

Institute for Women's Health 17<sup>th</sup> Annual Women's Health Research Day  
Poster Abstracts

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1. Use of functional near infrared spectroscopy (fNIRS) to detect unique patterns of neuroexcitation during natural filling in women with overactive bladder

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Background: Functional near infrared spectroscopy (fNIRS) is a non-invasive technique used to quantify prefrontal cortex oxyhemoglobin (O<sub>2</sub>Hb) concentration or neuroexcitation during micturition. The objective was to compare prefrontal cortical O<sub>2</sub>Hb during natural filling in female participants with and without overactive bladder (OAB). Methods: Female participants with OAB were compared to controls without urinary urgency. Participants underwent continuous recording of prefrontal cortical O<sub>2</sub>Hb using fNIRS during validated oral hydration protocol. Simultaneously recordings of real-time sensation (0-100%) and "first desire" to void were completed. A period of "elevated urgency" was defined as the time from first desire to 100% sensation. Channels were sub-analyzed by cortical regions: right (9), left (9), and middle (6). Results: Nineteen participants completed the study, including 9 with OAB and 10 without. The OAB group was older and had a higher BMI. O<sub>2</sub>Hb rate of change during the elevated urgency time period was significantly different between groups in all cortical regions (OAB 57.0±22.2% vs controls 89.6±11.5%, p<0.001). Change in O<sub>2</sub>Hb from 0 to 100% sensation was significantly lower in all prefrontal cortical regions in the OAB group (OAB -0.02±0.86 vs control 1.32±0.35, p<0.001) and 16/24 individual channels. Conclusion: This study demonstrates that fNIRS cortical excitation during a period of elevated urgency is consistently lower in women with OAB as compared to controls. With additional research, fNIRS has the potential to detect unique neuroexcitation patterns in OAB. More importantly, although limited, this data supports the hypothesis that the prefrontal cortex plays an inhibitory role in voiding function and that there may be a lack of inhibitory control in women with OAB.

2. "Please listen to me": Long COVID patients and primary care provider communication

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A significant proportion of those with COVID-19 go on to on. Long COVID, defined as those experiencing lingering or novel symptoms after COVID-19 infection, primarily affects women. Primary care providers (PCPs) are often the first healthcare providers taking care of a Long COVID patient. The study's aims are: Aim 1: Determine gender differences in patient/provider interactions among Long COVID patients. Aim 2: Determine if patient/provider interactions among U.S. women with Long COVID symptoms affect their Health-Related Quality of Life (HRQoL). Method: Survey firm Qualtrics was used to recruit and survey a sample of 699 English-speaking individuals with Long COVID in the U.S. Measures used were demographics, Patient Provider Experiences (the Wake Forest Trust in Physicians scale, and the Health-related Quality of Life scale (HRQOL). Results & Discussion: Compared to male Long COVID patients, female Long COVID patients were more likely to report lower health-related quality of life ( $p=.001$ ). Compared to those without a bachelor's degree, those with a bachelor's degree or higher were more likely report a higher HRQOL ( $p<.001$ ). Those who reported higher levels of religiosity ( $p<.001$ ) were more likely to report lower HRQOL ( $p<.001$ ). Compared to those identifying as liberals, moderates were more likely to report lower HRQOL ( $p<.001$ ). Finally, those reporting better experiences with their primary care provider interactions, were more likely to report higher HRQOL ( $p=.012$ ). These results provide insight into possible communication recommendations for primary care providers taking care of, particularly, female Long COVID patients.

