the first steps in Ob-Gyn resident surgical training should be to perform a systematic evaluation of the anatomy and properly document findings. It is vital to do a thorough abdominopelvic survey at the time of surgery for CPP and endometriosis to avoid missing lesions that could be contributing to the patient's symptoms. In addition, this practice can help other physicians prepare if repeat surgery was needed. Acknowledgements: None

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Knowledge of Analgesics and Anesthetics Used During Labor in Postpartum Hispanic Women Living in Puerto Rico

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Background & Objectives: Wide ranges of pain-relieving methods are available for pregnant women during labor. Education by healthcare professionals can influence intrapartum patients to make the best decision regarding the usage of these pharmacodes. We evaluated the baseline knowledge of anesthetics and analgesics used during labor in Hispanic postpartum women in Puerto Rico. Methods: IRB approval was obtained. Postpartum patients with less than 3 months of delivery completed an online questionnaire that included variables such as sociodemographic characteristics, obstetrical history, and knowledge of labor pain relief methods. Results: One hundred and one participants completed the questionnaire; 47% have had vaginal deliveries only, 35% had C-sections only and 18% had one or more C-sections and/or vaginal deliveries; 93% of the participants identified knowledge of at least one analgesic used during birth (83% Morphine, 65% Demerol, 26% Phenergan, 5% Nalbuphine, 5% Butorphanol, 22% Fentanyl, Tramadol 1%) and 7% did not identify any analgesic; 92% of the participants recognized at least one anesthetic (83% Epidural, 63% Spinal, 68% general anesthetic, 61% local anesthetic, 24% Lidocaine, 3% Bupivacaine, 2% 2-chloroprocaine, 13% Nitric oxide) and 8% were unfamiliar with any anesthetic; 61% of the participants used either anesthetics or analgesic during labor; 33% did not use analgesic or anesthetics and 6% didn't recall using them. 46% would use analgesics in a future pregnancy, 33% would not use and 21% doesn't know. Conclusion: Preliminary data suggests there is no association between knowledge of analgesic and anesthetic and the usage intrapartum. Additional studies are needed to identify the reason behind the lack of usage in some women. It is important for patients to know and recognize analgesics and anesthetics to allow them to choose their best option during intrapartum and postpartum stage based the basic principle of autonomy. Acknowledgements: None.

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Exercise Rate and Intervention among a Hispanic pregnant population in Puerto Rico

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Background & Objectives: Exercise is an essential element of a healthy lifestyle. During pregnancy the benefits include decreased gestational diabetes mellitus, cesarean birth, operative delivery, postpartum recovery time and prevents postpartum depression. This study identify exercise rate among Hispanic pregnant population living in Puerto Rico and the impact of an educational intervention. Methods: IRB approval was obtained. Pregnant women, over the age of 21, were recruited and divided into two groups, control and experimental. Both groups answered a self-administered initial questionnaire about current exercise; they were provided with an educational video about exercise and a pamphlet about nutrition. The experimental group received an intervention consisting on a walking program and weekly exercise reminder in a text message. A follow up questionnaire was performed every trimester. Effective exercise was defined as walking 30



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minutes for at least 3 days a week. Results: A total of 78 women were recruited. Overall, 63 (81%) participants reported exercise during pregnancy before the intervention. The participants were divided, 35 in the control group and 43 in the experimental group. Out of the 35 of the control group, 27 (77%) participants initially exercised, from these, 17 (63%) continued exercising, 9 (33%) stopped, 1 withdrew. From the initial 8 that did not exercise, 2 (25%) started exercising. In the experimental group, 36 (84%) initially exercised, where 25 (69%) continued exercising, 7 (19%) stopped, 4 (11%) withdrew from the study. Out of the 7 that didn't initially exercised, 3 started exercising and 4 did not exercise at all. A total of 5 participants withdrew from the study. Discussion: Preliminary results show the effectiveness of the exercise intervention to increase exercise among pregnant women as 43% from the experimental group began exercising compared with the 25% from control group that were not exercising initially. Acknowledgement: None.

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Andrographolide altered inflammation pathways and cytokine expression in prostate cancer

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Background and objectives: Prostate cancer is the most diagnosed cancer in men in the USA. Andrographolide (AG) is a labdane diterpenoid compound isolated from the medicinal plant *Andrographis paniculata*. Previous studies in our laboratory showed that Andrographolide decreased prostate tumor size in mice, induced expression of DNA repair genes associated with double-strand break repair, and altered mitochondrial function. The objective of this study is to determine the role of AG in inflammation in prostate cancer. Method: Microarray analysis of tumors treated with Andrographolide 10 mg/kg and their vehicle were conducted. Tumors were developed using a xenograft model in which the prostates of SCID mice were injected with 22RV1, and mice were treated three times per week with Andrographolide 10 mg/kg. Tumor tissues were collected and snap frozen. Gene expression was identified and analyzed using the Affymetrix GeneChip® Human Gene 2.0 array. Results: Using Ingenuity Pathway Analysis (IPA) we found that Andrographolide 10 mg/kg altered genes associated with an inflammatory response such as ATM, DHFR, HIF-1- α , CDKAL1, DHFR, NOX1, C5, CCL4, COG6, SUPT20H, CA5B, TTC3. To determine changes in cytokine expression in PC3 prostate cancer cells and 22RV1 prostate carcinoma epithelial cell line treated with 25 μ M Andrographolide, we used the Abcam Cytokine Antibody Array test®. PC3 prostate cancer cells treated with Andrographolide showed altered expression of cytokines such as IL-2, TNF- α , TNF- β , EGF, IGF-1, ENA-78, GM-CSF, GRO, GRO- α , I-309, and Angiogenin. Conclusion: These results showed that AG may alter the tumor microenvironment promoting the secretion of diverse cytokines that may inhibit tumor development. Understanding these biological pathways and networks is essential to determine possible targets of Andrographolide in prostate cancer. Acknowledgments: This research was supported by NIH/NCI: U54 CA096297/CA096300 and Seed funds from the Comprehensive Cancer Center of the University of Puerto Rico.

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Preocupación de riesgo a caídas en la población de adultos de 65 años o más en Puerto Rico

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Trasfondo y objetivos: La población de personas viejas está creciendo significativamente en Puerto Rico (Oficina del Procurador de las Personas de Edad Avanzada de Puerto Rico, 2017). Como resultado del proceso de desarrollo, la capacidad y habilidad para realizar tareas, quedan comprometidas siendo el riesgo a las caídas uno de los problemas significativos que se desprenden de esta realidad (Ramos Vieira et al., 2015). Este estudio integra cuatro objetivos: (1)



Describir la preocupación sobre el riesgo a caídas que presentan. (2) Describir la percepción de salud que presentan. (3) Identificar los niveles de preocupación en diferentes actividades cotidianas mediante la escala The Falls Efficacy Scale-International (FES-I). (4) Establecer relaciones y diferencias respecto a la preocupación de riesgo a caídas que presentan, de acuerdo con el historial previo de caídas y su percepción de salud actual. Metodología: Se utilizó un diseño transversal, cuantitativo descriptivo. Se aplicaron dos instrumentos: Cuestionario de Datos Demográficos, de Preocupación de Salud y Miedo a Caídas, y la escala The Falls Efficacy Scale-International. Resultados: El promedio obtenido en la FES-I fue de 33.7 con una desviación típica de 11.5. Diez participantes mostraron tener una preocupación leve; 16 indicaron tener una preocupación moderada a caer; y 44 participantes estuvieron severamente preocupados a caer. En esta cohorte, no se halló relación entre edad, sexo, y escolaridad con la puntuación del FES-I. Conclusión: Se observó que mientras la persona mostraba una mejor percepción de la salud menos fue la puntuación en el FES-I, lo que sugiere un menor grado de preocupación a caer. Estos hallazgos están a tono con la literatura revisada sobre la pérdida de habilidades para realizar actividades de vida diaria con el pasar del tiempo, llevar una vida sedentaria, la falta de actividad física o ejercicios de manera consistente, y el padecimiento de condiciones crónicas de salud.

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Health and Socio-Demographic Determinants Influencing Adherence and Access to Treatment for Hearing Loss in Puerto Rican Adults

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Cristina Rivera-Febres and Marcos Roche Miranda*

This research is the first study performed in Puerto Rico addressing the status of access to intervention and treatment adherence in the Hearing-Impaired Adult population living in Puerto Rico. Our goal is to acquire data that will contribute to the understanding of the needs and challenges that these patients face and their barriers. The main objectives are to obtain a preliminary profile of the adult Puerto Rican patient with hearing impairment and to identify the factors, variables, and barriers that these patients face accessing intervention and adhering to it. Adults between the ages of 21 and 64 years old were surveyed using a questionnaire guided to obtain information regarding their socio-demographic, health characteristics and the variables associated to treatment access and adherence to intervention. A descriptive approach was used to create the sample profile and an age stratified analysis to interpret the data. The identified variables associated to treatment access and adherence were identified and analyzed to study if the possible geographic zone and socio-economical association. Preliminary results suggest that regardless of the subjects age and degree of hearing loss their socio-economical strata is a decisive factor in treatment adherence as well as the lack of medical insurance coverage for therapy, hearing prosthesis and assistive technology for the hearing-impaired. Access to service was found to be a barrier associated to the subject's geographical place of origin. This suggests that there is an association between the socio-economic status of the Puerto Rican hearing impaired adult patient, the lack of medical coverage and the level of treatment adherence. Patients from a lower socio-economic status exhibited less adherence which points to a health inequity for this population. Lack of access reported by participants from towns distant from the metropolitan area depicts another form of health disparity for these patients that should be addressed.

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Three-dimensional Accuracy of Conventional versus Digital Strategies Complete Arch Impressions

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Background: Literature on three-dimensional (3D) accuracy of conventional and intraoral digital impressions for completely edentulous patients with implants is limited. Objective: Compare 3D accuracy of three scan strategies and conventional impressions using a completely edentulous arch with six implants. Methods: A completely edentulous maxillary Typodont master model was fabricated with six equigingival implants at 0° angulation. Ten splinted open



tray conventional impressions were made and poured in type IV stone. Master model and conventional casts were digitalized with a high-resolution Ceramill Map 400 scanner. Calibrated operators made digital impressions with an intra-oral Trios scanner following three scan strategies: DIG1 (occlusal-palatal-lingual), DIG2 (buccal-occlusal-palatal with S-type movement), and DIG3 (scanning two half arches with midline stitching), each repeated 10 times on master model. STL datasets from test groups were compared with master model's STL using PC-DMISCAD++ software to assess 3D deviations. Linear distortions (dx, dy, dz), global linear distortion (dR) and angular distortions (absolute $\theta(X)$, $\theta(Y)$) were calculated for four techniques and summarized in terms of means (standard deviations) and medians. Kruskal-Wallis test, linear mixed and logistic regression models were used to compare original and binary distortion (using clinically significant thresholds of 0.4° and 100um) between techniques. Results: DIG1 strategy was the only method providing clinically acceptable reproductions with $< 0.4^\circ$ of angular distortion but registered above 100um thresholds of dR. CONV showed the lowest mean global linear distortion (90um; SD: 60 um). There were significant differences between the methods for all distortion measures. Compared to the conventional, all digital methods had higher odds of significant linear distortion (dR>100um), the highest OR: 2.62 (95% CI: 1.39-4.93) for DIG1. Conclusion: None of the techniques reproduced master model implant 3D positions below clinically significant thresholds for dR and angular distortions. Digital strategies tested were less accurate 3D than conventional technique.

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Natural compound PSP limits HIV-1 infection by modulating cytoskeletal activity through UPR signaling.

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Introduction: There is an urgent need to characterize treatment options to restrict HIV entry. Actin's cytoskeleton represents a physical barrier during HIV entry by depolymerization of actin's filaments. The Unfolded Protein Response (UPR), a cytoprotective mechanism against endoplasmic reticulum stress, has been linked to interferon-induced proteins including Protein Kinase-R, an immune and cytoskeletal regulator. This study sought to determine the anti-HIV roles of PolySaccharide Peptide (PSP) extracted from the mushroom *Coriolus Versicolor*. We therefore hypothesize that PSP increases restriction of HIV entry via cytoskeleton re-arrangement induced by activation of the UPR. Our long-term goal is to investigate the role of this natural compound in actin filaments dynamics during the early stage of HIV entry *ex-vivo*; as this discovery will increase the host defense against HIV. Methods: The anti-HIV entry role of PSP was evaluated using THP-1 monocytic cell treated with 200µg/ml for a 6-days period, prior/after infection. Isobaric Tandem Mass Tag quantitative proteomics was performed to evaluate the mechanistic regulation in cytoskeleton. Viral load analysis was performed to assess total viral particles present after treatment. The UPR components and cytoskeletal markers were measured by means of immunoblotting and quantitative Reverse Transcription Polymerase Chain Reaction (qRT-PCR). Results: Quantitative proteomic data, validated by immunoblot revealed a total of 110 cytoskeletal and 31 folding-related proteins differently regulated upon PSP treatment, including SSH-phosphatase and tropomodulin which negatively impacts HIV-entry. Similar expression patterns between qRT-PCR and proteomics were obtained for the highly expressed cytoskeletal markers Cofilin-1/Gelsolin. Viral load analysis revealed an average of 73% viral restriction taking place. Taken together, these findings suggest that PSP upregulates UPR components and key cytoskeleton markers in the reverse regulative order of HIV-induced mechanism. Conclusion: Overall our results demonstrate for the first time, a PSP-induced role towards interferons and cytoskeleton re-arrangement providing a unique model for anti-HIV therapeutics. Acknowledgements: This research was supported by Puerto Rico Science, Technology and Research Trust (PRSTRT 2020-00158) and Title V grant (7466-05-JM-746600) awarded to Nawal M. Boukli from the Universidad Central del Caribe, School of Medicine.



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**Evolución del perfil sociodemográfico del estudiantado de nuevo ingreso de la Universidad de Puerto Rico
Recinto de Río Piedras, 2005-2016**

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Trasfondo y Objetivos: Desde el 2006, la economía puertorriqueña se contrajo en más del 10% al tiempo que su deuda creció a niveles históricos. Una década después, el Congreso estadounidense impuso una Junta de Control Fiscal cuyas medidas de austeridad amenazan servicios tan esenciales como la educación pública. A nivel superior, la Universidad de Puerto Rico perdió casi la mitad del presupuesto en tan sólo cuatro años. Pese a la crisis fiscal, tan sólo el Recinto de Río Piedras atrajo sobre 29,000 estudiantes de nuevo ingreso entre 2005 a 2016, por lo que se teoriza que aún con menos recursos el Recinto mantiene una matrícula estable. Este estudio presenta la evolución del perfil sociodemográfico del estudiantado de nuevo ingreso en el Recinto de Río Piedras durante este periodo. **Método:** Investigación descriptiva a partir de datos agrupados en Excel desde 2005 a 2016 de los estudiantes de nuevo ingreso, provenientes de la Oficina de Planificación Estratégica y Presupuesto del Recinto de Río Piedras de la Universidad de Puerto Rico. Las variables consideradas fueron sexo, edad, escuela de procedencia del estudiante, escolaridad del padre y la madre, y grados conferidos. **Resultados:** Cerca de dos terceras partes del estudiantado de nuevo ingreso en el periodo analizado fueron mujeres. La edad promedio de los estudiantes fue 18.7, aunque hubo alumnos de más de 64 años. El 59% de la matrícula se graduó de una escuela superior privada. Durante este periodo, la escolaridad de la madre de los nuevos estudiantes aumentó. **Conclusión:** Durante el periodo analizado, las características de edad, sexo y escuela de procedencia no sufrieron cambios importantes en el perfil del estudiante de nuevo ingreso. Sin embargo, el nivel de escolaridad de padres y madres del estudiantado superó la escuela superior y el Recinto confirmó 34,384 grados pese a la depresión económica nacional. **Agradecimientos:** Universidad de Puerto Rico, Dra. Ana L. Dávila Román, Instituto de Estadísticas de Puerto Rico.

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Developing an Ecosystem to promote Global Health Equity between Africa and Latin America and the Caribbean through Public Private Partnership

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Setting/problem: Noncommunicable diseases such as asthma and obesity disparately affect communities in Africa and Latin America and the Caribbean. However, researchers in developing regions have limited resources to address these issues. **Intervention:** We developed a public-private partnership between Research Institute for Global Health Promotion and Health Education (IIPESAG), University of Puerto Rico and Building your West Africa for Healthy Living Leadership and Education (B.A.L.L.E) Foundation (Ghana). The 5 years partnership “enables the collaboration between the two institutions in furtherance of conducting joint and shared research in areas that are related with health disparities, education, leadership, the global syndemic of obesity, undernutrition and climate change, noncommunicable diseases and risk factors, women and girls' health, Sustainable Development Goals related to populations in Africa, Latin American and the Caribbean and globally, among others”. A collaborative agreement with mechanisms for mediation will be co-developed to address any challenges. **Outcomes:** A Memorandum of Agreement has been completed. Two systematic reviews are in progress. Other Year 1 Outcomes include three conference abstracts, a hybrid webinar. Year



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2 and 3 will include funding for capacity-building through research, global health equity fellowship and community exchange programs. Implications: This is the first partnership between UPR and an African institution. This partnership lays the foundation for an ecosystem of skilled and experienced global health equity researchers and community members to conduct inter-regional, intercultural, multidisciplinary, intercultural, multisectoral and multi-institutional projects to eliminate health disparities such as asthma and obesity among communities in Africa and Latin America and the Caribbean. Acknowledgments: Research Institute for Global Health Promotion and Health Education (IIPESAG) University of Puerto Rico and the B.A.L.L.E. Foundation, Ghana, Africa

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Severe Systemic Lupus Erythematosus Exacerbation following mRNA-based SARS-CoV-2 vaccination

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Purpose: Systemic lupus erythematosus (SLE) is a chronic autoimmune disease characterized by the loss of self-tolerance and subsequent immune dysregulation. Its etiology has been associated with multiple external factors, including immunizations. Herein, we present a patient with SLE who developed a severe exacerbation following mRNA SARS-CoV-2 vaccination. Case Description: A 39-year-old man with SLE presented with a 2-week history of fatigue and bilateral upper and lower extremity muscle weakness. Symptoms started 3-weeks after the first dose of mRNA SARS CoV-2 vaccine with rapid progression to facial weakness, dysphagia, weak cough, and poor chest expansion. Neurological exam showed severe muscle weakness 2/5 in proximal upper and lower extremities, facial weakness, left foot drop and hyporeflexia. Laboratory tests showed leukopenia, lymphopenia, and proteinuria. C3 and C4 complement levels were low. Anti-dsDNA antibodies were elevated. CPK and aldolase were normal. Magnetic resonance imaging of the brain and spine were negative for demyelinating lesions. Cerebral spinal fluid analysis showed elevated proteins. Electrodiagnostic studies suggested mononeuritis multiplex with superimposed myopathic process and active denervation secondary to inflammatory myositis. He was treated with intravenous (IV) methylprednisolone 2mg/kg daily, 5 days of IV immunoglobulins 0.4g/kg and Rituximab 375mg/m² weekly for 4 doses, followed by oral prednisone and mycophenolate mofetil. After 6-months follow-up, muscle strength has markedly improved, and he can walk with a walker. Conclusion: To the best of our knowledge, we report the first case of severe SLE exacerbation induced by the mRNA SARS CoV-2 vaccine. Immunity is elicited through the production of high levels of spike proteins and subsequent type I interferon response, which is also a major component in the pathogenesis of SLE. This case highlights that severe flares with vaccination in this population are possible. High index of suspicion to identify and treat these flares may significantly reduce morbidity and mortality. Acknowledgements: None

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In Covid-19-Era, Are Parents Satisfied With Telemedicine For The Follow-Up On Infants Discharged From The Neonatal Intensive Care Unit?