### 3. Acoustic Startle Suppression in Female Adolescent Athletes Following Concussion

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**Background:** Due to its structure and sensitivity to rotational forces, the brainstem is vulnerable to injury from head impacts. The acoustic startle reflex is a brainstem-mediated reflex that is suppressed in animal models of concussion; however, the startle reflex has not been investigated in athletes following concussion, and female athletes are vastly underrepresented. **Purpose:** To investigate the acoustic startle reflex in recently concussed female adolescent athletes compared to those with a concussion history and healthy controls. **Methods:** We conducted a cross-sectional study on 24 female adolescent athletes with a recent concussion ( $n=7$ ; age:  $13.4 \pm 3.4$  years), a concussion history ( $n=5$ ; age:  $16.0 \pm 1.4$  years), and healthy controls ( $n=12$ ; age:  $15.5 \pm 2.4$  years). Acoustic startle probes were administered to participants through noise-canceling headphones. The startle reflex was recorded via electromyography using electrodes placed under the right eye. The dependent variable was mean startle magnitude ( $\mu\text{V}$ ), and group was the independent variable. We used a one-way analysis of variance to compare mean startle magnitude between groups. **Results:** Mean startle magnitude was significantly suppressed in both recently concussed adolescent athletes and those with a concussion history compared to healthy controls (concussion:  $82.6 \pm 32.7 \mu\text{V}$ ; concussion history:  $83.4 \pm 32.0 \mu\text{V}$ , healthy:  $189.5 \pm 161.3 \mu\text{V}$ ,  $F=3.44$ ,  $p=0.05$ ). **Conclusion:** Our results provide novel evidence for a distinct suppression of the startle response in female adolescent athletes following concussion. Furthermore, the concussion history group remained attenuated, suggesting there may be lingering physiological dysfunction beyond clinical concussion recovery detectable by startle assessment.

4. Assessment of Secondary Primary Malignancies in Primary Cutaneous Anaplastic Large Cell Lymphoma by Gender

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**Background:** There is a paucity of data on the subsequent risk of developing secondary primary malignancies (SPMs) in patients with primary cutaneous anaplastic large cell lymphoma (PCALCL) by gender. **Methods:** The Surveillance, Epidemiological, and End Result (SEER) database (2000-2018) was searched to determine the overall risk for subsequent SPM among patients diagnosed with an initial PCALCL who survived for at least two months. The risk was calculated using Standardized Incidence Ratios (SIRs): the ratio of the observed SPMs among PCALCL survivors to the expected number among the general population (Observed: Expected ratios). Statistical significance was defined as a p-value <0.05 and 95% Confidence Intervals (CIs). PCALCL and SPM were detected by using the International Classification of Diseases for Oncology 3rd edition (ICD-O-3) codes. **Results:** 1,557 cases of PCALCL were detected, with 897(58%) male(m) and 660 (42%) female(f). Females with PCALCL had a higher risk than males (O:E 1.59, 95% CI 1.16-2.14) of developing a SPM across all sites (O:E 1.80, 95% CI 1.19-2.62) within 1-5 years. Females also had a statistically significant increased risk of developing a SPM of the larynx (O:E 87.23, 95% CI 2.21-485.99) within 1 year. Males had a statistically significant increased risk of developing a SPM of the transverse colon (O:E 15.39, 95% CI 1.86-55.60) within 5-10 years. **Conclusion:** Each gender is prone to develop different secondary malignancies. Further studies are needed to determine these differences. Cancer surveillance in survivors of PCALCL is warranted, especially by gender.

5. Depression Scores and Biological Sex Do Not Influence Acoustic Startle Response in Adolescent Athletes Following Concussion

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Background: Concussions are associated with increased neuropsychological symptoms, including depression. Depression symptoms have been shown to influence acoustic startle response (ASR), a brainstem mediated reflex likely suppressed following concussion. Furthermore, females are more likely to report post-concussion depression symptoms. It is currently unknown how mental health outcomes and biological sex influence ASR suppression after concussion. Purpose: Our purpose was to investigate the relationship between depression scores, biological sex, and ASR in athletes with a recent concussion. We hypothesized that 1) post-concussion athletes with elevated symptoms of depression would have a more suppressed ASR and 2) this suppression would be exacerbated in female athletes. Methods: We conducted a cross-sectional study on 22 adolescent athletes with a recent concussion (age:  $15.0 \pm 2.3$  years; 55% female). Acoustic startle probes were administered to participants through noise-canceling headphones, and startle magnitude was measured using the eye blink magnitude via electromyography. Depression symptoms were measured with the PROMIS-29. The primary dependent variable was mean startle magnitude ( $\mu\text{V}$ ), and the independent variable was depression score with sex as a covariate. We used a one-way ANCOVA to examine the relationship between depression scores and startle magnitude controlling for biological sex. Results: There was not an overall significant effect of depression scores on startle magnitude after controlling for biological sex  $F(2,19) = 1.43, p=0.26$ . Conclusion: Neither depression scores nor biological sex had a significant effect on ASR magnitude in adolescent athletes following concussion. Future research should investigate other moderators that may influence ASR following concussion.