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Introduction: Telemedicine continues to be recognized by the American Academy of Pediatrics as an important strategy on improving pediatric care. However, there is scarce knowledge of its impacts on infants' post discharge from the Neonatal Intensive Care Unit (NICU). In our hospital, since July 2020, COVID-19 era, we have adapted telemedicine in



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our High-Risk Clinics (HRC) for the first visit post-discharge of NICU. The objective of this study is to describe the impact of telemedicine in our clinics based on parental satisfaction. Methods: Parental satisfaction comparing telemedicine and in-person visits was assessed thru anonymous survey performed to parents who attended the University Pediatric Hospital HRC. Statistix 8.0 was used for analysis. IRB approved. Results: Subjects included 16 parents (23-51 y/o). Infants were born at a mean 35 weeks gestation (range 26-39). Parents reported telemedicine visits help decrease costs (93%) and time consumed (93%) and are valuable for understanding infants' medical condition (43%). During the pandemic most parents (79%) prefer these visits over in-person visits and 43% would prefer them after the pandemic ends. Willingness to use video during visits was reported by 79%. Conclusions: Continued evaluation of telemedicine visits will continue to better define the impact in our community during this health crisis period. At this moment there is no video available at our clinic, so visits are only by telephone. Having this tool may improve parents' satisfaction further. Our next step is to evaluate factors associated to adherence to telemedicine visits.

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Riesgo de complicaciones hospitalarias en pacientes con enfermedad polivascular aterotrombótica

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Trasfondo y objetivo: La enfermedad polivascular aterotrombótica se define como la presencia de lesiones ateroscleróticas en dos o más lechos arteriales. Se ha observado que pacientes con enfermedad polivascular tienen un mayor número de eventos cardiovasculares en comparación con los que no tienen esta condición. El objetivo de este estudio fue evaluar la ocurrencia de una muerte hospitalaria o un resultado combinado de eventos isquémicos durante la hospitalización de pacientes con enfermedad polivascular. **Métodos:** Se realizó un estudio epidemiológico de cohorte histórico utilizando datos del Sistema de Vigilancia Cardiovascular de Puerto Rico. Al momento de realizar este estudio, se disponía de una base de datos con 7,360 observaciones correspondientes a los años 2007, 2009 y 2011. Luego de aplicar los criterios de inclusión para este análisis secundario, el tamaño final del estudio fue de 4,771. **Resultados:** La prevalencia estimada de enfermedad polivascular en la muestra fue 10.7% (IC 95%: 9.8%-11.7%). Se evidenció que el odds estimado de ocurrir una muerte hospitalaria en pacientes con enfermedad polivascular fue 44% (IORajustado: 1.44, IC 95%: 1.04-1.98, $p = 0.027$) mayor que el odds estimado de ocurrir una muerte hospitalaria en pacientes con enfermedad de un lecho arterial. Por otro lado, el odds estimado de desarrollar un resultado combinado de eventos isquémicos durante las primeras 24 horas de hospitalización en pacientes con enfermedad polivascular fue 30% (IORajustado: 1.30, IC 95%: 0.94-1.80, $p = 0.114$) mayor que el odds estimado de desarrollar un resultado combinado de eventos isquémicos durante las primeras 24 horas de hospitalización en pacientes con enfermedad de un lecho arterial. **Conclusión:** En general se demostró diferencias en la ocurrencia de un resultado combinado de eventos isquémicos según número de lechos afectados, controlando por el efecto de las diferentes características demográficas y clínicas; como consecuencia, también se demostró disparidad en las muertes hospitalarias. **Agradecimientos:** Este estudio fue apoyado en parte por el Centro Dotal de Investigaciones de Servicios de Salud de la Universidad de Puerto Rico a través de las subvenciones 5S21MD000242 y 5S21MD000138, del Instituto Nacional de Salud de las Minorías y Disparidades de Salud de los Institutos Nacionales de Salud. Su contenido es responsabilidad exclusiva de los autores y no necesariamente representa la opinión oficial del Centro Dotal de Investigaciones de Servicios de Salud, la Facultad de Medicina de la Universidad de Puerto Rico o el Instituto Nacional de Salud de las Minorías y Disparidades de Salud de los Institutos Nacionales de Salud.



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Assessing The Need Of Lactation Support Via Telehealth As An Educational Tool To Maintain Exclusive Breastfeeding For The First Six Months Of Life Of Infants Born At The University District Hospital (UDH)

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Background: The American Academy of Pediatrics recommends exclusive breastfeeding as the gold standard for infant nutrition for at least the first six months. Even though lactation benefits have been widely documented, compliance with this recommendation has been difficult to obtain. In Puerto Rico, data regarding breastfeeding interventions success rates and factors leading to breastfeeding cessation are lacking. This study aims to assess the need for lactation support via telehealth as a tool to improve breastfeeding among women delivering at UDH. IRB approved. Methods: A needs assessment consisting of an eight-question survey based on the Ten Steps of Successful Breastfeeding was administered to 10 mothers who gave birth in UDH. Furtherly, 14 mothers were recruited to complete a questionnaire before discharge and were followed-up by telehealth. A follow-up survey was administered and education about breastfeeding was provided. A descriptive analysis was performed using data obtained from the surveys. These subjects are enrolled in an ongoing quality improvement project. Results: On needs assessment, 29% answered they breastfed within the first hour after delivery, however, all infants were fed with formula during early newborn care. All mothers planned to breastfeed at home, 43% exclusively. Twelve mothers answered follow-up telehealth calls. Seventy-five percent of mothers were breastfeeding, but only 8% were doing it exclusively. Fifty-eight percent reported difficulties: inadequate milk production (most common), inverted nipple, latch problems, mastitis, laceration, and baby falling asleep before completing full feedings. Most mothers (58%) did not have breastfeeding support from a lactation specialist. Most mothers answered follow-up calls and stated telehealth was effective to clarify doubts and learn more about lactation. Conclusions: This study suggests the need of developing strategies to support breastfeeding at UDH. Telehealth is an alternative tool for mothers to receive support and education. Main limitations were insufficient sample size and challenges in telehealth answering. Acknowledgments: We appreciate the collaboration of all mothers who participated in this study. Thanks to our mentors, the University District Hospital, and the Pediatrics Department of the University of Puerto Rico for their support.

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Parental and Epidemiological profile associated to Vertebral Malformations in The Puerto Rican Population

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Objective. To evaluate the parental epidemiology and exposures risk factors associated with vertebral malformations (VMs) in Puerto Rico (PR), including epigenetic issues such as lifestyle during pregnancy, prenatal care, medications, family clinical history, and Diabetes. Method. A multi-site, clinic-based, case-control study of maternal and parental exposures in utero with VM was performed. 53 parents enrolled with a child born in PR with confirmed VM and compared with 53 parents of children without any VM. Recruitment was from July 2020-February 2021. A confidential questionnaire was completed, and risk factors were compared between parents. Results. Fathers with pesticide exposure during pregnancy had 5.74 times higher risk of VM development in their offspring than the parents that were not exposed. Allergy medications in females (OR=7.25) during pregnancy was a risk factor for VM development. The use of vitamins (OR=0.27) was a protective factor during pregnancy. Conclusions. Some epigenetic factors were identified that increase the risk of VM during pregnancy resulting in health effects in offspring. It is recommended to continue to educate populations in understanding how prenatal exposures can translate to offspring malformations.



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Human brain organoids as a model to study HIV-associated neurocognitive disorders.

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Background & Objectives: Human immunodeficiency virus (HIV) targets immune cells, including T lymphocytes and monocytes. It is not clear under what circumstances monocytes perform neuroprotective functions or contribute to neuroinflammation and neuronal damage. Therefore, the role of monocytes/macrophages in the neuropathogenesis of neurodegenerative disorders needs to be studied further. For this project, we focused on the neuropathogenesis of HIV-associated neurocognitive disorders (HAND) using monocytes and brain organoid models. Brain organoids are a novel 3D-culture model in which organ-like tissues recapitulate characteristics of the human brain in vitro and can be used to study mechanisms and intercellular interactions during disease. Our goal is to identify inflammatory and neuronal injury markers associated with cognitive decline by comparing brain organoids exposed to monocytes from cognitive impaired HIV infected patients. **Methods:** We differentiated human inducible pluripotent stem cells (iPSCs) into 3D cultures and grew brain organoids for 75 days. The brain organoids were then co-cultured with monocytes derived from patients with HAND and were afterwards fixed and homogenized. We tested differentiation markers using immunofluorescence (IF) confocal microscopy and western blot. **Results:** We confirmed that iPSCs differentiated into brain organoids by a lower expression of a pluripotency marker (SOX2). High expression of vesicular glutamate transporter (VGLUT1), pre-synaptic vesicles (synaptophysin), and microtubule associated protein (MAP2) markers confirmed the presence of functional neurons in organoids, and glial fibrillary acidic protein (GFAP) marker confirmed the presence of differentiated glia in IF pictures. **Conclusions:** Brain organoids are an effective model to study how HIV-infected monocytes infiltrate the brain. It will allow us to study further mechanisms altered in the brain upon monocyte infiltration and identify novel therapeutic approaches for HAND patients. **Acknowledgements:** Supported by NIH grants: 5R25NS09409, 1K22NS118975, R01NS099036, U54GM133807, U54MD007600, P20GM103642.

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Investigación Clínica y Traslacional: Logros de los Participantes y Contribución del Proyecto Título V Cooperativo a Futuros Investigadores

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Trasfondo: Entre el 2017 y el 2021, el Proyecto Título V Cooperativo RCM-UPR y UCC estableció dos ciclos de adiestramientos en investigación clínica y traslacional (ICT): RETO-MOTOR 1 y RETO-MOTOR 2. El propósito de esta iniciativa fue promover el interés por la ICT de los estudiantes y docentes de ambas instituciones. Cada ciclo de adiestramientos consistió en nueve talleres ofrecidos en la modalidad presencial o virtual. Además, contaron con investigadores reconocidos como recursos. Después de haber sido certificados, los participantes tuvieron la oportunidad de pertenecer a un equipo de investigación con un mentor (CTMT) de acuerdo con su área de interés. **Objetivos:** 1) Describir los logros más significativos de los participantes luego de haber sido parte del Proyecto; 2) Detallar las contribuciones del Proyecto en el desarrollo de futuros investigadores. **Método:** Se administró una encuesta virtual a los participantes para auscultar sus logros y la contribución del Proyecto a sus futuras carreras de investigación. La encuesta constó de preguntas cerradas y abiertas. **Resultados:** La encuesta fue contestada por 28 participantes. El 89% indicó que los conocimientos y destrezas adquiridas fueron invaluable y muy valiosos. El establecer nuevas colaboraciones fue identificado como el logro más significativo por los estudiantes (59%) y por los docentes (52%). Un



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64% de los participantes indicó tener interés en continuar realizando ICT. Además, expresaron que el Proyecto contribuyó en su desarrollo como futuros investigadores de las siguientes formas: “me ha permitido publicar”, “presentar un poster en una conferencia”, “colaboración multidisciplinaria”, entre otras. Conclusión: El modelo implementado demostró ser exitoso al contribuir con el desarrollo de futuros investigadores clínicos y traslacionales en Puerto Rico. Con el propósito de continuar apoyando a estos investigadores, el Proyecto Título V RCM ofrece la oportunidad de someter propuestas para proyectos piloto a los participantes del Proyecto Cooperativo. Subvencionado por el Departamento de Educación Federal a través del Grant Número P031S160068.

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Covid 19 Vaccine Rate and Attitudes towards Booster among a Hispanic Pregnant population in Puerto Rico

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Background & Objectives: Pregnant women are more at risk of developing severe symptoms with Covid-19. Currently, there are prevention methods such as the usage of a facemask, social distancing and vaccines. Recently, a booster was approved for people who were already fully vaccinated. The aim of the study is to identify the vaccination rate and the attitudes towards receiving a booster in a Hispanic population of pregnant women. **Methods:** IRB approval was obtained. Pregnant women and women who delivered in less than 28 days, and were over the age of 21, were recruited from November 2021 to January 2022. The participants completed a self-administered online survey including questions about their current vaccination status and desire to get a booster. **Descriptive analysis** was performed. **Results:** 95 participants were recruited for this study. Seventy-nine participants (83%) were fully vaccinated with 1 or 2 shots of J&J or Moderna/Pfizer, respectively. Eight (8%) participants were partially vaccinated with one dose of Moderna or Pfizer; 8 (8%) participants were not vaccinated. Fifty-eight participants (61%) were interested on the booster vaccine during pregnancy; 34 (36%) were not interested. Out of those 34, the main reasons were not feeling safe with the vaccine (32%), availability or lack of information about the vaccine (21%), lack of trust in the vaccine (15%) and not interested at all on getting vaccinated (12%). **Conclusion:** Current vaccination campaigns in Puerto Rico have been effective as 83% of the pregnant participants were fully vaccinated and 8% were partially vaccinated. More than 60% were interested on acquiring the booster vaccine, which protect women on getting severe symptoms of COVID-19 during pregnancy. It is important to continue educating pregnant women about the vaccine and its protective benefits for mother and baby to increase the vaccination rate among this population. **Acknowledgements:** None

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Diferencias por edad y sexo en el riesgo de complicaciones hospitalarias en pacientes admitidos por un infarto al miocardio

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Trasfondo y objetivos: Las diferencias en la presentación, manejo hospitalario y los resultados de un infarto agudo al miocardio entre hombres y mujeres han sido documentadas en diferentes estudios, observándose resultados con mayor riesgo en mujeres. Este estudio de cohorte histórico tuvo como objetivo estimar la magnitud de la asociación entre características demográficas (sexo y edad) y las complicaciones hospitalarias en pacientes admitidos por infarto al miocardio controlando por variables potenciales de confusión. **Métodos:** Las complicaciones hospitalarias se consideraron durante las primeras 24 horas de hospitalización fueron clasificadas en mayores y menores. Las complicaciones mayores estudiadas fueron fallo congestivo, arresto cardíaco, infarto al miocardio recurrente y evento cerebrovascular. Las complicaciones menores fueron choque cardiogénico, fallo renal y pulmonía. Se realizó un análisis secundario del Sistema de Vigilancia Cardiovascular de Puerto Rico que contiene datos de 19 hospitales en Puerto Rico. **Resultados:** El



análisis de datos indica que las mujeres tuvieron una edad promedio mayor (70.0 ± 12.9 años) en comparación con los hombres (65.0 ± 13.4 años). Además, se observó que los hombres fueron sometidos con mayor frecuencia ($p < 0.05$) a terapias de revascularización como: intervención coronaria percutánea (IOR: 1.34, IC 95%: 1.15-1.57), cirugía de puente aortocoronario (IOR: 1.66, IC 95%: 1.31-2.11) y colocación de malla coronaria (IOR: 1.36, IC 95%: 1.16-1.58). Estos incrementos se observaron en los diferentes grupos de edad. Con respecto a las complicaciones hospitalarias, los hombres tienen menor posibilidad de desarrollar una complicación mayor, la cual fue consistente entre los pacientes de 60-69 años y 80 años o más; sin embargo, estos resultados no alcanzaron significancia estadística ($p \geq 0.05$). Finalmente, se evidenció que los hombres presentaron menor posibilidad de muerte hospitalaria en comparación con las mujeres ($p < 0.05$). Conclusión: Se recomienda continuar estudios adicionales que aporten al análisis de estas diferencias para garantizar un manejo hospitalario equitativo, previniendo diferencias por sexo en la investigación cardiovascular. Agradecimientos: Este estudio fue apoyado en parte por el Centro Dotal de Investigaciones de Servicios de Salud de la Escuela de Medicina de la Universidad de Puerto Rico a través de las subvenciones 5S21MD000242 y 5S21MD000138 del Instituto Nacional de Salud de las Minorías y Disparidades de Salud de los Institutos Nacionales de Salud. Su contenido es responsabilidad exclusiva de los autores y no necesariamente representa la opinión oficial del Centro Dotal de Investigaciones de Servicios de Salud de la Escuela de Medicina de la Universidad de Puerto Rico o el Instituto Nacional de la Salud de las Minorías y Disparidades de Salud de los Institutos Nacionales de Salud.