## 6. Receptor Identification of *Sneathia Vaginalis* Cytopathic toxin A

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*Sneathia vaginalis*, originally named *Leptotrichia amnionii*, is an emerging pathogen of pregnancy. It went largely unrecognized prior to the widespread use of DNA sequencing for bacterial identification. *S. vaginalis* is a Gram-negative anaerobe that resides mainly in the female lower reproductive tract. Microbiome studies reveal that this species is significantly associated with preterm birth and preterm premature rupture of membranes, and it is one of the most common isolates from infected amniotic fluid. It produces a pore-forming toxin, the cytopathogenic toxin A (CptA), which has been shown to play a role in the traversal of *S. vaginalis* through fetal membranes *ex vivo* and may therefore be an important virulence factor. The *cptA* gene encodes a 2,130 amino acid (aa) protein that consists of a predicted signal peptide (aa 1-23), a predicted globular domain (aa 24-1342) and a repeat region (aa 1364-2044). Our lab has determined that the globular domain is sufficient to induce pore formation whereas the repeat region lacks this activity. We cloned the repeat region (1364-2044) of *cptA* into an expression vector, purified recombinant protein from *E. coli*, labeled it with Alexa Fluor 488, and assessed binding to Jeg-3 chorionic trophoblast cells by fluorescence microscopy. The repeat region exhibited high affinity for the epithelial cell surface. To identify the receptor, the recombinant protein was used, along with a crosslinking agent, in pull-down assays. Proteins with affinity for the CptA repeat region were visualized by SDS-PAGE gel and we are preparing to identify proteins by mass spectrometry. A better understanding of the pathogenesis of *S. vaginalis* is needed to define the role of this poorly characterized bacterial species in pregnancy outcome and may ultimately lead to methods of prevention and/or intervention.

7. A preliminary fNIRS study comparing sex differences in prefrontal cortical oxyhemoglobin concentration during natural bladder filling

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**Introduction and Objectives:** Prefrontal oxyhemoglobin concentration (O<sub>2</sub>Hb) measured with functional near infrared spectroscopy (fNIRS) increases during bladder filling. The objective of this study was to compare sex-related differences in cortical O<sub>2</sub>Hb using fNIRS during a natural bladder filling protocol. **Methods:** Participants with a negative urgency screen completed an oral hydration protocol. A 24-channel fNIRS template recorded prefrontal cortical O<sub>2</sub>Hb continuously during fill and void cycles. A Sensation Meter recorded patient-reported “first desire” to void and urgency (0-100%). Data were analyzed between “first desire” to void and 100% sensation, defined as “elevated urgency.” Cortical regions were sub-analyzed by channels grouping: right, left, and middle. **Results:** 18 participants (female=10, male=8) were enrolled with a mean age of 38.17 years. There were no differences in age, race, or urgency screen scores based on sex. The change in O<sub>2</sub>Hb between baseline and elevated urgency was similar between groups for 23/24 channels and all cortical regions. The exponential fit during elevated urgency was not different based on biological sex ( $r^2 > 0.5$  in 79.1% females and 76.6% males,  $p=0.640$ ). Overall, O<sub>2</sub>Hb increased with a positive slope in 88.0% of participants and did not differ between groups in all 24 channels. The greatest changes in O<sub>2</sub>Hb were in the right lateral regions of the prefrontal cortex. **Conclusion:** This study identified an increase in NIRS-detected prefrontal cortical O<sub>2</sub>Hb concentration with filling which did not differ based on biological sex. In the future, fNIRS may improve phenotyping of voiding disorders based on the identification of specific cortical patterns of neuroexcitation.

8. SPAG17 deficiency promotes accelerated female reproductive aging and fibrosis leading to reduced fertility and parturition defects

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Advanced female age is associated with fibrosis in the reproductive tract causing uterine and cervical dysfunction. These changes lead to infertility, pregnancy complications and congenital defects in the offspring. As mean maternal age is increasing worldwide, there is a pressing need to prevent age-associated infertility and pregnancy complications. The molecular mechanisms underlying female reproductive aging and fibrosis are complex and currently not well understood. We have recently discovered a new mechanistic pathway implicated in aging and fibrosis via sperm associated antigen 17 (SPAG17) signaling. Our studies revealed different expression levels of Spag17 mRNA at various gestational ages (D6 to D18), and in the postpartum (2 to 48 h) period in mouse uterine and cervical tissues. Loss of function of this gene promotes accelerated aging in the female reproductive tract accompanied with constitutive activation of profibrotic signaling pathways. Moreover, increased collagen deposition, tightly packed extracellular matrix accumulation and increased stiffness was detected in the uterus and cervix of Spag17 knockout females compared to same age wild-type females. Importantly, loss of Spag17 showed reduced litter size and obstructed labor leading to maternal death. In conclusion, these results show that SPAG17 is an important regulator of aging and fibrosis and pharmacologic approaches targeting SPAG17 signaling may be a potential mechanism to prevent reproductive aging.