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Aberrant lipid metabolism and alternative macrophage activation in therapy-resistant prostate cancer

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Background and Objectives. Docetaxel significantly increases overall survival in patients with advanced prostate cancer (PCa). However, the inevitable emergence of resistance diminishes its efficacy. Fatty acid synthase (FASN) drives lipogenesis, a process associated with docetaxel resistance and an immunosuppressive tumor microenvironment. We hypothesize that FASN-dependent lipogenesis in docetaxel-resistant PCa cells promotes the reprogramming of monocytes toward tumor-permissive M2-like macrophages. **Methods.** The lipogenic phenotype of docetaxel-resistant PCa cells was evaluated using quantification of intracellular lipid accumulation and docetaxel re-sensitization via MTT assays following targeted inhibition of lipogenic enzymes. Wound healing assays were conducted to evaluate the role of lipogenesis on aggressive feature of cellular migration in resistant cells. To test the tumor-immune interface, we then co-cultured monocytes with docetaxel-resistant PCa cells and performed multiparameter flow cytometry to detect macrophage polarization. Finally, multiplex immunohistochemistry was used to correlate FASN expression and tumor-associated macrophage frequency with metastasis using human prostate TMAs. **Results.** We demonstrate that chemoresistance is associated with enhanced lipogenic metabolism in PCa cells. Inhibition of lipogenic enzymes enhances docetaxel sensitivity and impairs migrative capacity in resistant cells. Our tumor-monocyte co-culture studies suggest that inhibition of FASN in PCa cells prior to co-culture with monocytes may increase the M1:M2 ratio in polarized macrophages. Finally, FASN intensity and tumor-associated macrophages evaluation indicates that both correlate with metastasis. Notably, FASN and CD68 detection are correlated with each other in both localized ($R=0.8784$, $p=0.009$) and metastatic ($R=0.9552$, $p=0.0001$) prostate tissues. These findings were validated using fluorescent multiplex immunohistochemistry, paving the way for high-dimension analyses of lipid metabolism and immune cell infiltrates in prostate tumors. **Conclusion.** These results indicate that the FASN-dependent lipogenic phenotype of docetaxel-resistant PCa cells promotes the reprogramming of the tumor immune microenvironment. Furthermore, evaluation of tumor-infiltrating macrophages in the context of enhanced lipogenesis may hold prognostic significance for men with prostate cancer. **Acknowledgements.** This study was supported by the following: Puerto Rico Science, Technology and Research Trust Catalyzer Research Grant, U54 Ponce Health Sciences University (PHSU) - Moffitt Cancer Center (MCC) Partnership (U54CA163071 & U54CA163068) and Ponce Research Institute startup funds.



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Cognitive and neuronal function improvement after Leukemia Inhibitory Factor treatment in HIV-Nef affected Animal Models

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Neurotoxic proteins such as HIV-Nef can cause possible functional impairment in normal brain function. HIV associated neurocognitive disorders (HAND) vary in form and have a rising pathological prevalence amongst the HIV affected population. The most severe form of HAND is HIV associated dementia (HAD), causing changes in personality, motor abilities, and learning processes among others. Neurotoxic proteins such as HIV-nef protein cause long term damage to neuronal health and lower overall cognitive capacity in humans due to degradation of neurons and astrocytic impairments, which provides for a greater chance of developing HAD or other forms of HAND. Through the use of behavioral testing, spatial orientation, and object recognition memory measurements, the neurocognitive integrity of our models can be studied, measured and analyzed. Using leukemia inhibitory factors, neuroprotective properties can be achieved, with the purpose of improving overall neuronal health and memory capacity in vivo. Using behavioral experimentation, the cognitive decline in animal models can be measured as a method of reflecting HIV-Nef properties in hippocampal tissue, as well as demonstrating the neuroprotective effects of leukemia inhibitory factor. Our research can provide for a possible pathway of treatment for the pathological effects of HIV-nef protein in a near future. Neuronal health and cognitive capabilities of affected individuals can be possibly improved, providing for a better quality of life and optimal end results in patients who are affected by the neurotoxic viral proteins of HIV.

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A Formative Assessment for The Implementation Of An Educational Intervention To Increase COVID-19 Booster: The Puerto Rico Vaccine Uptake Study (PR-COVACUPS)

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Background and Objectives: Puerto Rico has one of the highest COVID-19 vaccination uptake rates in the US. However, only 47.8% of the eligible population have received the vaccine booster, highlighting ongoing challenges for booster acceptance in the archipelago despite this unprecedented milestone in vaccine uptake. The Puerto Rico (PR) COVID-19 Vaccine Uptake Study (PR-COVACUPS) will evaluate the efficacy of an educational intervention to reduce COVID-19 vaccine booster hesitancy and uptake in a vulnerable and socioeconomically disadvantaged population group in Puerto Rico. **Methods:** A total of twenty (n=20) key informant interviews were conducted via Zoom with health professionals from the University of Puerto Rico School of Medicine Outpatient Clinics. A semi-structured and conversational guide, covering the relevant constructs selected in each of the five Consolidated Framework for Implementation Research, was used to identify barriers and facilitators related to implementing a low-literacy patient education tool to increase acceptability, uptake, and adherence to the COVID-19 vaccine. **Results:** According to key informants, the main reasons for the COVID-19 vaccines' booster hesitancy include concerns about their efficacy and safety, fear of vaccines' side effects and its components, disinformation due to unreliable sources, problems of access to transportation, lack of time and location to get the vaccine, and pre-existing conditions. Key informants reported the willingness to participate in future research studies related to COVID-19 vaccination. Recommendations were made regarding recruitment logistics and effective modalities to educate patients. **Conclusion:** This information will be used to design the educational material and website content to implement educational intervention to reduce COVID-19 vaccine booster hesitancy in a vulnerable and economically disadvantaged population group. **Acknowledgments:** This research is supported by NIH Grant 3U54MD007600-35S.



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Amyloid beta 1-40 expression in rat brain tissues after exposure 6-OHDA neurotoxin

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Background: Amyloid beta accumulation is associated to the development of dementia in patients with Parkinson's Disease (PD). Neuroinflammation brought on by this disease promotes mechanisms which include the degranulation of platelets and the subsequent deposition of amyloid beta. AB deposition then exacerbates the proinflammatory response, thereby forming a positive feedback loop between neuroinflammation, AB deposition and neuronal cell death. This is the basis for AB accumulation in response to neuronal cell degeneration. Thus, we hypothesized that dopaminergic (DA) cell death, the hallmark pathology in PD, will result in the accumulation of AB. Objective: The present study sought to further establish the presence and increase in concentrations of AB 1-40 peptide in tissues after exposure to 6-OHDA neurotoxin. Methods: Sprague Dawley rats were stereotaxically injected with 6-OHDA in the substantia nigra area of the brain. Presence of AB was determined by immunohistochemical staining viewed under confocal microscope as well as ELISA and Western Blot Assays. Results: Immunohistochemical staining confirmed the presence of AB in and around blood vessels adjacent to brain tissue sections exposed to the aforementioned neurotoxin. Furthermore, ELISA Assay showed greater concentrations of AB in tissues exposed to 6-OHDA when compared to negative control tissues. Conclusions: Preliminary results suggest that 6-OHDA neurotoxin elicits an increase in AB concentrations in rat brains. The identification of AB in brain tissues of 6-OHDA injected rat models is a step forward in understanding the molecular processes involved in the inevitable transition of Parkinson's Disease to dementia. Acknowledgments: Supported by Universidad Central Del Caribe (UCC) and the office of the Associate Dean for Research and Graduate Studies, The Alliance-NIMHD-NIH, Expanding Undergraduate Students Education, Opportunities and Options in Clinical and Translational Research Supported by the US Department of Education: Title V Grant Award#P031S160068 and MAC-FRED Program 2018. The research reported was supported by the National Institute of General Medical Sciences (NIGMS) of the National Institutes of Health under award number U54GM133807. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

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Comparison of demographic and clinical features of patients with confirmed and unconfirmed SARS-CoV-2 infection in a primary healthcare center in Puerto Rico

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Background and objectives: Several critical questions regarding the epidemiology and clinical characteristics of COVID-19 in Puerto Rico remain unknown. The study aimed to compare the demographic and clinical features of patients with confirmed and unconfirmed SARS-CoV-2 infection. Methods: The medical records of patients with suspected COVID-19 evaluated at a single primary health care clinic between April 1, 2020, and March 31, 2021, were reviewed.



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We retrospectively collected demographic, epidemiological, and clinical characteristics using REDCap web-based application. A confirmed COVID-19 case was defined as a person diagnosed with a molecularly confirmed COVID-19 by SARS-CoV-2 RT-PCR. Chi-square or Fisher's exact tests were used to compare categorical variables, whereas a two-sample t-test was used to compare continuous variables. Results: Of a total of 341 suspected patients (222 F, 119 M), 55.7% had confirmed SARS-CoV-2 infection. Compared to unconfirmed cases, individuals with confirmed SARS-CoV-2 infection were significantly ($p < 0.05$) younger (33.7 ± 19.5 vs. 42.2 ± 19.0), unaware of their exposure history (52.1% vs. 35.1%), and symptomatic (55.3% vs. 21.2%). The presentation of cough (23.7% vs. 8.6%), headache (22.6% vs. 5.3%), and fever (17.9% vs. 4%) was significantly higher among confirmed cases. However, the history of comorbidities (44.2% vs. 49.7%) was similar between groups, with hypertension, diabetes mellitus, and hyperlipidemia being the most prevalent conditions. Conclusion: In this single-center, over half of the suspected patients had a confirmed SARS-CoV-2 infection during the first year of the pandemic. Data collection efforts are underway to better characterize SARS-CoV-2 infection in the population served by these primary health care clinics. Acknowledgments: This work has been supported by the Puerto Rico Association of Primary Health Care Providers and by the grants 5S21MD000242 and 5S21MD000138 from NIH-NCMH and OT2HL161827 from NIH-NHLBI.

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Proteomics and cytokine analysis of Host factors associated with COVID-19 disease severity in Puerto Rico

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Background. Severe Acute Respiratory Syndrome virus (SARS-CoV-2) arrived to Puerto Rico in March, 2020 causing coronavirus 2019 disease (COVID-19) ranging from asymptomatic to severe with death. We hypothesize that host phenotype and immune response differences will determine COVID-19 disease severity and response to treatment. **Methods.** This is an IRB approved prospective study on 120 men and women ages 21-80 yrs in Puerto Rico. Plasma samples from 22 ($n=22$) COVID-19 positive patients with asymptomatic / mild symptoms ($n=8$), with moderate symptoms ($n=10$) and hospitalized with severe symptoms ($n=4$) and compared to COVID-19 matched negative controls ($n=8$). Cytokines associated with a severe COVID-19 outcome were identified and quantified using a human cytokine array. For quantitative proteomics analysis, the most abundant proteins in plasma were removed, and the rest were treated before using Tandem Mass Tag (TMT) Labeling. Labeled peptides were analyzed by Quantitative Mass Spectrometry and identified by Proteome Discoverer and Limma Statistics. **Results.** Five out of 18 tested cytokines resulted with significant differences between the groups (decreased pro-inflammatory and anti-inflammatory cytokines IL-8, IL-13, and increased IL 7, FGF, MCP-1). IL 7 promoted increased tissue destruction in chronic inflammation while FGF regulate cell survival. MCP-1 is an important chemoattractant of cells to tissues in innate immunity, associated with COVID-19 disease severity in other populations. Quantitative proteomics revealed 76 dysregulated significant proteins between the groups. Of these 2 were upregulated while 54 proteins were downregulated. Upregulated proteins in COVID-19 severe patients included hemoglobin and Serum Amyloid P component while downregulated proteins included those involved in metabolism, cellular organization, biogenesis, transport, and stress responses. **Conclusion.** This study uncovers protein and cytokine markers associated with the severity of COVID-19. Results reflect decreased cellular immunity and increased inflammatory responses. Further validation and genetic studies will determine the determinants of these host responses in our population. **Acknowledgements.** Grants U54MD007600, P20GM103475 and U54GM133807 and an UPR COVID19 provided support, as well as the UPR CCC.



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Validation of a Pharmacogenetic-guided Algorithm to Predict PRU Values in Caribbean Hispanics on Clopidogrel.

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Background & Objectives: The P2Y₁₂ receptor inhibitor, Clopidogrel, has been widely accepted as an effective antiplatelet drug to reduce major adversary cardiovascular events among patients with Acute Coronary Syndrome (ACS). Despite its effectiveness to reduce ADP-induced platelet aggregation, patients with High Residual Platelet Reactivity (HTPR) tend to display poor response to clopidogrel and greater risk for stent thrombosis and other ischemic events. A pharmacogenetic-guided algorithm has been developed to estimate Platelet Reactivity Unit (PRU) values via relevant pharmacogenes involved in clopidogrel pharmacogenomics with antiplatelet response in Caribbean Hispanics (CH). We hypothesized that if the selected genetic and clinical variables are successful in estimating true PRU values in CH patients on clopidogrel, then the algorithm is effective and accurate to guide antiplatelet therapy in the CH population. This study aims to validate the pharmacogenetic-guided algorithm among CH on clopidogrel. **Methods:** A cohort study was performed on 314 CH patients on clopidogrel 75 mg/day. Individual clinical and genetic data were collected from medical records across different medical institutions in Puerto Rico (approved by IRB, protocol #A4070417). Two different cutoff values were used to define HTPR (i.e., PRU \geq 208 & PRU \geq 230). PRU values were estimated using an unstandardized regression equation. Individually estimated PRUs were compared to their corresponding measured PRUs (P2Y₁₂ assay VerifyNow®). **Results:** When using 208 as cutoff, 23 (7.32%) patients were non-responders, while 291 (92.68%) were sensitive to clopidogrel. When using 230 as cutoff, 9 (2.87%) patients were non-responders, while 305 (97.13%) resulted to be sensitive to clopidogrel. **Conclusions:** In both cutoff points, more than 20% of estimated PRUs were different from measured PRU reading. Our results indicate that the algorithm is slightly effective for obtaining PRU values among Caribbean Hispanics, however assessment of additional clinical and genetic variables is required. **Acknowledgements:** This research was supported by NIMHD-RCMI grant #U54-MD007600.

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Interest, attitudes, and participation of Hispanics in Puerto Rico in COVID-19 trials: Results from PR-CEAL.

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Background & Objectives: The COVID-19 pandemic has led to an increase in the conduction of treatment and vaccine trials. However, most participants include non-Hispanic Whites, which could lead to under-representation of minority populations. We describe the interest, attitudes, and participation in COVID-19 related clinical trials in a sample of Hispanics living in Puerto Rico. **Methods:** We analyzed data collected from an ongoing cross-sectional study that collected information of 138 individuals aged \geq 21 years between November 2021 and January 2022. Information about demographics and participant's experience, attitudes, and beliefs about participating in COVID-19 related clinical



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trials was collected through a telephone interview. This study was approved by the IRB-MSC (A1810221). Results: Median age of participants was 57 years, and 71.0% were women. Most had at least a high-school degree (73.2%), an income \geq \$20,000 (59.7%), and private health insurance (51.9%). The majority were vaccinated against COVID-19 (97.1%), and 62.3% had received the booster dose. Nearly three quarters (70.3%) of participants were aware of the availability of COVID-19 clinical trials, but only 8% had been invited to participate. Nonetheless, 80.4% have thought about participating on a COVID-19 trial, and 72.8% are willing to participate in a trial to receive COVID-19 treatment if they become infected. One third of participants who had participated in a COVID-19 trial (n=6) indicated the importance of developing COVID-19 treatments as a strategy to return to normalcy. Reasons for refusal to participate in a trial included lack of enough information and fear about treatment safety. Conclusion: Our study findings show that there is interest in participating in COVID-19 related clinical trials; however, more efforts are needed to raise awareness in order to improve the likelihood of participation among Hispanic populations. Acknowledgments: NIMHD-10T2HL161827.

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Training the Next Generation of Cancer Prevention and Control Researchers with a Cultural Sensitivity to Hispanic Populations

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Background & Objectives: The Cancer Prevention and Control Cancer (CAPAC) Research Training Program at the University of Puerto Rico Comprehensive Cancer Center (UPRCCC) offers a 10 or 15-week hands-on summer research experience in Puerto Rico. CAPAC's goal is to increase the interest of master's and health professions students to execute a doctoral degree and/or professional career in cancer prevention and control research. **Methods:** In 2021, CAPAC successfully recruited 25 participants. Participants were matched to a mentor according to their research interest in basic, clinical, and population-based research at the UPRCCC and other institutions in PR. Activities included participation in a research project and complementary educational/professional skill-building activities related to cancer research. As part of the Program's evaluation, participants had to complete baseline and exit surveys. **Results:** During the 2021 admissions cycle, CAPAC received 70 applications. Among the 25 recruited participants, most were females (84%), from Hispanic/Latino (84%), and currently pursuing a master's degree (60%). In addition, 60% were from PR institutions, and for 72%, Spanish was their primary language. Concerning research assignment, 52% of participants worked in population-based studies, 32% in basic sciences, and 16% in clinical/translational research. Confidence in applying to a PhD or DrPH in the next year increased from 12% in baseline to 24% after program completion. Confidence to pursue a career in cancer prevention and control research increased from 56% to 64%. Among participants' outcomes, 100% (n=25) completed the program, 8% (n=2) have already published their research work in scientific journals, and 44% (n=11) made presentations in scientific meetings (14 presentations in total). **Conclusion:** Despite the COVID-19 pandemic, CAPAC successfully completed its 2021 program. CAPAC will impact the development of the next generation of cancer prevention and control researchers with cultural sensitivity to the Hispanic population. Acknowledgments: NCI Grant Number# R25CA240120.



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Transversus Abdominal Plane (TAP) Block and Pain Management in the Obstetric Patient

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Clinical Question: In adult patients undergoing cesarean deliveries (P), how do bilateral TAP blocks (I), compared to standard of care without TAP blocks (C), affect pain intensity, morphine consumption, time to first analgesic and PONV occurrence (O), up to 24 hours after surgery (T)? Scope: Cesarean deliveries have been associated with moderate to severe postoperative pain that has been linked to adverse events such as chronic pain and opioid dependence. The main intervention for pain management continues to be opioid analgesics that can have undesired side effects. The inclusion of TAP blocks as part of post-operative pain management has demonstrated the improvement of post-operative comfort as well as decreased adverse events. Literature Review: A literature search was conducted using PubMed and the Cochrane Library databases. TAP blocks demonstrated a statistical significance in decreasing pain and morphine consumption post-operatively and delaying time to first analgesic request. The literature supports a multimodal approach to pain management with the inclusion of regional anesthesia for this patient population. Project Implementation: A total of 30 patients undergoing cesarean delivery were selected to receive a TAP block after incision closure. Results: The median pain scores reported after cesarean section was mild at PACU arrival and 2 hours after and moderate pain was reported from 4 to 24 hours postpartum. Median 24-hour morphine consumption was 19 mg (0.23 mg/kg). There were no emesis incidents, and 1 patient reported nausea. There were no complications related to the TAP block as established in the literature results. Practice Implications: Our results support the inclusion of bilateral TAP blocks as part of a multimodal approach to pain management in the obstetric patient. Acknowledgements: We express our gratitude to Dr. Armando López and staff at Bayamón Medical Center for their dedication to advancing patient care as well as the practice of anesthesia.

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Nerve - Muscle Damage Recovery Device

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Background & Objectives: Voluntary control of a muscle or muscle group can cease to function properly when specific nervous system pathways are impeded or damaged. Natural regeneration, surgery, and rehabilitation interventions can restore muscle movement to allow total or partial recovery of muscle activity. The objective of this study was to create and test a 3D printed therapy device for the wrist area that is controlled wirelessly by electrical impulses from human arm muscles. The novel aspect of the proposed retraining system allows the healthy electro-muscular signals of the therapist wearing the Myo armband to activate servo motors in the re-training apparatus worn by the injured subject. Methods: The proposed system structure was designed and printed on a Sindoh 3DWOX1 FMD 3D printer. The first prototype employed an Arduino UNO, and the secondary prototype used a Raspberry pi 4 computer. The 3D printed structure consisting of a wrist bed and arm bed structure was printed with 1.75mm white PLA filament. This structure



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can be activated by servo motors. A Myo armband contains sensors to detect movement performed by the wearer. Proprietary code allowed communication from the Myo armband to the computer and the servos. Testing consisted of performing wave up and wave down motions of the Myo armband wearer and verifying that the movement was correctly detected by the computer and the servos perform the desired movement. Results: Both prototypes were successful in performing the wave up and wave down movements of a subject. Future work will focus on increasing the number of functional movements the device can perform and evaluate the performance of the apparatus on subjects. Conclusion: The prototypes demonstrated Proof of Concept to remotely control a 3D printed therapy apparatus via a MYO armband worn by the therapist and or the subject. Acknowledgement: The authors would like to acknowledge the BioMedical Innovation Center (BIC) at the Department of Pharmacology, School of Medicine, University of Puerto Rico Medical Science Campus.

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An integrative multi-omics approach to understanding tumor biology in Puerto Rican men with prostate cancer

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Introduction. Prostate cancer (PCa) is the leading cause of cancer-related death in Puerto Rican men, and PCa mortality rates are higher in Puerto Ricans than in other Hispanic/Latino groups in the United States. The paucity of data on the major contributors to this health disparity represent a major clinical challenge. Our research team focuses on identifying novel integrative -omics signatures to (1) identify aggressive tumors and (2) predict therapy response for Puerto Rican men with PCa. **Methods.** We have developed several cell-based models of PCa therapy resistance to generate a framework of acquired drug resistance-associated signatures using epigenomics, transcriptomics, and metabolomics approaches. In collaboration with the Puerto Rico Biobank, we have performed epigenetic and transcriptomic profiling of prostate tumors to evaluate established signatures and candidate biomarkers for prognostic and predictive value in the Puerto Rican population. **Results.** Our epigenome-wide DNA methylation analyses (n=47) have yielded four overlapping genes between high-risk prostate tumors and drug-resistant PCa cells (RNF220, FAM65B, PRDM16, and DGKH). Transcriptomic analysis (RNA-sequencing) of PCa cells currently underway, and preliminary analysis of microarray-based evaluation of genomic signatures from tumors (n=22) indicates overall higher risk scores, androgen signaling status, higher immune content and increased drug sensitivity in prostate tumors from Puerto Rican men compared to African American or European American men. Our ongoing studies are evaluating metabolomic profiles of PCa cells and tumor tissues. **Conclusion.** Our pilot data provide valuable insight into the tumor biology of PCa in a subset of the Puerto Rican population. Significant biological differences were detected in prostate tumors from Puerto Rican men compared to other ethnic groups. These studies have identified several candidate biomarkers for aggressive, therapy-resistant PCa in the Puerto Rican population, paving the way for the generation of multi-omics precision medicine tools to enhance clinical care for men with PCa in Puerto Rico. **Acknowledgements.** These authors have no conflicts of interest to declare. This work was supported by funding from the Ponce Research Institute Research Centers in Minority Institutions (PRI-RCMI 5U54MD007579-36), U54 Ponce Health Sciences University (PHSU) - Moffitt Cancer Center (MCC) Partnership (U54CA163071 & U54CA163068) Pilot Program and Postdoctoral Fellowship Program, the Puerto Rico Science, Technology and Research Trust Catalyzer Research Grant, and PRI Startup Funds.



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Menopausal Symptoms, Hormonal and Non-Hormonal Treatment and Quality of Life among a Hispanic Population living in Puerto Rico

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Background & Objectives: Menopause occurs around age 51 and Perimenopause at 40 years old. Vasomotor symptoms and vaginal symptoms are the most common symptoms between United States and treatment include hormonal and alternative medicine, such as non-hormonal medications or activities. This study was performed to identify the most common menopausal symptoms among Hispanic women living in Puerto Rico and compare the quality of life (QOL) of women using hormonal versus alternative medicine. **Methods:** IRB approval was obtained. Menopausal and Perimenopausal women, between the ages of 52-59 with menopausal symptoms, were recruited. A self-administered online questionnaire and a validated quality of life questionnaire, UQOL, were used. Hormonal treatment was considered as pills, injections, cream, or pellets with hormones, and alternative medicine was considered as soy, black cohosh, Chinese herb, red clover, yam, flaxseed oil creams, pills, or tea, anti-depressants, anti-anxiolytics, exercise, acupuncture and yoga. **Results:** A total of 78 participants completed the questionnaire and 58 completed the QOL portion of the questionnaire. The top menopausal symptoms reported were hot flushes (67%), night sweats (64%), and sleep disturbances (63%). Women using non-hormonal treatment have 17% (OR_{adj}:1.17 CI:0.22-6.19) more probability of having high QOL when compared with no treatment. Women using hormonal treatment have 2.3 (OR_{adj}:2.28 CI:0.33-15.71) times more probability of having high QOL compared with no treatment. Women using hormonal treatment have 96% (OR_{adj}:1.96, CI:0.31- 12.19) more probability of having high quality of life compared with non-hormonal treatment. **Discussion:** Vasomotor symptom is the most common among our sample of Hispanic population, followed by night sweats and sleeping problems. Treatment with hormones should be considered in people with symptoms, as being treated with hormonal treatment will have higher probability of high QOL compared with non-hormonal treatment. A larger scale of this study must be performed, as the sample in this study was small. **Acknowledgements:** Lorena Gonzalez, Biostatistics and Epidemiology Coordinator, University of Puerto Rico, Medical sciences Campus.

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Retos y oportunidades a partir de la pandemia en comunidades migrantes en Puerto Rico

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Trasfondo y Objetivos: El propósito de esta ponencia es documentar los resultados de un proceso de consulta comunitaria para la identificación de prioridades en salud actuales de la comunidad migrante en PR, resaltar la importancia de la comunicación bidireccional en la investigación y consulta ciudadana y estimular el interés a la investigación de base comunitaria para atender las prioridades en salud de nuestras comunidades. Los resultados de la consulta comunitaria llevaron a la organización del simposio “Retos y oportunidades a partir de la pandemia en comunidades migrantes en Puerto Rico.” El simposio se llevó a cabo en colaboración con el Centro de la Mujer Dominicana y el Centro Nacional Hispano y Latino para la Transferencia de Tecnología sobre Salud Mental de la Universidad Central del Caribe.



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Este evento educativo fue ofrecido utilizando un modelo híbrido de enseñanza. Método: Se llevó a cabo un diseño de investigación mixto para determinar las experiencias de las que asistieron en términos de las fortalezas y áreas a mejorar en el ofrecimiento de este tipo de eventos. Participaron un total de 110 personas (44 presencial y 66 virtual). Resultados: El 93.0% de los participantes completó el cuestionario; 98.3% indicó estar “muy satisfechos/satisfechos” con la calidad del Simposio; 91.6% indicó estar “muy de acuerdo/de acuerdo” que fue de beneficio para su desarrollo profesional y/o práctica. En el área de fortalezas se mencionó con más frecuencia el conocimiento adquirido (n=17), el uso de testimonios (n=17) y la proyección y discusión del documental Desempacando (n=16). En término a áreas para mejorar se mencionó incluir información de impacto en la niñez y hombres migrantes. Conclusiones: El foro comunitario es una herramienta para identificar las prioridades en salud actuales de la comunidad migrante en PR y promover una gestión en salud pública para atender las necesidades de esta población.

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Risk Factors and Quality of Life in Women 55 to 65 years old in Female with risk of developing Osteoporosis in Puerto Rico

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Background & Objectives: Osteoporosis is a growing disease especially in women after reaching the menopausal period with an average age of 51. In the United States of America, individuals with osteoporosis are presently estimated in 10 million, among which, 80% are women and 20% are men. There is a population of 44 million with low bone mass, increasing their risk to suffer from the disease. Osteoporosis in Hispanic women aged 50 and older is estimated in 20.4% and those with low bone mass in 47.8%. Among ethnical groups, Hispanics have the most rapid risk increase for developing the disease. This study aims to identify the risk for osteoporosis in Hispanic women living in Puerto Rico and if this risk affects their quality of life. **Methods:** IRB approval was obtained. Hispanic menopausal women within the ages of 55-65 living in Puerto Rico were recruited for this study. A validated Adult Osteoporosis Risk Assessment, The Center of Better Bones and Quality of Life Scale (UQOL) questionnaire were used. A logistic regression was performed. **Results:** A total of 169 patients completed the questionnaire, where 60 (36%) had low risk, 96 (57%) had moderate risk and 13 (8%) had high risk for osteoporosis. There is a non-significant ($p= 0.15$) association between risk of osteoporosis and quality of life, where there is a 46% and 65% for moderate and high risk, respectively, less probability of having high quality of life compared with low risk for osteoporosis ($OR_{adj}=0.36-0.57$, CI: 0.10-1.20). **Discussion:** As we hypothesized, the higher the risk for osteoporosis will have less chances of having high quality of life. It is important to pay close attention to women with moderate to high risk of osteoporosis to be able to achieve a better quality of life. **Acknowledgements:** Lorena Gonzalez, Biostatistics and Epidemiology Coordinator, University of Puerto Rico, Medical sciences Campus.

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Prioridades en Salud en Tiempos de Adversidad: Resultados Foros Comunitarios de la Población Sin Hogar en Puerto Rico

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Trasfondo y Objetivos: El propósito de esta ponencia es documentar los resultados de un proceso de consulta comunitaria para la identificación de prioridades en salud actuales de comunidades vulnerables en Puerto Rico llevadas a cabo por el equipo de comunidad de la Alianza Hispana de Investigación Clínica y Traslacional (Alianza). Se llevaron a cabo ocho foros comunitarios. Los resultados de esta presentación resumen las necesidades prioritizadas de la población personas sin hogar identificadas por organizaciones que ofrecen servicios comunitarios, el Consejo Asesor de Salud e Investigación y otros/as líderes de la Alianza. **Método:** Para la identificación de necesidades se utilizó el modelo de viabilidad e importancia entre varios grupos mediante la valoración de cinco criterios: vacío, servicios, voluntad política, capacidad y prácticas basadas en la evidencia ubicándolos en cada cuadrante desde más importante y menos viable hasta más importante y más viable. **Resultados:** Las necesidades de mayor prioridad en la población de personas población personas sin hogar incluyen el trabajar con las determinantes sociales de la salud que afectan la población joven sin hogar, la falta de acceso a servicios de salud física y mental y la poca adherencia al tratamiento. Además, se resalto el poco acceso a servicios de salud ocasionados por la pandemia como el acceso a pruebas y la vacunación contra el COVID-19. **Conclusiones:** La utilización del ejercicio de priorización es una herramienta fundamental para el fomentar la importancia de la comunicación bidireccional en la investigación y consulta ciudadana y estimular el interés a la investigación de base comunitaria para atender las prioridades en salud de nuestras comunidades.

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Comprensión de la preparación de la comunidad, barreras y facilitadores relacionados con COVID-19: Investigación de participación comunitaria en Castañer Puerto Rico

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Trasfondo: Mediante la continuidad de proyecto colaborativo de investigación participativa entre el Hospital General Castañer (HGC) y el RCM examinamos barreras y facilitadores que pueden existir entre pacientes, proveedores y líderes (stakeholders) en Castañer, Adjuntas y Jayuya para las pruebas de detección de COVID-19, la vacunación, la participación en la investigación y los tratamientos, así como las prioridades de salud para las necesidades de desarrollo de capacidades. **Objetivos:** 1) Identificar los factores multiniveles que actúan como barreras o facilitadores para la prevención y atención de COVID-19. 2) Conocer las opiniones, experiencias y recomendaciones de los participantes acerca de las prioridades de salud relacionadas con el COVID-19 y las necesidades de creación de capacidad. **Método:** Realizamos entrevistas narrativas virtuales (n=18) y grupos focales (n=3) con pacientes, proveedores y personas significativas cercana al (HGC). Las grabaciones de las sesiones fueron transcritas y analizadas siguiendo sistema de validación de jueces independientes. Las metas-categorías más relevantes identificadas del análisis de contenido fueron: Aspectos facilitadores de salud y Barreras manejo COVID. **Resultados:** Participaron 51 personas con diversos trasfondos personales y académicos. Entre las categorías emergentes resaltan: 'Respuesta de Castañer', lo cual muestran las estrategias implementadas a partir del COVID-19 y prevalece la 'desconfianza', en cuanto a la vacunación. **Conclusión:** La pandemia del COVID-19 transformó las vidas y roles de los/as participantes en sus familias, comunidad y centros de trabajo y destacaron aprendizajes para futuras experiencias. Las preocupaciones



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principales son la continuidad de servicios para las personas mayores, sin acceso a transportación, de baja literacia tecnológica y el impacto que la pandemia ha tenido en todos los aspectos de la vida de nuestros niños/as. Algunas oportunidades para la acción incluyen promover el desarrollo de esfuerzos educativos basado en evidencia y establecer alianzas con los diferentes sectores participantes para mejorar el estado de salud. Agradecimientos: Esta investigación fue apoyada por una subvención otorgada por los Institutos Nacionales de la Salud de la Alianza de Participación Comunitaria (OT2HL161827) y La Alianza Hispana para la Investigación Clínica y Traslacional (La Alianza) con el apoyo de los Institutos Nacionales de Salud del Instituto Nacional de Ciencias Médicas Generales (NIGMS-U54GM133807). Aprobado por el IRB del Recinto de Ciencias Médicas (A9360118), (A7080121).

4302

Reproducción en tiempos difíciles, características de las mujeres que dieron a luz, Puerto Rico: 2015 al 2020

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Trasfondo: La fecundidad en Puerto Rico ha ido descendiendo, tanto que a partir del 2016 hay menos nacimientos que muertes. Durante los últimos años la Isla ha sufrido los huracanes Irma y María, terremotos y la pandemia de COVID-19, que han impactado las dinámicas demográficas. Objetivos: Exponer el descenso de fecundidad en Puerto Rico durante las últimas décadas y crear un perfil de las madres que dieron a luz a partir del año 2015. Método: Este proyecto de investigación es descriptivo. Los datos provienen del registro Demográfico adscrito al Departamento de Salud de Puerto Rico, y de los estimados de población del Negociado del Censo de los Estados Unidos. Se utilizó el paquete de datos estadísticos SPSS para el análisis. Resultados: El descenso de fecundidad se aceleró a partir de la década de 1980 y desde hace más de un quinquenio el crecimiento natural es negativo. Los eventos que han ocurrido precipitaron la caída de nacimientos, entre el 2015 y 2020 se redujeron en un 39.9%. Para el año 2015 la media de edad de las madres era de 25.9 y para el 2020 aumentó a 27.0 años. El parto vaginal prevaleció para el 2015 con 53.2%, y en el 2020 con un 51.8%. En el 2015 el 31.6% de las mujeres indicaron estar casadas, y en el 2020 el 69.2% no lo estaban. Conclusión: Las tendencias en nacimientos por año contribuyen a la continua pérdida de la población, con sus respectivas consecuencias. El número promedio de hijos al final de la vida reproductiva de las mujeres (50 años) continúa descendiendo hasta alcanzar 2.2 hijos en el 2020. En el perfil de las madres se observa un aumento en la edad media, y un leve aumento en aquellas que no están casadas al momento de dar a luz. Agradecimientos: Se agradece al Departamento de Salud de Puerto Rico y a la profesora Ana L. Dávila del Recinto de Ciencias Médicas de la Universidad de Puerto Rico.

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Epigenetic variations associated with aggressiveness and drug resistance in prostate cancer among Puerto Rican men

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Background and Objectives. Prostate cancer (PCa) is the most common malignancy and the second leading cause of death among men in the United States. Altered DNA methylation (DNAm) patterns may serve as potential biomarkers for aggressive phenotypes. Our goal is to identify DNAm patterns associated with aggressive PCa in Puerto Rican (PR) men and evaluate a subset of these genes that correlate with acquired therapy resistance as potential biomarkers for use in the clinical management of PCa. **Methods.** The clinical cohort for this study (n=47) were stratified as high or low risk by Gleason score. Genome-wide DNAm was analyzed using archived tumor tissues and the Illumina EPIC 850 DNA methylation platform. Profiles were compared between normal adjacent and tumor tissues, as well as between low- and high-risk tumors. Pathway enrichment between groups was performed using DAVID functional annotation tools. Cell-based models of acquired resistance to castration, enzalutamide and docetaxel were generated and assessed for DNA methyltransferase (DNMT) expression and DNAm profiles. Overlapping differentially-methylated genesets were compared between cell-based models and PR tumors to identify potential methylation biomarkers of aggressive and therapy-resistant disease. **Results.** Data from this study indicate that 8,293 probes were differentially methylated in tumor samples compared to adjacent normal controls. The top pathway associated with methylation changes was the homeobox group. Among tumor samples, comparison between low and high-risk tumors identified 181 differentially methylated probes. These sites were cross-referenced with cell-based data to identify four overlapping genes, RNF220, FAM65B, PRDM16 and DGKH. **Conclusion.** These findings support our hypothesis that DNAm is an essential mediator of disease progression and drug resistance in PCa. Our study represents a critical step in the establishment of an epigenetic biomarker signature to be used in precision medicine for improving outcomes for patients disproportionately affected by PCa, including understudied populations like PR men.