9. Effect of chronic moderate- and high-fructose consumption on cognition and metabolic function in male and female rats

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With the increased use of fructose in processed foods and beverages over the last several decades, marked increases in fructose consumption have been observed among Western populations, with fructose comprising approximately 15-17% of total caloric intake, 5-7% higher than the recommended levels. These higher levels of intake have been demonstrated to increase the risk of developing metabolic syndrome and diabetes, which in turn increase the risk of Alzheimer's Disease (AD), a prevalent neurodegenerative disease characterized by progressive cognitive decline. As such, we hypothesized that chronic moderate and high fructose consumption would induce peripheral metabolic dysregulation and subsequent cognitive impairment. Male and female Sprague-Dawley rats were fed chow, 18%, or 55% fructose diets for 8-9 months before undergoing novel object and location recognition assays to evaluate memory formation. Following behavioral testing, subjects were euthanized to assess peripheral and central markers of metabolic dysfunction. While we found no effect of diet on cognitive function, significant alterations in several metabolic parameters were observed. Specifically, 18% fructose males and females gained more weight than chow and 55% fructose groups, despite no differences in caloric intake. We also found that 18% fructose males and females had higher serum leptin levels compared to chow and 55% fructose groups, while increased serum triglycerides were observed in the 55% fructose males and 18% fructose females only. In efforts to determine the potential role of leptin resistance in fructose-induced metabolic dysfunction, we will quantify serum uric acid levels and serum, liver, and hypothalamus leptin receptor levels.

10. Exploring the Combination of Immune Checkpoint Blockade, Epigenetic Modulation of Myeloid-Derived Suppressor Cells and Chemotherapy for a Murine Model of Triple-Negative Breast Cancer

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Breast cancer is the second leading cause of cancer death for women in the United States. A recent development in the treatment of breast cancer, especially triple-negative (TNBC) and metastatic breast cancer, is using immunotherapy to target the body's own immune system against cancer cells. Recent research has shown that combining an ICI with another T-cell inducing therapy or treatments that inhibit immunosuppressive factors in the tumor microenvironment (TME) can help make breast cancer more receptive to treatment (Falvo, et al, Luo, et al). Prior research in this laboratory has shown the ability of guadecitabine, a DNA hypomethylating agent, to prevent systemic and TME accumulation of myeloid-derived suppressor cells, which are frequently found in the TME and are immunosuppressive (Luker, et al). Combinations of guadecitabine (and its active metabolite, decitabine), cyclophosphamide, and anti-PD-1 (and antibody blockade of its ligand counterpart, anti-PD-L1) were tested in this study to determine the synergistic effect of these treatments on reducing tumor burden and the impact on metastasis-free survival when administered prior to surgical resection. The results from these experiments show that a treatment regimen combining neoadjuvant guadecitabine with cyclophosphamide and neoadjuvant + adjuvant anti-PD1 was most effective at reducing tumor burden, with 2/4 mice achieving complete regression. However, the similar ( $p=0.99$ ) performance of cyclophosphamide and guadecitabine in the absence of anti-PD1 lead us to investigate further the role of anti-PD-1 and low-dose cyclophosphamide in modulating the immunosuppressive TME.