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**Loneliness and Death/Self-harm Thoughts During the COVID-19 Pandemic in Puerto Rico:
Comparing Sociodemographic Groups**

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Background/Objectives: Social distance and lockdown measures applied during the COVID-19 pandemic may have generated/increased feelings of loneliness (FOL) and death/self-harm thoughts (DSHT) among adults in Puerto Rico (PR). Sociodemographic groups such as youngest adults, residents of low-income households (LIHs), people with low educational levels (PLEL), people with no romantic companion (PWNRC), and non-heterosexuals (NHs) might be at higher risk for DSHT and FOL during the pandemic. We assessed differences in FOL and DSHT among adults in PR, grouped by sociodemographic characteristics. **Methods:** Participants were 1736 adults (79.84% women) aged 21-79 years (M = 46.36). They must be PR residents for at least 3 months before enrollment, have access to an electronic device with internet service, and be able to read and understand Spanish. They completed an online survey (approved by UPR-PR IRB #1920-194) between June 10, 2020 and June 9, 2021, which included the Loneliness Scale and assessments of DSHT anytime during the pandemic and within 2 weeks of enrollment. We shared study-related information via social media or e-mail, and using paid advertisement. We used chi-square tests to compare DSHT and clinically-high FOL rates among sociodemographic groups and explored mean differences ($p \leq .05$) in FOL and DSHT severity with one-way ANOVAs. **Results:** Sample rates for moderate/severe FOL and DSHT occurred anytime during the pandemic were



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50.84% and 18.54%, respectively. These rates were significantly higher among the 21–39 age group, LIHs, PLEL, NHs, and PWNRC. Mean severity of DSHT experienced within 2 weeks of enrollment and FOL followed an identical pattern. Conclusion: Our study documents significant sociodemographic differences in rates and severity of FOL and DSHT during the pandemic. Public health officials must consider the differential impact observed among people who belong to these sociodemographic groups when designing strategies to reduce the mental health impact of pandemic control measures. Acknowledgements: Personal funds from the third and fourth authors were used to conduct this research. The authors have no conflict of interest to disclose.

4305

“Vaping”, problemas de salud mental y conducta suicida entre estudiantes adolescentes en Puerto Rico

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Estudios en EE.UU. han asociado el hacer “vaping” con comportamiento suicida, depresión, ansiedad y otros problemas de salud mental entre jóvenes. Quisimos explorar si en P.R. ocurría lo mismo. Este estudio tiene como objetivo evaluar la asociación del uso de “vaping” con problemas de salud mental y comportamiento suicida entre estudiantes adolescentes en Puerto Rico. La muestra (n=8,603) en esta encuesta transversal (Consulta Juvenil 2018-20) es representativa de todos los estudiantes de 7mo a 12mo grado en PR. El cuestionario autoadministrado incluyó cuestionarios de problemas de salud mental (depresión, ansiedad, conducta, oposición desafiante, comportamiento agresivo, ADHD) utilizando escalas del “Youth Self-Report for Ages 11-18 (YSR)”, las cuales identifican a adolescentes que podrían ser candidatos a someterse a evaluaciones de salud mental para confirmar la necesidad de ayuda psiquiátrica o psicológica. Se compararon proporciones mediante pruebas de ji-cuadrado y se calculó la fuerza de asociación usando ORs. La prevalencia de todos los problemas mentales evaluados y de ambos comportamientos suicidas fue mayor entre los estudiantes que informaron realizar “vaping” en el último año. Luego de ajustar por uso de marihuana, “vaping” estuvo más fuertemente asociado ($p < 0.01$) con problemas de conducta (OR=3.10) y comportamiento agresivo (OR=2.83); la asociación más débil fue con problemas de ansiedad (OR=1.37). Al estratificar por sexo, el “vaping” estuvo más fuertemente asociado con problemas de conducta, comportamiento agresivo, problemas de oposición desafiante, ADHD e ideación entre varones al comparar con féminas; “vaping” estuvo más fuertemente asociado con problemas depresivos e intento suicida entre las féminas que entre varones. Los hallazgos en este estudio son preocupantes. Los esfuerzos de prevención y atención a la salud mental y el suicidio deben dirigirse a adolescentes que se involucran en el uso de “vaping”, ya que declaran conductas asociadas a problemas emocionales y de comportamiento.

4306

Percepción de la efectividad del uso de telesalud en la adquisición de destrezas verbales y conductuales entre niños con autismo durante la pandemia de COVID-19.

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La telesalud está siendo aplicada en las escuelas, como medida de prevención y control del COVID-19. Esto generó numerosos cambios en las rutinas educativas de los niños, lo que representa un gran reto para niños con trastornos del espectro autista (TEA). El objetivo de este estudio transversal fue describir la percepción de profesionales encargados de niños con TEA sobre la efectividad del uso de telesalud en la adquisición de destrezas verbales y conductuales. Se utilizó una encuesta autoadministrada en una muestra de 25 profesionales (tasa de participación=30.9%). Se realizó



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un análisis factorial exploratorio bayesiano para crear un índice y un análisis de conglomerados para categorizar la percepción de efectividad de la telesalud. Un 28% eran maestros y 72% eran terapeutas o asistentes de maestros. Ambos grupos de profesionales presentaron una percepción de efectividad elevada en las áreas de percepción del instrumento 1.00 (I.C. al 95%: 0.98-1.02) y en percepción de destrezas verbales 0.86 (I.C. al 95%: 0.78-0.95), no hubo diferencias significativas al comparar maestros con no maestros. Para la percepción de efectividad en las destrezas conductuales, los maestros presentaron una efectividad leve 0.13 (I.C. al 95%: 0.06-0.20), mientras que los no maestros reportaron una efectividad moderada 0.47 (I.C. al 95%: 0.37-0.57), diferencia significativa ($p=0.011$). Los profesionales recomendaron: ayudantes presenciales con el niño o adiestrar a padres, mantener un tiempo moderado de intervención y usar aspectos híbridos para incrementar la adquisición de destrezas. Estos resultados sugieren que la telesalud puede ser empleada para trabajar con niños con TEA, pero es necesario mejorar su aplicación para minimizar las deficiencias en las destrezas de los niños.

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Ketorolac Added to Lidocaine for Intravenous Regional Anesthesia in Upper Extremity Surgeries

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Clinical Question: In patients undergoing non-traumatic hand surgeries (P), how does ketorolac as adjuvant to bier block anesthesia (I), compared to lidocaine alone (C), affect the onset and intensity of pain (O) within the post-operative period(T)? **Scope:** One of the most used anesthesia techniques for hand surgeries is Intravenous Regional Anesthesia (IRA), in which current practice uses lidocaine 0.5% in 40 ml solution of 0.9nss IV. This method does not provide adequate and prolonged analgesia after tourniquet deflation, leading to quick onset of pain and increased use of opioids in PACU. **Literature Review:** Major literature findings demonstrate the efficacy of Ketorolac in decreasing postoperative onset of pain and opioid consumption, when compared to the use of lidocaine alone. **Project Implementation:** The IRA with ketorolac adjuvant was administered prior to surgery. Pain scores were documented at 20-minute intervals upon PACU arrival. Demographic data was also collected. **Results:** Fifteen patients (mean age 44; 67% women; 67% ASA 2) participated in this evidence-based practice project. Most patients (73%) reported no pain while in PACU and none required/requested post-operative pain medication while in PACU. Those patients that reported some level of pain (27%), intensity mean score was less than .74. Patients later reported an onset of pain after 5 hours post op. **Practice Implications:** This project's outcomes, evidencing the benefits of adding Ketorolac to Lidocaine for Intravenous Regional Anesthesia in upper extremities surgeries, are aligned with findings in scientific literature. Implementing this practice can improve pain outcomes in patients while mitigating negative effects related to opioids during postoperative care. It is essential that nurse anesthesia care providers work to promote an evidence-based practice culture which is essential for patient-centered care.

4310

Beliefs towards COVID-19 booster vaccination acceptance among immunized adults in Puerto Rico: Assessments of PR-CEAL.

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Background & Objective: Nearly one-third of the eligible population in Puerto Rico (PR) has received a COVID-19 booster vaccine despite its importance in managing ongoing and emerging pandemic challenges. However, beliefs towards COVID-19 booster vaccination among immunized individuals remain unknown. This study examined the beliefs towards COVID-19 booster vaccination and acceptance among adults in PR. **Methods:** Study participants were adults immunized against COVID-19 who completed the PR-CEAL online survey, framed by the Health Belief Model (HBM), from December 30, 2021, to January 28, 2022. Respondents were classified as booster vaccination acceptance (boosted or will get boosted as soon as possible) or booster vaccination refusal (no intent to get boosted or rather wait). Pearson χ^2 test was used to comparing the differences in booster vaccination acceptance across HBM constructs. **Results:** Mean (SD) age of the total sample (n=529) was 38.2 (14.5) years, 52.7% had some college education or were college graduates, and 73.3% were female. Most of the sample (90.7%) reported COVID-19 booster vaccination acceptance, and 9.3% refused booster vaccination. Immunized individuals refusing booster vaccination were less likely to perceive benefits of booster vaccination than those with booster acceptance: the booster decreases chances of getting COVID-19 or its complications (24.5% vs. 86.3%) and the booster decreases concerns about catching COVID-19 (12.2% vs. 79.8%). Additionally, individuals refusing booster vaccination were more likely to perceive barriers towards booster vaccination than those with booster vaccination acceptance: concerns about booster vaccine safety (81.6% vs. 37.9%), side effects (75.5% vs 37.7%), and efficacy (79.6% vs 41.0%). **Conclusion:** Most adults reported COVID-19 booster vaccination acceptance despite concerns over its safety, side effects, and efficacy. However, public health campaigns need to target booster barriers and benefits to reduce booster vaccination refusal in PR. **Acknowledgment:** This work has been supported by OT2HL161827 from NIH-NHLBI.

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Neonatal Focal Choroiditis in Infant Born from COVID 19 Infected Mother: A Case Report

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Introduction: Infectious diseases with ophthalmic manifestations have been quite common. Most are either syndromic or part of a particular disease such TORCHES (Toxoplasma, Rubella, Cytomegalovirus, Herpes virus, Syphilis), and ZIKA. The mechanism for eye involvement in most instances as a focal choroiditis, is hematogenous spread from other part of the body to the most vascular layer of the eye, the choroid. When we talk about COVID 19 infection and its ocular effects on neonatal population no literature is found for this specific population. Some ocular effects of COVID-19 reported in the literature include conjunctivitis, cotton wool spots, microhemorrhages along the retina, peripapillary retinal nerve fiber layers thickness, among others. **Case description:** We present the case of a baby boy preterm adequate for gestational age born at 30 weeks' gestational age from a 19-year-old primigravid mother with history of COVID-19 infection 8 days' prior delivery. She had mild respiratory symptoms and a chest x-ray was compatible with COVID-19 pneumonia. On ophthalmologic evaluation a yellow oval shaped area inferior to the temporal macula, and retinal vessels with wall and caliber changes were found. These findings are suggestive of focal choroiditis that can be found in patients with TORCHES infections Zika and/or COVID 19 infections. Patient was tested for TORCHES infections and COVID 19, results came back negative for TORCHES and positive for COVID 19 antibodies. **Conclusion:** This patient has intrauterine exposure to COVID 19 confirmed with positive antibodies and found with ophthalmologic lesion suggestive of focal choroiditis that could



be related to COVID 19 exposure. These lesions usually heal spontaneously but they can progress to multiple lesions. As in other intrauterine emergent infections, close follow up to clinical findings and neurodevelopment are necessary to identify the spectrum of the disease and provide appropriate care including early intervention.

4312

Differences in Monocytes and Lymphocytes' glucose uptake in response to HIV-1 Tat protein in the presence of insulin.

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Insulin resistance is a major cause of morbidity and mortality in HIV-infected patients. Reports attribute metabolic alterations to the action of HIV viral proteins in the cells. Although research has centered on the Tat protein as one of the potential mediators of glucose uptake (GU) impairment, little is known about the mechanisms employed by this viral toxin in PBMCs. Therefore, we will test the following hypothesis: Tat will impair GU in monocytes and lymphocytes collected from healthy donors in the presence or absence of insulin. Methods: PBMCs from healthy volunteers were incubated with Tat for 24 hrs (100nM). Cells were exposed to different insulin concentrations (12.5-200nM) in the presence or absence of Tat (100nM). The levels of GU were analyzed by flow cytometry using a fluorescent glucose 2-NBDG (10 μ M) incubated with the cells for 30 minutes. Monocytes and lymphocytes were identified using CD3 and CD14 fluorescent antibodies. Results: 1- A significant increase in GU was observed when lymphocytes were exposed to insulin alone at 25nM, however no significant changes were observed in monocytes. 2- Tat alone decreased GU in monocytes at 100nM in the absence of insulin, however no changes were observed in lymphocytes when they exposed to the viral toxin alone. 3- The presence of insulin (25nM) in the culture medium plus Tat (100nM) decreased significantly the effects observed in GU with Tat alone in monocytes. 4- No significant differences in GU of lymphocytes were observed when they were exposed to insulin (25nM) plus Tat compared to cells incubated with insulin alone. Conclusion: Our study supports that Tat has a role regulating glucose uptake in monocytes and these effects may be enhanced by the actions of insulin. Further studies are needed to clarify the mechanisms employed by Tat in monocytes and its possible interaction with insulin signaling pathways. Acknowledgements: This work was supported by the National Institute of Health grant number: R01NS099036, R25GM061838, U54MD007600, 5T34GM007821-34, and 2R25GM061838-22. Key Words: HIV-1 Tat, Glucose Uptake, Monocytes, and Lymphocytes

4313

Plasma Exosomes from HIV-Positive Women with HAND Induce Activation of Monocytes from HIV-Negative Women Donors

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Background & Objectives: HIV-associated neurocognitive disorders (HAND) remain a significant cause of morbidity and mortality in chronically infected patients despite cART. Activated monocytes are thought to mediate the pathogenesis of HAND by infiltration into CNS, which may contribute to neuroinflammation. Previously, we showed that plasma exosomes from HIV-positive women with HAND increased in monocytes from HIV-negative women donors. However, the influence of these exosomes in the activation state of monocytes has never been explored. We hypothesized that plasma exosomes



from HIV-positive women with HAND will increase the levels of membrane CD163 and HLA-DR activation markers in monocytes from HIV-negative women donors. Methods: Plasma exosomes (20µg) from HIV-negative women (controls) and HIV-positive women with Normal Cognition (NC) or HAND were collected by ultracentrifugation. Then, exosomes were labeled using PKH-67 Fluorescent Cell Membrane (30nM) prior to incubation (6h) with PBMCs (5x10⁵ cells) from HIV-negative women donors in order to monitor their cell entrance. Monocytes and lymphocytes were identified using PE/Cy7-anti-CD14 and PerCP/Cy5.5-anti-CD3 and the levels of CD163 and HLA-DR levels were measured by flow cytometry using BV785-anti-CD163 and BV605-anti-HLA-DR antibodies, respectively. Results: (1) CD163 levels increased significantly in monocytes exposed to plasma exosomes from HIV-positive women with NC (p=0.0052) or HAND (p=0.0044) when compared to untreated, however no significant changes were observed in monocytes exposed to control exosomes; (2) HLA-DR levels increased significantly in monocytes exposed to plasma exosomes from controls (p=0.0472) and HIV-positive women with NC (p=0.0149) or HAND (p=0.0008) when compared to untreated; (3) No significant differences were observed in CD163 and HLA-DR levels in lymphocytes when exposed to control or HIV-positive plasma exosomes. Conclusion: Our findings suggest that plasma exosomes from HIV-positive women influence the activation state of HIV-negative monocytes. Our study may help to better understand the mechanisms responsible for the immunopathogenesis of cognitive impairment in HIV-positive population. Acknowledgements: This research was supported by R01NS099036, R25GM061838, R21MH095524, U54MD007587, U54NS043011, S11NS046278, U54MD007600.

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Prevalencia de Síntomas de Ansiedad, Depresión y Niveles de Estrés en Médicos y Enfermeros (as) laborando en P.R. durante la Pandemia de COVID-19

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Trasfondo y Objetivos: Los trabajadores de la salud son la primera línea de defensa ante una crisis sanitaria como la pandemia de COVID-19 y, por ende, cargan el peso de la emergencia. Este escenario los podría hacer vulnerables a padecer trastornos de salud mental. Este estudio pretendió determinar la prevalencia de síntomas clínicamente relevantes de depresión y ansiedad, y medir niveles de estrés percibido en médicos y enfermeros(as) laborando activamente durante esta emergencia en Puerto Rico. Métodos: Un cuestionario auto-administrado en línea fue completado por 911 enfermeros(as) y 175 médicos. Este consistió en 4 secciones: 1) Información sociodemográfica y posibles estresores 2) Escala del Trastorno de Ansiedad Generalizada-7 (GAD-7) para medir ansiedad 3) Cuestionario de Salud del Paciente-9 (PHQ-9) para medir depresión 4) Escala de Estrés Percibido (PSS-10) para medir estrés. Resultados: Los médicos presentaron prevalencias de síntomas clínicamente relevantes de ansiedad, depresión y de niveles de estrés percibido moderado/alto de 30.3%, 24.6% y 57.7%, respectivamente. En enfermeros(as), estas prevalencias fueron 28.5%, 30.4% y 59.0%, respectivamente. En ambos grupos profesionales, aquellos que reportaron no haber tenido equipo protectivo en el trabajo nunca o sólo tenerlo algunas veces, los que percibieron las horas trabajadas como excesivas, los que participaron en el diagnóstico y/o tratamiento de pacientes con COVID-19, los previamente diagnosticados con algún trastorno de salud mental y aquellos que doblaron turno más de dos veces al mes reportaron mayor frecuencia de sintomatología de las tres variables respuesta que sus homólogos. Conclusiones: Los hallazgos revelan altas prevalencias de síntomas clínicamente relevantes de depresión, ansiedad y niveles de estrés moderado/alto entre médicos y enfermeros(as) laborando en Puerto Rico, incluso mucho más elevadas que las reportadas en la literatura de otros países. La salud mental de estos grupos profesionales debe ser atendida con premura para garantizar el buen funcionamiento del sistema de salud.



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Use of Non-steroidal Anti-inflammatory Drugs (NSAIDs) as Single Agent for Postpartum Pain Management

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Introduction: Inadequate management of postpartum pain has been linked to increased opioid use and postpartum depression. By 2013, opioid use for pain management had increased to 68% in Puerto Rico. The research purpose is to assess the effectiveness of using NSAIDs as a single agent for adequate postpartum pain control. The aim is to reduce opioid use and evaluate patient satisfaction with an alternate approach. Methods: A cross-sectional study of patients recruited following vaginal or cesarean deliveries at University District Hospital and University of Puerto Rico Hospital. A standardized questionnaire was completed via phone call two weeks following hospital discharge. Information about postpartum pain grading, alternative pain control methods used, and satisfaction with pain management was gathered. Protocol was approved by the IRB. Results: Preliminary data consists of 25 patients, who had vaginal(64%) and cesarean(36%) deliveries. 64% of participants reported using non-pharmacologic approaches for pain management including breathing exercises(56%), distractions(75%), painting(6%), massages(37.5%), meditation(12.5%), resting(68.7%), hearing music(31.3%), praying(12.5%) and exercising(6.3%). Participants with vaginal deliveries reported a mean of 71.25% pain relief during the initial 24 hours after discharge using combined treatment (NSAIDs and non-pharmacologic approaches) compared to 46.6% relief in participants with cesarean deliveries. Overall patient satisfaction with pain management was 90.06% in vaginal versus 60.6% in cesarean deliveries. Conclusions/ Implications: The study concluded that using NSAIDs as a single therapeutic agent to manage postpartum pain results in more pain relief and satisfaction with treatment for participants with vaginal versus cesarean deliveries. The goal is to identify pain control alternatives for obstetric patients in Puerto Rico.

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Gender differences in behavioral and psychological impacts of the COVID-19 pandemic among adults in Puerto Rico: Assessments of PR-CEAL Against COVID-19 Disparities.

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Background and Objective: The COVID-19 pandemic has had a significant impact on the psychological health of individuals. Nonetheless, pandemic changes in stress, weight, and snacking/eating behaviors in Puerto Rico (PR) have remained largely unknown. This study evaluated changes in stress, weight, and snacking/eating during the pandemic among adults and examined differences by gender. Methods: Individuals were men and women who completed the PR-CEAL online survey from December 30, 2021, to January 28, 2022. Three individual items assessed perceived changes in stress, eating/snacking, and weight throughout the pandemic (March 2020 to survey completion), with response options being 'increased', 'decreased', and 'stayed the same. Multiple adjusted logistic and multinomial regressions



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models were used to examine the association between gender and perceived changes in all three outcomes. Results: Of the total eligible sample (n=524), mean (SD) age was 38.2 (14.5) years, 52.7% had some college education or were college graduates, and 73.3% were female. Three-fourths (74.2%) reported an increase in stress levels during the pandemic, 53% reported an increase in weight, and 42.5% an increase in snacking/eating. In adjusted regression models, women (vs. men) had twice the odds of reporting an increase in stress levels (OR=2.14; 95% CI=1.36, 3.36). Women (vs. men) were also 55% more likely to report an increase in snacking/eating over no change (RRR=1.55; 95% CI=1.01, 2.39) and marginally significantly more likely to report weight increase over no change (RRR=1.56; 95% CI=0.99, 2.48). No significant associations were found between gender and decreases in weight or snacking/eating. Conclusion: A substantial proportion of the sample reported increases in stress, weight, and snacking/eating during the pandemic, and women were disproportionately affected by these pandemic outcomes. Interventions tailored for women are needed to reduce the pandemic impact on stress, weight, and snacking/eating in PR and preserve health. Acknowledgments: This work has been supported by OT2HL161827 from NIH-NHLBI.

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Impact of prenatal Diagnosis on Elective Termination of Pregnancy in Puerto Rican Population

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Background: Prenatal detection of congenital anomalies provides parents with pregnancy management options. In populations where termination of pregnancy (TOP) is available, prevalence of genetic syndromes and birth defects may decrease with prenatal detection. In Puerto Rico, congenital anomalies are identified in 3% of live births; representing a primary cause of infant mortality. However, the frequency of elective TOP after antenatal diagnosis of anomalies has not been studied. Methods: Retrospective review of prenatal ultrasounds performed between 2015 and 2019 at the University Hospital Antenatal Evaluation Unit was performed. Cases with diagnosis of congenital anomalies prior to 24 WGA were identified and classified as severe (defined as less than 10% chance of survival beyond 1 year) vs non-severe anomalies. Cases were cross-referenced with labor room admission records and management (TOP versus expectant) recorded. Results: A total of 150 prenatal diagnoses of congenital anomalies were identified: 43% underwent TOP, 48% chose expectant management, 9% did not have admission records for cross-reference. When congenital anomalies were separated by severity, 57% chose TOP (65/114) amongst those considered severe, while 0% (0/23) in the non-severe group opted for TOP ($p < 0.001$). Conclusion: In the studied population, ultrasound identification of congenital anomalies prior to 24 WGA showed a statistically significant difference in decision making in severe versus non-severe anomalies. This highlights the impact of antenatal diagnosis on the management of pregnancies affected by severe fetal anomalies. However, non-severe anomalies showed a low prevalence of TOP selection casting doubts over the real impact of prenatal diagnosis in the overall perinatal mortality and morbidity. Acknowledgements: This study was supported by the UPR Endowed Health Services Research Center through grants 5S21MD000242 and 5S21MD000138, from the National Center for Minority Health and Health Disparities, National Institutes of Health (NCMHD-NIH). Its contents are the sole responsibility of the authors and do not necessarily represent the official views of NCMHD- NIH. IRB: Protocol A9030120



4320

Targeting de novo fatty acid synthesis in enzalutamide resistant prostate cancer

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Background and Objectives. The anti-androgen therapy enzalutamide represents the last in a series of androgen-targeting agents available to prostate cancer (PCa) patients. However, the development of resistance represents transition to lethal PCa for which treatment options are limited. This study builds on recent evidence that lipid metabolism is an important contributor to enzalutamide resistance by investigating the oncogene c-MYC as a novel interacting partner for lipogenic regulator sterol regulatory element binding protein 1 (SREBP-1) in the induction of key lipogenic enzymes including fatty acid synthase (FASN). **Methods.** Using cell-based models of castration resistance and enzalutamide resistance developed in our lab, our team assessed: (1) the intracellular localization and potential interaction between SREBP-1 and c-MYC; (2) the effect of targeting SREBP-1 and c-MYC on FASN expression and intracellular lipid accumulation and (3) the influence of the SREBP-1/c-MYC/FASN axis on tumorigenicity, cancer cell migration and enzalutamide sensitivity. **Results.** After validating a resistant phenotype in PCa sublines using MTT viability assays and expression of resistance-associated proteins, we observed an enhanced lipogenic phenotype of enzalutamide-resistant PCa cells through enhanced intracellular lipid accumulation and expression of lipogenic enzymes. Resistant cells also overexpressed SREBP-1 and c-MYC compared to their sensitive parental counterparts. SREBP-1 and c-MYC co-localization was observed in resistant cells, and an interaction between these proteins was confirmed by co-immunoprecipitation. Targeting of c-MYC and SREBP-1 resulted in marked suppression of FASN expression, intracellular lipid accumulation, and cellular migration of enzalutamide-resistant cells. Reduced cell migration was also observed following treatment with FASN inhibitors, and siRNA-mediated FASN silencing also impaired tumor organoid formation in enzalutamide-resistant cells. Finally, pharmacological targeting of lipogenic enzymes enhanced sensitivity of resistant cells to enzalutamide. **Conclusion.** Our results indicate that c-MYC may act as a surrogate for AR, contributing to enzalutamide resistance in prostate cancer through sustained metabolic reprogramming toward fatty acid synthesis. **Acknowledgements.** This study was supported by the following: Ponce Research Institute Research Centers in Minority Institutions (PRIORITY 5U54MD007579-36), U54 Ponce Health Sciences University (PHSU) - Moffitt Cancer Center (MCC) Partnership (U54CA163071 & U54CA163068), and PRI Startup Funds.

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Level of Empowerment of Parents or Caregivers of Children and Youth of the Family Leadership Training Program 2020-2021

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Background and Objectives: Empowering families of children with special needs is an important goal for their family functioning. At present, we know little about the level of empowerment of families who receive our services. The objective of this study is to examine the level of empowerment of families of children and young people from 0-21 years with special needs participating in the Family Leadership Training Program of the Institute on Developmental Disabilities. **Methods:** This quasi experimental study design was used to measure the impact of four empowerment workshops. The time frame was from January to May 2021. Consent was required to participate following IRB approval. Participants responded a self administered pre and post test that included sociodemographic, level of satisfaction



and knowledge variables. Also, it includes 34 items adapted from Koren, DeChillo and Friesen (1992) instrument to assess the impact on family practices and showed a good reliability. Paired student t-test was used to compare training intervention. Results: A total of 23 (100%) mothers caregivers participated in trainings. Pre/post-training evaluations show that the training positively impacted trainees' knowledge and empowerment. About 57.1% of participants indicated strongly agree and 42.9% agree increase knowledge of family leadership and self-care topic, about 78.3% and 21.7% right of parents and/or caregivers to be informed and to participate in decision-making regarding the health of their children, 69.2% strongly agree and 30.7% agree about right to legislative support and right to social support, and 83.3% strongly agree and 16.7% agree increase knowledge about other empowerment topics. Participants showed significant differences in practices (90% confidence level, p value= 1.5669E-06). Conclusions: Families with children with special needs experience a significant change in their level of empowerment following training. Some practices related communication with legislators, knowledge about services for their children and interactions with children's professionals should be improve.

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Identification of Organic and Inorganic Electron Donors for Nitrate Reduction in Salivary Bacteria

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Background & Objectives: Recent studies have highlighted the importance of nitric oxide (NO), an endogenous signaling molecule that acts as an intracellular and transcellular messenger for metabolic pathways, as well as provides benefits for human health. In addition to endogenous synthesis via Nitric Oxide Synthase (NOS), availability of this molecule depends on oral bacteria that reduce nitrate to nitrite as part of the entero-salivary pathway. However, significant portion of the nitrate and nitrite in saliva is converted into ammonium via the Dissimilatory Nitrate Reduction into Ammonium pathway (DNRA) depending on the availability of organic electron donors. This could reduce systemic nitric oxide levels, which would increase the risk of cardiometabolic disease. The objective of this pilot optimization study was to identify organic electron donors for nitrate reduction in salivary bacteria. **Methods:** Salivary pellets collected from participants of San Juan Overweigh Adult Longitudinal Study (SOALS) were incubated with 50mM sodium/potassium nitrate in presence of a variety of electron donors, including glucose, sucrose, sodium acetate, sodium lactate, NADP and NADH, under anaerobic conditions. Ammonium produced from these reactions was measured with Nessler's reagent or with an Ammonia Assay kit (Cell Biolabs). DNRA activity was expressed as nmolesNH₄⁺/min/mg protein, measured by the Bradford method. **Results:** Nitrate-dependent ammonium generation was detected in 79% of 87 assays performed. Average DNRA activity (nmolesNH₄⁺/min/mg) for each of the electron donors was as follows: Sucrose: 9.63±1.76 (N=22); glucose: 7.33±6.63 (N=36); sodium acetate:10.88±6.14 (N=6); NADH: 13.42±11.48 (N=9); NADP: 9.57±11.72 (N=6) and sodium lactate:4.10±4.20 (N=8). **Conclusion:** Salivary bacteria can utilize a variety of sugars and sugar fermentation products as electron donors for nitrate reduction into ammonium. This process could result in reduced oral acidity and thus, could reduce risk of dental caries. The implications of this final observation for systemic NO levels and cardiometabolic health needs to be evaluated. **Acknowledgments:** Funding for this work was provided by grant R01DE028195 from the National Institute for Dental and Craniofacial Research (MPIs: K. Joshipura and E. Morou-Bermúdez) and R01DE2011.



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A not so common cause of acute liver failure: a complication of Acute Myeloid Leukemia

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Purpose: Leukostasis is a complication in which plugs of white blood cells are formed in microvasculature causing decreased tissue perfusion and is mostly seen in patients with Acute Myeloid Leukemia (AML). Acute liver failure in AML is extraordinarily rare and when present it is associated with high mortality rate. Here we present a rare case of AML with leukostasis resulting in a rapidly progressive acute liver failure (ALF). Case Description: An 86-year-old man presented to the emergency department due to abdominal and lower back pain. Past medical history remarkable for Acute Myeloid Leukemia diagnosed two months before. Initial laboratories showed leukocytosis of 18.1 k/uL and thrombocytopenia of 38.0 k/uL. Chem profile showed transaminitis (AST 141 U/L, ALT 129 U/L) with elevated Alkaline Phosphatase and normal bilirubin levels. Abdominopelvic CT without obstructive pathology. Patient was admitted for pain management and to monitor thrombocytopenia. In the following two days leukocytosis continued increasing with worsened transaminitis and bilirubin. He developed acute mental changes and hypoxemia. There was a rapid progression of leukocytosis (110.9 k/uL), worsened hepatic function and elevated INR of 2.82. In view of clinical deterioration consistent with leukostasis, patient was transferred to Intensive Care Unit (ICU). While at ICU receiving leukopheresis, patient became hemodynamically unstable and passed away. Conclusion: As previously mentioned, AML with leukostasis causing acute liver failure is extremely rare. Given the acuteness and rapid progression of AML, full workup should be performed to evaluate for possible end-organ damage. ALF in the setting of AML and leukostasis usually presents with transaminitis and cholestatic pattern. Leukostasis is a medical emergency, reason why high suspicion and proper medical management is warranted promptly. The importance of early recognition cannot be understated, as failing to recognize it could limit treatment modalities. Acknowledgements: Authors disclosed they have no conflict of interests.

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Chronic Recurrent Multifocal Osteomyelitis: An Uncommon Cause of Limping

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Chronic recurrent multifocal osteomyelitis (CRMO) is a chronic, sterile, inflammatory disorder in children that primarily affects the bones. It is rare, affects between one in 250,000 to one in 1,000,000 patients. Our case is about an 11-year-old male with limping for over three years of evolution that have sudden onset and no apparent culprit. Right lower extremity Magnetic Resonance Imaging (MRI) showed findings suspicious for septic arthritis and osteomyelitis of the right hip. However, blood laboratories and culture were unremarkable and bone culture and biopsy were negative. Two months later, MRI was repeated showing progression of the disease, reason for which patient was hospitalized and started intravenous clindamycin for a suspected bacterial osteomyelitis. A second bone culture and biopsy were performed, as well as rheumatologic and oncologic work up, blood laboratories and cultures, all were negative. Limping worsened until patient refused to put weight on his right leg and needed to ambulate with the help of crutches. He started with physical therapy five months after the onset of symptoms and continue Clindamycin orally for one year. Patient never improved to walking without limping and one year after completion of Clindamycin, the mother decided to get a second medical opinion. New MRI showed progression of the right hip disease and patient was hospitalized at our institution for a bone biopsy which showed chronic synovitis. Bone culture resulted negative including special staining to rule out mycobacterial and fungi infection, and bilateral Hip X rays resulted in small oval shaped lytic lesion at proximal femoral diaphysis. With these results, patient fulfilled the criteria for CRMO and we decided to started Naproxen resulting in significant clinical improvement. This case illustrates the challenges faced by physicians to quickly identify and diagnose such unusual condition that could result in chronic irreversible changes if left untreated.



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Dysphagia Caused by a “Freak of Nature”: Dysphagia Lusoria

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Purpose: Dysphagia is a worrisome symptom occurring in adults that warrants further evaluation and is commonly consulted to gastroenterologist. Reason of symptom may be due to structural or motility abnormality. A rare etiology of dysphagia is dysphagia lusoria, with a 0.5% prevalence. It results from an embryonic anomaly during the development of the aortic arch and its branches, leading to an extrinsic compression of the esophagus. Usually, the culprit is an aberrant right subclavian artery originating from the left aortic arch. Most are asymptomatic. When symptomatic, patients present with solids dysphagia, coughing or chest pain. Non-severe cases respond to lifestyle and dietary modification. Non-responders may need surgery. We present a case of symptomatic dysphagia lusoria. **Case Description:** A 78 y/o male with history of CKD, GERD who presented with year-long symptoms of choking spells and sensation of stuck food in the neck. Symptoms mostly occurred with solid foods. Denied feeling stuck food in chest, weight loss, emesis, or anorexia. Barium swallow showed a left-sided aortic arch with an aberrant origin of the right subclavian artery causing narrowing of the mid-esophagus with oblique posterior impression by aberrant vessel, suggestive of dysphagia lusoria. CTA with evidence of subclavian artery with retroesophageal course causing mass effect on the posterior aspect of the esophagus. After GI evaluation conservative management was recommended, however, due to the symptoms' persistency, despite current conservative management, vascular surgery service was consulted for possible intervention. **Conclusion:** Dysphagia is classified as oropharyngeal or esophageal and complete history of symptoms assists with the diagnosis. This case highlights the importance of a thorough history and the appropriate use of imaging. The cause of dysphagia was identified with a barium swallow, avoiding other invasive procedures and its risks. We also bring to the attention of clinicians how to recognize this diagnosis and its treatment. **Acknowledgments:** Authors disclose they have no conflicts.

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La pobreza infantil en Puerto Rico, 2015-2019: urge mirar más allá del umbral de pobreza general

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Introducción y objetivos: La pobreza en Puerto Rico representa un problema estructural complejo que afecta de forma desproporcional a diversos grupos poblacionales; entre los más afectados: mujeres, ancianos y niños. En el caso de los menores de 18 años, crecer en condiciones de pobreza tiene un impacto directo sobre su desarrollo y tiene efectos que perduran hasta la adultez. Este trabajo examina las distintas dimensiones de la pobreza infantil en Puerto Rico entre el 2015-2019. **Métodos:** Este trabajo es uno descriptivo transversal. La fuente de datos fue la Encuesta Sobre la Comunidad de Puerto Rico: 2015-2019. **Hallazgos:** En P.R. el 44.2% (1,467,154) de la población vive en pobreza. La población menor de 18 años mostró el nivel más alto de pobreza al compararlo con otros grupos etarios con un 57%. La población más joven (< 5 años) presentó la mayor pobreza (64%). Una proporción considerable de la población infantil vive en pobreza extrema (37.4%). En el caso de las familias, 40% vivían en pobreza, esta cifra aumenta a 58% en familias cuyo jefe del hogar es mujer. La mayor pobreza se observó para aquellas familias con jefatura femenina y menores de 18 años presentes en el hogar (70%). En hogares con < de 5 años esta cifra asciende a 74%. El nivel



de pobreza sobrepasó el 90% para hogares liderados por mujeres y con tres o más niños menores de 18 años. Conclusión: P.R. cuenta con niveles altos de pobreza infantil. Los análisis tradicionales sobre pobreza homogenizan la experiencia humana, por lo que invisibilizan a aquellos que viven en pobreza extrema o justo sobre la línea de pobreza. P.R. experimenta múltiples crisis, por lo que es crucial el desarrollo de política pública que busque erradicar la pobreza y que propulsen el bienestar social de los menores y la población puertorriqueña.