## 11. Measured and predicted energy expenditure in overweight black and white young adult women

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**BACKGROUND:** Resting energy expenditure (REE) is the major determinant of total energy expenditure and is reported to be reduced in Black compared to White individuals. This study aims to assess and evaluate the relationship between REE and body composition (BC) measures in overweight Black and White young adult women and explore the accuracy of common REE prediction equations. **METHODS:** Weight (WT), height (HT), measured REE (REEM; Fitmate GS, Cosmed USA Inc.), and BC (BC-418, Tanita Corp.) were assessed in Black (n=79) and White (n=96) non-hispanic women (age=22.2 ± 2.1; BMI≥25 kg/m<sup>2</sup>) enrolling in a behavioral weight loss (BWL) program. In addition to REEM, the accuracy of 4 common REE prediction (REEP) equations was evaluated: Harris-Benedict, Mifflin-St. Jeor, Owen, and World Health Organization. **RESULTS:** Black women had significantly (p<0.05) higher WT, BMI, and % fat and significant correlations were observed between REEM and all BC variables in both groups. No significant differences were observed in unadjusted REEM (1534±240 vs. 1525±274 kcals/day; p=0.82); however, REEM adjusted for WT was significantly lower in Black women (1492±201 vs. 1561±201 kcals/day; p=0.028). The Owen equation demonstrated the highest accuracy in both groups with ~63% of REEP values within ±10% of REEM. **CONCLUSION:** The observed difference in weight adjusted REEM between the groups has implications for caloric intake and physical activity goal setting in BWL. Further research is needed to determine if the observed difference in REEM impacts weight loss outcomes and weight loss maintenance.

12. Genetic interrelationships between depression occurring in the postpartum period and reproductive-related phenotypes

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Postpartum depression (PPD) is associated with negative outcomes for the entire family and is the most common complication of childbirth. Family studies have estimated the heritability of PPD at approximately 40%, however, the extent to which genetic risk for PPD overlaps with major depression (MD) remains unknown. Here, we outline polygenic relationships between PPD, MD, and reproductive-related outcomes within a cohort of East Asian ancestry to determine whether partially distinct biological pathways are contributing to the etiology of PPD and MD occurring outside of the postpartum period. The CONVERGE consortium recruited 11,670 women to investigate recurrent MD. PPD cases ( $n = 895$ ) consisted of women who screened positive for DSM-IV-defined MD and endorsed at least one of these episodes occurring within six months after giving birth. PRS-CS was applied to summary statistics obtained from BioBank Japan (BBJ) to generate polygenic risk scores (PRS) for six reproductive-related outcomes. Logistic models tested relationships between PRS, PPD, and MD (bonferroni-adjusted  $p < 0.0063$ ), while adjusting for those ancestry PCs significantly associated with the outcomes. The PRS for age at menarche was significantly associated with an increased risk of PPD ( $r\text{-squared} = 0.0127$ ;  $p = 0.0012$ ), with an earlier age at menarche conferring risk, but not with general lifetime depression risk ( $r\text{-squared} = 0.0028$ ;  $p = 0.0589$ ). Higher genetic risk for cervical cancer was similarly associated with PPD only ( $r\text{-squared} = 0.0142$ ;  $p = 0.001$ ). These results suggest that a specific genetic interrelationship exists between reproductive-related phenotypes and depression occurring in the postpartum period.

13. Mediation pathways between aggregate genetic liability and non-fatal suicide attempt across sexes: A Swedish-population based cohort

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Understanding how genetic factors increase the risk of suicidal behavior remains a central question in etiological research. In this study, we investigated the mediational pathways from aggregate genetic liability (family genetic risk score for suicide attempt [FGRSSA]) to suicide attempt risk by considering the roles of psychiatric illnesses and possible sex differences. In a Swedish population-based cohort of >1.7 million individuals, we evaluated time to suicide attempt as a function of FGRSSa and investigated the mediational effects of alcohol use disorder (AUD), drug use disorder (DUD), attention-deficit/hyperactivity disorder (ADHD), major depression (MD), anxiety disorder (AD), bipolar disorder (BD), and non-affective psychosis (NAP). Analyses were conducted separately by sex in three age groups: 15-25, 26-35, and 36-45 years old. The association between FGRSSa and suicide attempt was mediated via the manifestation of psychiatric disorders. The highest effects were observed for AUD in males (15-25 years,  $HR_{total}=1.60$  [1.59;1.62], mediation=14.4%), DUD in females (25-36 years,  $HR_{total}=1.46$  [1.44;1.49], mediation=11.2%), and MD (25-36 years) in females ( $HR_{total}=1.46$  [1.44;1.49], mediation=7%) and males ( $HR_{total}=1.50$  [1.47;1.52], mediation=4.7%). AD only mediated the FGRSSa-suicide attempt association in early adulthood, and BD only in females of those ages. In later adulthood, the mediation proportion decreased in males (3.5%-6.1%) but remained substantial in females (3.2%-9%). Our study informs about the psychiatric illnesses via which aggregate genetic liability operates to impact the risk of suicide attempt, with distinct contributions in males and females. These findings suggest that targeting psychiatric disorders at specific ages could help mitigate the impact of aggregate genetic liability.