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Genes associated with cardiac diseases in Puerto Rican children with non-syndromic orofacial clefts

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Background & Objectives: In Puerto Rico (PR), the prevalence of congenital heart disease (CHD) was 12.6 per 10,000 live births occupying the first position of all birth defects categories monitored on the island. This anomaly can impact the quality of life in individuals severely affected and, in some cases, can be life threatening. Another common congenital defect in PR is orofacial clefts (OC) with a prevalence of 17 per 10,000 live births. OC can be associated with other congenital malformations and systemic diseases. The specific aim of this study was to determine which genes related with diabetes mellitus (DM) and body mass index (BMI) are associated with cardiac diseases (CHD and cardiovascular diseases) in non-syndromic cleft lip with or without palate (NSCL/P) individuals. **Methods:** Data was extracted from FaceGenes research project: ongoing case-control study of 235 children 0-18 years old with NSCL/P and their parents as cases and 217 unaffected controls in the same age group. Selected 48 single-nucleotide polymorphisms (SNP) of metabolic panel that consisted of 24 SNPs associated with DM and 24 with BMI. Several SNPs were identified previously in sample as significant ($p < 0.05$) variants associated with DM or BMI and cleft lip (CL) and cleft lip and palate (CLP). SNPs were identified in genetic databases to select those associated with cardiac diseases. Prevalence of cardiac diseases in cases vs. controls was estimated. **Results:** From 48 SNPs associated with DM and BMI that were published in genetic databases we identified SNPs in 9 genes associated with cardiac diseases: TNNI3K, FHIT, NRXN3, C5orf67, DGKB, KCNQ1, HMGA2, MTNR1B, CDKN2A. **Conclusions:** Individuals with NSCL/P and variants in genes associated with DM/BMI and cardiac diseases will be further analyzed to determine if they have higher cardiac diseases risk. **Acknowledgments:** This research was supported by grants from National Institutes of Health (NIH): R00DE024571, R00DE022378, U54GM133807, S21MD001830.

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DECREASING EXPOSURE TO ANTIBIOTICS AT BIRTH IN PRETERM NEWBORNS ADMITTED TO THE NEONATAL INTENSIVE CARE UNIT (NICU)

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Introduction: Preterm newborns are more vulnerable to bacterial, viral and fungi infections since their immune system has yet to fully develop. Absence of a fully developed immune system does not allow them to fight off infections like full term babies can. Studies have shown that excessive or unnecessary use of antibiotics can cause long term and potentially harmful effects on the gut microbiome. To reduce the amount of antibiotics administered at admission, the University Pediatric Hospital Neonatal Intensive Care Unit (UPH-NICU) created guidelines for the administration and



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duration of antibiotics. Methods: Medical records of newborns admitted to UPH-NICU were reviewed. Antibiotics use for pre-implementation period (January 2017-June 2017) and (July 2017-June 2021) were compared using Statistix 8.0. IRB approved. Results: There were 1,019 preterm newborns admissions with no difference in birth weights and gestational ages among periods. There was a decrease in antibiotics use at birth (98% vs 89%, $p=0.0035$), use for >72hrs (87% vs 76%, $p=0.0053$) and mean antibiotics days (10 vs 8, $p=0.0036$) in the period post implementation. Conclusions: The implementation of guidelines for the use of antibiotics during the first week of life successfully reduced the days preterm newborns were administered antibiotics and even reduced the number of newborns who received antibiotics at all. Continuous practice of these guidelines is of great importance to reduce the number of newborns exposed to antibiotics and to prevent possible harmful effects from its use.

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Community outreach strategies to understand COVID-19 booster vaccination acceptance among adults in Puerto Rico: The Puerto Rico Community Engagement Research Alliance (PR-CEAL) Against COVID-19 Disparities

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Background & Objectives: Community outreach strategies have played a critical role in health initiatives aimed at reducing inequities around COVID-19. The PR-CEAL (Puerto Rico Community Engagement Alliance Against COVID-19 Disparities) aim to disseminate scientific-based COVID-19 related information and develop evidence-based strategies to promote vaccination and inclusion of Puerto Ricans in clinical studies. **Methods:** The PR-CEAL Community Outreach Group (COEG) developed a community survey tool for the assessment of needs related prevention and education of COVID-19, emergent topic related to COVID, and additional health concerns during the pandemic. Health promoters completed the questionnaire in 20 community engagement activities in collaboration with community-based organizations (CBOs). A total of two phases of this survey were conducted. The first one was implemented in November. The second phase occurred in December, to include new booster vaccine recommendations. **Results:** A total of 289 participants were reached. During the first phase of the study, 94% of the participants received their initial dose of the COVID-19 vaccine. Only 7% had been vaccinated against influenza. Moreover, 12% of the participants were immunocompromised, 16% reported a history of chronic conditions, and 44% lived or worked in a place with a high risk of exposure to COVID-19. The second phase highlighted that more than 40% of the participants had received their booster vaccine dose. However, 89% of individuals who had not received the booster dose reported they are willing to receive it. Hypertension, diabetes, cholesterol, and asthma were the most prevalent health conditions reported by participants. **Conclusions:** These results suggest that the information gathered in community outreach activities can be used to strengthen future community engagement strategies. Efforts to develop targeted booster uptake education, added to reinforcement of the promotion of prevention screening practices for chronic disease and vaccination (including influenza) are needed concurrently with the COVID prevention efforts island wide.



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Cardiovascular Disease and Precision Medicine in Caribbean Hispanic patients

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Introduction: Clopidogrel is prescribed to prevent ischemic events in patients undergoing Percutaneous Coronary Intervention. However, genetics, demographics, and clinical variables can affect clopidogrel response leading to poor health outcomes. To reduce the incidence of major adverse cardiovascular events (MACE), we aimed to validate a clinical decision support tool (CDS) designed to make actionable recommendations about the best treatment option in each patient. Methods: Blood samples were collected from consented participants and platelet reactivity tests were performed to identify poor responders ($PRU \geq 230$) using VerifyNow® P2Y12 assays. Individual CYP2C19*2 and PON1 rs662 genotyping were determined using StepOne TaqMan SNP assays. Risk scores were calculated using the CDS tool. Follow-up calls were made at 1,3,6 months after recruitment to record any treatment-related MACEs occurrence. For statistical analysis, a χ^2 -test was performed. Results: Preliminary results show that the incidence rates of MACEs and bleeding events in the standard of care and the pharmacogenomic-guided groups were 0.40 and 0.28, respectively. The unadjusted odds ratio (OR) for the association between adverse outcomes and treatments at 6 months is 1.714 (95%CI: 0.85-3.51, $p=0.0640$), suggesting that the odds of experience a MACE and bleeding seems to be around 2 times higher in patients whose antiplatelet therapy is guided by the standard of care versus those guided by genetics. Patients who carried a larger number of alleles that correlated with increased PRU were significantly more likely to experience MACE (OR: 3.0, $p= 0.04$). Conclusion: Preliminarily, the implementation of this pharmacogenomic-guided CDS could reduce MACEs and improve health outcomes in Caribbean Hispanic patients. Acknowledgments: This work was supported by grants from NIH, NIMHD, RCMI Grant # U54MD007600/5318 and NIGMS-RISE R25 GM061838. Protocol is approved by the Institutional Review Board (A4070417).

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Diferenciales sociodemográficos de la población con discapacidad en Puerto Rico, 2015-2019

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Trasfondo y objetivos: El 15% de la población mundial tiene algún tipo de discapacidad, observándose una mayor prevalencia en países en desarrollo. El nivel de prevalencia de esta condición en Puerto Rico sobrepasa el observado mundialmente. Esta población es diversa en características, y que debido a las barreras que enfrenta, ve limitada su participación en un plano de igualdad en la sociedad. El objetivo del estudio fue analizar las características sociodemográficas de la población con alguna discapacidad en Puerto Rico para el 2015-2019. Metodología: El estudio



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fue de carácter transversal descriptivo. La fuente de datos fue la Encuesta sobre la Comunidad de Puerto Rico, 2015 al 2019. Resultados: La prevalencia de discapacidad en Puerto Rico es de 22%. Las discapacidades que predominan son: ambulatoria (54%), cognitiva (44%) y vida independiente (44%). Del total de personas con discapacidad, cerca de la mitad tiene 65+ años. Al considerar la discapacidad dentro de cada grupo de edad, se distinguen las edades de 75+ (62%), 65-74 (36%) y 35-64 (21%). Cerca del 30% de la población de 18-64 años experimenta alguna discapacidad. Los mayores de 65 años presentaron el % más alto de personas con más de 1 discapacidad. Al comparar las características sociodemográficas de la población con discapacidad vs aquella sin discapacidad: aquellos con discapacidad, presentaron menor por ciento de empleados (23.8% vs 67.2%); nivel más bajo de población con BA+ (17.3% vs 35.5%); mediana de ingresos más baja (\$24,106 vs \$36,066) y nivel de pobreza más alto (19.9% vs 10.7%). Conclusiones: Las poblaciones con y sin discapacidad presentaron diferencias considerables en sus características sociodemográficas. La población con discapacidad exhibió mayores desventajas que pueden influir en su bienestar. Las características de la población con discapacidad representan un efecto multiplicador para su ya existente vulnerabilidad. Esta situación transgrede su calidad de vida y desarrollo.

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Sueño en el intensivo pediátrico: La experiencia de los niños

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Trasfondo y objetivos: Los niños en las unidades de cuidado intensivo pediátrica (PICU, por sus siglas en inglés) están expuestos a factores físicos, ambientales y farmacológicos que pueden tener un efecto en la interrupción y la pérdida del sueño. La pérdida del sueño ha sido relacionada con la alteración en el estado de ánimo, dificultad para concentrarse, problemas de memoria, ansiedad y bajo rendimiento psicomotor. Los objetivos del estudio fueron explorar las experiencias del sueño desde la perspectiva de niños entre las edades de 8 a 18 años, considerar los factores que afectan el sueño y los facilitadores del sueño en PICU. **Método:** Se utilizó un enfoque descriptivo fenomenológico para comprender las experiencias del sueño en 7 niños admitidos en el PICU. La información fue recopilada mediante entrevistas semiestructuradas transcritas ad verbatim las cuales fueron analizadas exhaustivamente por los investigadores para la identificación de códigos y temas. Se utilizó el método Colaizzi para la interpretación de resultados. **Resultados:** Un total de siete niños participaron en este estudio de investigación. Los niños, en su mayoría, expresaron sentirse cansados y agotados. El ruido y la iluminación fueron los factores más relacionados con la interrupción del sueño. Entre los facilitadores se identificó la presencia de los familiares. **Conclusión:** El sueño de los niños en el PICU es interrumpido. La implementación de estrategias para promover el sueño debe ir dirigida a reducir la exposición al ruido y la iluminación excesiva, así como también, la implementación de intervenciones integradas que promuevan prácticas de sueño saludables. Los niños en PICU necesitan cumplir con los requerimientos del sueño para el logro de mejores resultados.

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Functional Diversity: Community Health Priorities Need Assessment Within Puerto Rican Population.

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Background & Objectives: Functional diversity is a term for special needs, disability, impairment and handicap. According to the United Nations, a thousand million people (15%) around the world lives with functional diversity. The change in demographics into an old population increased people with disabilities (21.6%), sometimes as a result of non-communicable diseases. According to the Puerto Rico (PR) Department of Education, by 2019-2020, 103,318 minors in an age range from 3-21 had a disability (8.2 %). Considering this, the Community Outreach and Engagement Core (CoE) coordinated Community Forums to enhance and maintain community participation in research specifically to more vulnerable sectors in PR. We aim to increase the multi-sectorial coordination necessary for the large-scale social change needed to improve Hispanic community health. **Methods:** A mixed-method including triangulation of community-level epidemiological data, preparedness, resources, and community capacity was applied. The Community Outreach and Engagement Core team conducted two virtual community forums for the population with or serving functional diversity citizens. The forums were conducted on June, 2021 with a participation of 60 citizens from 10 municipalities representing the general community, the academia, and public sector. **Results:** Some of the health priorities stated by participants included: the need of developing an universal definition for disability and patients with special needs; providing training and education to the whole community to raise awareness; to provide early medical evaluations and access to health services; to develop programs/services aimed by children and adults with functional diversity; to gain the right for Supplemental Social Security (SSI) ; to develop a comprehensive program/services for the family structure in the population with autism; and to provide relief for caregivers. **Conclusions:** The assessment of these health priorities will provide the updated data for assisting in proper decision-making measures and for developing needed research initiatives addressing community health. **Acknowledgments:** This research was supported by NIGMS – National Institutes of Health under the Award Number U54GM133807. IRB approved.

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Insidious-Onset Hepatothorax: A Rare Case Without Respiratory Symptomatology

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Purpose: The clinical presentation of a delayed hepatothorax with nonspecific gastrointestinal symptoms and absent respiratory symptomatology makes our case unique and should serve to aid in the early diagnosis and management of patients with a similar clinical picture. **Case Description:** We are reporting a case of a delayed hepatothorax due to a right-sided diaphragmatic rupture 13 years after a blunt trauma due to a motor vehicle accident, who presented as an isolated gastritis without any type of respiratory symptomatology. Physical exam was pertinent for asymmetric thoracic expansion, grunting sounds in 2nd intercostal space and tenderness on the right upper quadrant of the abdomen. A CT-scan confirmed the diagnosis of hepatothorax with diaphragmatic hernia. The grunting sounds were due to the presence of the colon in the thoracic cavity and the reduced right hemi-diaphragmatic expansion was due to the presence of the liver in thorax. A thoracotomy with right sided diaphragmatic hernia repair was executed and reduction of the liver through the diaphragmatic defect was performed successfully. At follow-up, the patient has been in great condition and reported that his gastritis and all the symptoms associated with the traumatic diaphragmatic hernia have resolved. **Conclusion:** A high index of clinical suspicion for hepatothorax due to delayed traumatic diaphragmatic hernia should be maintained for all patients with a history of trauma. A case like ours has not yet been reported in the literature and clinicians should take this case report into consideration when suspecting a possible diagnosis of this type. Our case should serve to aid in the early diagnosis and management of patients with a similar clinical picture. **Acknowledgement:** Special thanks to research mentor Dr. Norman Ramírez-Lluch, MD. The Author(s) declare(s) that there is no conflict of interest.



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An Interactive Learning Module to Aid Medical Students in Dermatology Diagnosis: a Humanistic Approach

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Background and Objectives: The pandemic has affected medical education in vast ways, forcing schools to resort to innovative implementation of research techniques and strategies in order to comply to curriculum standards. Humanism and classical illustrative art can offer a viable solution. Data has shown that medical students struggle with diagnosis of dermatologic conditions. Particularly, dermatology is often the section with poorest student outcomes in NBME exams. The objectives of this project are: 1) To aid medical students in the correct dermatologic diagnosis via association of the condition through the conceptual analysis. 2) To further strengthen student's abilities to diagnose skin conditions in patients from various racial profiles. 3) To reinforce clinical integration skills in medical students via portrayal of classical arts and visual stimulation. **Methods:** A conceptual map was constructed after thorough literature research in dermatology diagnosis and lesion morphology definitions. Q&A virtual sessions were offered to students to facilitate its use. Feedback of the students' experience with our module was recovered via a Google Survey. This information was implemented into improving the module. Further feedback lead to the evolution of the module with hyperlinks that guided students to pictures of patients with diverse ethnodermatology. NBME-like questions of our own authorship that incorporated Humanism and classical art were added to strengthen gained knowledge. The final work is in process of being published in MedEd Portal. **Results:** Medical students reported high satisfaction with the learning module and the creative strategies implemented to strengthen dermatology knowledge. The NBME-like questions of our authorship were regarded as "very high yield", "a fun and dynamic way to learn", and "very worthy of my time". **Conclusions:** The implementation of this model directly correlates with improved outcome of student performance in NBME dermatology questions documented in school and board exams. **Acknowledgements:** To our SJB family for the creativity and versatility during a difficult time, for providing the opportunity of research. To Dra. Martha García, for always encouraging us to strive for more. Authors disclose no conflict of interest nor financial support for this project.

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Acute Renal Infarction: Undiagnosed Abdominal Pain

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Purpose: Acute Renal Infarction (ARI) is an under-recognized condition often missed or diagnosed late in its course, representing poor patient outcomes. Since early diagnosis and treatment are paramount to avoid mortality, it is our aim to introduce our clinicians with the presentation of ARI in our patient population. **Case description:** Case of a 94 years old female with medical history of Atrial fibrillation, Hypertension, Type 2 Diabetes, Osteoporosis and Hypothyroidism who presented to the emergency department with chief complaint of severe epigastric pain, dyspnea on exertion and bilateral leg edema and was consulted to our service with the suspicion of decompensated heart failure. Physical exam was remarkable for elevated blood pressure, tachycardia with an irregularly irregular rhythm, tachypnea with lungs clear to auscultation, distended abdomen with tenderness to palpation in the right lower quadrant and no edema in lower extremities. Laboratory workup was remarkable for elevated creatinine levels, elevated white blood cells, lactic acid, troponin and brain natriuretic peptide levels. Patient had to be cardioverted and was placed on non-invasive positive pressure ventilation due to worsening respiratory distress; a nitroglycerin drip was started and one dose of furosemide administered. Abdominopelvic CT scan with contrast suggested the presence of bilateral renal infarcts. Patient's clinical picture continued to deteriorate despite our efforts and the patient expired. **Conclusion:** The principal etiology of ARI



consists of thromboemboli or in-situ thrombosis. ARI can lead to renovascular hypertension, CKD and/or ESRD. Its clinical manifestations can be non-specific and include flank pain, nausea, vomiting, fever or acute elevation in blood pressure. If timely diagnosis can be achieved by keeping high suspicion of the condition, early use of anticoagulants, control of atrial fibrillation and close monitoring of renal function can result in improved patient outcomes and lower mortality. Acknowledgement: To our beloved faculty, thank you for everything you have instilled in us in your efforts for us to become great family physicians. We would always remember.

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Comprobando la efectividad del “Science take-out kit” sobre los factores de riesgo de Cáncer de Seno en la comunidad puertorriqueña

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Trasfondo y Objetivos: El Cáncer de Seno es clasificado como el Cáncer de mayor incidencia en Puerto Rico cuya tasa de mortalidad alcanzó 18.9% en el 2015. Educar a la comunidad puertorriqueña sobre los factores que podrían aumentar el riesgo de Cáncer de Seno y dar a conocer alternativas para reducir el riesgo es crucial. El objetivo principal de este estudio fue comprobar la efectividad del “Science take-out kit” como herramienta para incrementar el conocimiento sobre los factores de riesgo del Cáncer de Seno y métodos para minimizar los factores que podemos controlar. **Métodos:** El estudio reclutó a participantes que cumplieron con los criterios de inclusión: ser residente de Puerto Rico, tener 18 años o más y ser estudiante con conocimiento básico en genética. Se utilizó el “Science take-out kit” titulado: Factores de Riesgo de Cáncer de Seno. Se desarrolló e implementó una pre- y pos- prueba, como herramienta para evaluar el conocimiento antes y después de la intervención educativa. Dicha intervención se ofreció en forma de presentación y fue acompañada por una actividad interactiva donde cada participante recibió un kit para reforzar el conocimiento de los ensayos evaluativos mediante una dinámica con prueba simuladora de ADN para identificar la mutación del gen BRCA1 e infografías sobre el tema. **Resultados:** Se reclutó un total de 18 participantes. El promedio en la pre-prueba fue de 59.4%, mientras que en la pos-prueba fue de 97.1%. El porcentaje promedio de respuestas correctas aumentó por un 37.7% después de la intervención educativa. **Conclusión:** El “Science take-out kit” como herramienta educativa complementaria fue efectivo en ayudar a transmitir la información sobre los factores de riesgo del Cáncer de Seno. En futuras investigaciones, se podría evaluar la efectividad del “kit” en una comunidad sin conocimiento previo en las ciencias de la salud. **Agradecimiento:** Este proyecto se realizó bajo la mentoría de la Dra. Nancy Cardona Cordero.

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Nivel de alfabetización digital entre los proveedores de servicio en Centros de Actividades y Servicios Múltiples en Puerto Rico

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Trasfondo y objetivos: La alfabetización digital, la habilidad de usar tecnologías de información y comunicación en multimedios, ha cobrado importancia en P.R. desde el 2017 debido a los desastres naturales que han afectado el país. Este estudio pretende identificar el grado de alfabetización digital que poseen los proveedores de servicio en Centros de Actividades y Servicios Múltiples (CASM) y su percepción sobre los factores que afectan la utilización de tecnologías por parte de los adultos mayores que visitan sus centros. **Metodología:** Se llevó a cabo un estudio transversal en una



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muestra de 38 proveedores de servicio dentro de 19 CASM. La recopilación de datos fue mediante un cuestionario en línea utilizando REDCAP. La escala utilizada para medir nivel de alfabetización fue creada utilizando la percepción de los proveedores. Se utilizó la prueba de ji-cuadrado para comparar el nivel por región del CASM. Resultados: El 31.6% de los proveedores tienen un grado de alfabetización bajo, mientras que 34.2% tiene un nivel intermedio. Casi la mitad (46.7%) de los proveedores de la Región II tienen un grado de alfabetización intermedio comparado a 26.1% de la Región I, una diferencia no significativa ($p > 0.05$). Algunas barreras que afectan la comunicación virtual de los adultos mayores mencionadas incluyen: la disponibilidad de equipos, acceso a internet de calidad y capacitación al adulto mayor sobre el uso de equipos. Conclusiones: Nuestros resultados sugieren que los proveedores de servicios de los CASM participantes, perciben contar con un grado de alfabetización de moderado a alto. A pesar de esto mostraron tener dificultades, por lo que la información recopilada ayudará a sentar bases para establecer una nueva política dirigida a unir esfuerzos con estrategias de educación, prevención y programas tanto para proveedores como para los adultos mayores dirigidas a minimizar la brecha digital. Agradecimientos: Los autores agradecen a los Proveedores de Servicio de los Centros de Servicios y Actividades Múltiples de Puerto Rico, la Alianza Hispana para la Investigación Clínica y Traslacional y la Oficina del Procurador de Personas de Edad Avanzada. Aprobado por IRB: Protocolo #6570121

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Características físicas de la vivienda Puerto Rico: 2015-2019

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Trasfondo: Actualmente, Puerto Rico enfrenta, como crisis de vivienda, la falta de acceso de las familias e individuos a una vivienda asequible. Las listas de espera por vivienda pública sobrepasan las 30,000 personas, se estima que hay 388,523 unidades de viviendas vacantes y hay un aumento desmedido en los desahucios y ejecuciones de hipoteca. Por otro lado, la población de Puerto Rico es vieja y su estructura familiar ha cambiado, por lo que la oferta actual de vivienda no se adecúa a las necesidades demográficas de la población. Objetivo: Describir las características físicas de la vivienda en Puerto Rico. Método: Esta investigación se basa en la Encuesta Sobre la Comunidad de Puerto Rico, que se realizó entre el 2015 y el 2019, por la Oficina del Censo de los Estados Unidos, con un análisis descriptivo. Resultados: Se estimó que había, en Puerto Rico, 1,560,836 unidades de vivienda (76% ocupadas y 24% vacantes). De las ocupadas, 68% era de propietarios/as y 32% de inquilinos/as, menos del 5% no tenía las instalaciones de baño o cocina completas o teléfono y al 47%, sus jefes/as se mudaron el siglo pasado. Se encontró también que 86% de las viviendas se construyeron en el siglo pasado y 72% tenía 3 o más dormitorios. De las viviendas ocupadas por propietarios/as, 71% tenía un valor inferior de \$150,000 y 39% estaba hipotecada. Conclusión: Este análisis genera preocupación sobre la situación de vivienda por sus características: no todas tienen baño completo o cocina completa, muchas son de vieja construcción, podrían ser muy grandes y bastantes viviendas tienen hipoteca o alquiler, siendo un gasto importante para sus habitantes. Se recomienda más investigaciones sobre la vivienda y las condiciones de vida de la población. La vivienda implica mayor seguridad y mejor salud, que redundan en mayor bienestar de las personas.

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La población que reside en las zonas costeras en Puerto Rico: indicadores de vulnerabilidad

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Introducción y objetivos: Entre un 50-60% de la población mundial reside cerca de las costas. Residir cerca de estas costas representa enormes riesgos, en particular las áreas con exposición al cambio climático y fenómenos atmosféricos. Las características de la población de estas áreas pueden agudizar estos riesgos. El objetivo del estudio fue analizar indicadores de vulnerabilidad de la población que reside en los municipios costeros de Puerto



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Rico del 2015 al 2019. Métodos: El estudio fue de tipo transversal descriptivo. La fuente de información fue el Puerto Rico Community Survey, 2015-2019. Para el análisis, se seleccionaron indicadores del índice de vulnerabilidad del CDC. Resultados: El 60% de la población del P.R. reside en municipios costeros. Comparada con los municipios no costeros, estos municipios contienen mayor densidad poblacional (1,205 vs 1,001) y de vivienda (590 vs 423). No se mostro diferencia considerable en vulnerabilidad al ver ambos grupos de municipios agrupados. Los municipios costeros si presentaron marcadas diferencias en estos indicadores, demostrando diferentes niveles de vulnerabilidad. La tasa de pobreza de Guánica (63%) es considerablemente mayor que la de Guaynabo (25%). Guánica también se distanció marcadamente del municipio con menor desempleo, Culebra (30% vs 3%). La tasa de personas sin diploma de escuela superior presenta a Lajas (37) en el tope y Carolina (15) como la más baja. La tasa de población con alguna discapacidad también presenta una diferencia marcada entre Guánica (37) y Vieques (7). Conclusión: Puerto Rico contiene una alta densidad poblacional en municipios costeros, con muchos mostrando niveles altos de vulnerabilidad. Esto resulta en un evento multiplicador de riesgos ante el ya experimentado por su ubicación geográfica. En un archipiélago expuesto constantemente a fenómenos atmosféricos como huracanes y al aumento del nivel del mar, es considerar estos datos para prevenir y mitigar daños que pueden causar estos eventos.

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Education and low income as predictors of knowledge, attitudes, and practices regarding clinical research participation in Puerto Rico

Enid García

Background and objectives. Hispanics have traditionally been underrepresented in clinical research, and distrust and literacy-related misconceptions have partially explained why. Initiatives to encourage clinical research among minority populations require the evaluation of potential barriers to participation. This study aimed to evaluate the relationship between education and income with the knowledge, attitudes, and practices toward clinical research in Puerto Rico. Methods. In this cross-sectional study, a validated 125 items questionnaire designed to explore knowledge, attitudes, and practices regarding clinical trials was administered to a convenience sample of adults receiving services at three clinics affiliated to the UPR School of Medicine. We evaluated the associations between education and family income with their answers concerning participation in clinical research. Descriptive statistics, non-parametric ordinal approaches, and multiple regression were done for the analysis. Results. Of 219 participants, 68.5% were female, 50.7% had no postsecondary education, and 58.4% had an annual family income of \$15,000 or less. Participants in this low-income bracket and those with no post-secondary education were significantly less likely ($p < 0.05$) to know what clinical research is, its difference from medical treatment, and to know about related topics such as voluntary participation, potential benefits, and participant's rights. However, they were more likely to participate in clinical trials involving medications. Low-income participants were more likely to believe that participation in clinical trials for a new medication could be dangerous. Both sub-groups were less likely to have participated in clinical trials before (low-income, $p = 0.02$; education, $p < 0.01$). Conclusion. Both low-income and no postsecondary education were associated with lower knowledge and interest in participation in clinical research. Educational efforts about clinical trials and participants' rights should be more broadly disseminated among disadvantaged populations in Puerto Rico. Acknowledgements. This study was supported by the UPR Endowed Health Services Research Center through grants 5S21MD000242 and 5S21MD000138, from the National Center for Minority Health and Health Disparities, National Institutes of Health (NCMHD-NIH). Its contents are the sole responsibility of the authors and do not necessarily represent the official views of NCMHD- NIH.



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Health Humanities and Arts:” The Tabonuco” (Tabo-New-Co)” - A Transformative Psychosocial Educational Model for Mental Health and Wellness

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Background and Objectives: Responding to the growing urgent global mental health needs, we designed a model using syndemics approach plus design thinking principles, to create an interprofessional psychoeducational “culturally fluid”, adapted intervention for healthcare providers and other survivors of these catastrophic events. The “Tabonuco” (ta-bo-new-co), a native tree of Puerto Rico, that spreads its roots to connect, nourish and strengthen other trees, is the symbol for the model. The objectives of this project were: • Create a transdisciplinary model adapted to the vulnerabilities of health care providers and the community through health humanities and arts. • Provide participants with a theoretic, analytical, and documentary instrument on the psychosocial impact of disasters able to cause an important and lasting change. • Assess the impact of the intervention through measures of interaction, acceptability, and individual outcomes. **Methods:** We combine evidence-based therapies with health humanities and arts to create briefing and debriefing scenarios, support well-being, create social connection, spark, and sustain change and communicate across differences. This 5-hour intervention has been implemented in Puerto Rico after two major hurricanes, earthquakes, political crisis, in the context of the COVID19 pandemics and, preparing for the long-term effects of this human experience. The model has demonstrated reliability and applicability to different scenarios and is aligned with several of the required competencies for health professionals through the continuum. Effectiveness and perceived benefits of the workshop were assessed through pre, and post workshop surveys based in the Kirkpatrick's Four-Level Training Evaluation Model. **Results:** More than 30 online and onsite activities with cross-sector collaboration have been developed with almost 900 voluntary participants of diverse ethnoracial identities, population groups and backgrounds. Comparison of pre and post-workshop data showed a statistically significant increase in participants' confidence in meeting all learning objectives. Participants positively commented on the interactive nature and received benefits of the workshop.

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Perceptions of Government Response to the COVID-19 Pandemic in Puerto Rico: Comparing Participants' Assessments of Two Public Administrations

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Background/Objectives: COVID-19 pandemic posed extraordinary challenges to governments around the world. People assessments about the quality of government management of this crisis may inform plans to respond to similar events. We explored global assessments and differences in perception about the quality of government response to the COVID-19 pandemic among residents of Puerto Rico during Governor Vázquez's administration (G1; n = 1124) and the first 5-month period of Governor Pierluisi's management (G2; n = 582). **Methods:** Participants were 1706 adults (79.89% women) aged 21-79 years who completed an online survey (UPR-RP IRB #1920-194) available between June 10, 2020 and June 9, 2021. They must be PR residents for at least 3 months before enrollment, have access to internet, and be able to understand written Spanish. The survey included the Government Response to COVID-19 Assessment Scale ($\alpha = .953$). **Results:** Groups differed on their distribution by sex, income, religious beliefs (Yes/No), and households were children lived. We used MANCOVA adjusting for these variables, followed by individual ANCOVAs for each area assessed and for Total scores. MANCOVA results were significant [$F(13, 1679) = 20.07, p \leq .001, \eta^2 = 0.134$]. G2 members rated government response significantly better than G1 participants in 12 areas ($p \leq .001$), with greater effect sizes for managing economic aids, COVID testing, contact tracing, and results reporting logistic. We observed no difference on timeliness for implementing COVID-19 control measures. G2 also reported significantly higher mean Total scores (50.71 vs. 37.51) than their counterparts [$F(1, 1691) = 80.10, p \leq .001, \eta^2 = 0.045$]. **Conclusion:** Ratings about the quality of Pierluisi's administration pandemic-related response exceeded those for its predecessor even after adjusting for demographics. However, important deficiencies were identified in both administrations, particularly when communicating plans to overcome the pandemic negative consequences on economics, food security, and health-related areas. **Acknowledgements:** Personal funds from the second and fourth authors were used to conduct this research. The authors have no conflict of interest to disclose.

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The effect of Leukemia inhibitor factor in neuronal survival after HIV-gp120 protein treatment in vitro

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Background: HIV-induced neurotoxicity remains an important yet and unmanageable manifestation of the disease, despite the effective pharmacological therapy on viral replication. Viral envelope glycoprotein gp120 is known to disrupt the integrity of the blood-brain barrier and mediating the entry of HIV into the CNS, is associated to induce dendritic and axonal degeneration leading to neurological deterioration, motor and learning impairment, collectively called HIV-associated neurocognitive disorders. Hence, another approach is needed to prevent or alleviate CNS damage after HIV infection. Leukemia Inhibitory Factor (LIF) is a cytokine known for its protective effect on glial cells, inducing GFAP+ astrocytes differentiation and development as well to increase self-renewal of neural stem cells to promote production and survival of neurons. **Objective:** In the current project we evaluate the efficacy of LIF to promote neuronal cell communication and survival inducing neuroprotective factors on rat embryos hippocampal astrocytes and neurons after treatment of HIV-gp120 protein in vitro. After extraction and primary neuron-astrocyte co-culture, cells are treated with LIF. **Methods:** To evaluate the integrity of LIF-induced cells, application of antibodies NeuN and MAP-2 are used to determine neuronal differentiation, mature neuron expression, respectively. Changes in the expression of these proteins are determined by immunoblotting and confocal microscopy is used for histological evaluation of the effects of LIF. **Results:** Our preliminary results demonstrate the expression of NeuN protein after treatment with HIV-Nef protein and LIF in western blot analysis. We observed in confocal microscopy studies expression of MAP2 in the presence of LIF suggesting that LIF is modulating the neuroinflammation and expression of NeuN in the presence of LIF compared to cells treated with gp120 which suggest that LIF is promoting neuronal development. **Conclusions:** LIF modulated



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neuroinflammation after HIV infection but to validate this data, we need to replicate independent experiments of confocal microscopy studies. Acknowledgments: The project described was supported by Universidad Central Del Caribe (UCC), the Hispanic Alliance for clinical and translational Research (The Alliance) Grant Number: U54 MD007587 Source: National Institute on Minority Health and Health Disparities (NIMHD) of National Institutes of Health (NIH), Expanding Undergraduate Students Education, Opportunities and Options in Clinical and Translational Research Supported by the US Department of Education: Title V Grant Award #P031S160068 and MAC - FRED Program 2018.

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Patient Experience and Perspective on Medical Cannabis as an Alternative for Musculoskeletal Pain Management

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Background & Objectives: The current narcotic crisis and increasing rate of opioid prescription for musculoskeletal pain management have raised concerns due to their high abuse potential, dangerous side effects, and thousands of overdose deaths. This situation exposes the urgent need for pursuing better alternatives to achieve adequate pain control. This study sought to evaluate the experience and the perceived analgesic efficacy of medical cannabis in managing the pain associated with musculoskeletal conditions. **Methods:** During two months, 184 patients from a major medical cannabis center in Puerto Rico were provided with a 28-question survey. The questionnaire assessed the patient's demographics, past medical history, cannabis usage, cannabis use perspective, and analgesic efficacy. Categorical data was evaluated using Pearson Chi-Square, and continuous data was assessed with Analysis of Variance (ANOVA). **Results:** The study showed that 89% of the patients considered medical cannabis more effective than narcotics for pain management. In addition, we observed an average pain reduction score of 4.02 points on the Numeric Rating Scale (NRS). Within subgroups, the patients with orthopedic conditions reported a significant average pain reduction of 4.47 points. In contrast, the rest of the participants showed a significant decrease in average pain score of 3.70 points. Moreover, most participants using medical cannabis considered that this drug represents a better option than narcotics for adequate pain management. **Conclusions:** This study demonstrated that the use of medical cannabis among patients with musculoskeletal conditions resulted in significant pain reduction based on their reported scores. Our results suggest that medical cannabis could represent a safer alternative for achieving musculoskeletal pain management while minimizing the dangerous side effects and thousands of deaths associated with traditional narcotics.

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Retrospective Evaluation Using Whole-Exome Sequencing as a First Genetic Testing Approach in Puerto Ricans with Neurogenetic Complex Traits

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Objectives: Assess the diagnostic yield and test utilization of whole exome sequencing (WES) in patients having neurogenetic traits. We aim to evaluate the use of the first genetic approach for the identification of variants that contribute to neurogenetic disease etiology and influence onset and progression in Puerto Ricans. **Methods:** Prospective cohort of 45 Puerto Rican probands (19 months - 36 years old) with complex neurogenetic traits that underwent WES. WES included copy number variant analysis and mitochondrial genome sequencing. We evaluated several factors possibly influencing the rate of WES diagnosis including early age, consanguinity, and family history of neurogenetic diseases. In addition, we only evaluated probands rather than dyads/trios and the clinical phenotypes. Descriptive analysis was performed, including a catalog of all variants reported. Multivariate analysis was performed to estimate the statistical association between variants and phenotypes reported and adjusting for potential confounders (age, sex, family history, income, insurance, and zip code). **Results:** Auspiciously, positive pathogenic findings altered the clinical management in 29% of the probands in this study. A likely genetic diagnosis was achieved in 53% of the probands including pathogenic, likely pathogenic and variants of uncertain significance. Intronic variants, copy number variants detection and mitochondrial genome was included in WES methodology. Despite these facts, a 47% of reported WES were negative, which deserve re-analysis potentially genotype based. Multivariate analysis is expected to adjust for potential confounders to establish a genotype-phenotype correlations in neurogenetic complex traits in this Puerto Rican admixed population. **Conclusions:** Clinical WES offers an alternative approach for identification of variants in patients with complex traits. WES is also applicable in genetically heterogeneous individuals when specific genetic tests are not available or unsuccessful. Variants reported contribute to understand complex neurogenetic disease in underrepresented Puerto Ricans. IRB protocol 8090121. **Acknowledgement:** This research was supported by HCTRECD program R25MD007607.



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