#### 14. Sex Differences in the Innate Immune Response to Lung Cancer

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Lung cancer is the second most diagnosed cancer. Lung cancer exhibits a sex difference, though the exact mechanisms behind this difference are not well understood. Men have a higher lifetime risk of developing lung cancer and often have more severe disease than women. There are thought to be multiple factors that contribute to this difference, including the environment, lifestyle, sex hormones, and differing immune responses. Mouse tumor models of lung, breast, colon, melanoma, and kidney were used in immune-competent or immune-compromised mouse models treated with the chemotherapy ABT-263. The study of the immune response to lung tumors utilized ex-vivo killing assays, multicolor flow cytometry, and clonogenic survival, as well as humanized mice and patient-derived xenografts. We observe a sex difference in two models of lung cancer in immuno-competent mice, but not in models of breast, colon, kidney, or melanoma. This difference is dependent on the innate immune system, specifically through natural killer cells and macrophages. This sex difference is lost in ovariectomized mice. Preliminary data suggests the pro-apoptotic ligand TRAIL secreted from innate immune cells is more effective on cells exposed to female compared to ovariectomized female mouse serum. Reduced tumor growth in female mice can be further enhanced with ABT-263, and this effect requires NK cells. Patient-derived xenografts transplanted into female humanized mice grow more slowly than those transplanted into non-humanized mice, confirming the role of the immune system in modulating tumor growth. This research opens the potential for immune-stimulating therapies, combined with ABT-263, as a novel treatment approach.

## 15. Oral Contraceptives and Neuron-Enriched Exosomal MicroRNA Expression

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Oral contraceptives (OCs) are widely prescribed for the effective treatment of many reproductive challenges. OCs suppress the hypothalamic-pituitary-gonadal axis through a negative feedback loop, initiating a downregulation of endogenous gonadal hormone. Mounting evidence from cross-sectional studies of adult women indicates that OC use is associated with structural and functional alterations to the brain. Whether OCs perturbate cellular level brain development is not known. This paucity of research is surprising given the millions of young females prescribed OCs coupled with the neurobiological sensitivity of the developing brain. A noninvasive mechanism reflecting biological changes in the brain involves characterizing the composition of exosomal cargo derived from brain neurons. Exosomes are shed by most all cells, including brain neurons, as a part of routine physiology and they easily pass through the blood brain barrier. The most abundant exosomal cargo is microRNA (miRNA). The characterization of changes in neuron-enriched exosomal (NEE) miRNA cargo is especially intriguing given it can provide a window into the potential dysregulation of neurobiological pathways. Our lab recently completed a feasibility study where NEE miRNA group-level microarray expression data was generated from seven current OC users (Mage=19.1 years) and seven natural cycling, OC naïve controls (Mage=18.6 years). Follow up individual-level measurement of candidate miRNAs with qPCR indicated that seven miRNAs exhibited a statistically significant difference in relative expression levels between groups. Significant miRNAs were related to reproductive system physiology and disorders. Thus, our lab's feasibility data suggests potential to identify relevant brain based miRNA expression patterns impacted by OC use.

16. Regulation of ovarian aging and fibrosis via SPAG17 signaling.

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Advanced female age is associated with decreased oocyte quality and quantity which leads to infertility and pregnancy complications. Fibrosis has been implicated as an early hallmark of the aging ovarian stroma. However, the molecular mechanisms underlying ovarian aging and fibrosis are currently not well understood. We have recently discovered a new mechanistic pathway implicated in aging and fibrosis via sperm associated antigen 17 (SPAG17) signaling. Our studies revealed expression of SPAG17 in different cell types including the theca and granulosa cells. Loss of function of this gene leads to fibrosis evidenced by increased collagen deposition and tightly packed extracellular matrix accumulation in the ovarian stroma. Moreover, histological studies revealed reduced number of follicles and increased aging features. Consistently, Spag17 knockout females have reduced fertility and have pregnancy complications compared to same age control females. Further studies using cultured fibroblasts determined that loss of Spag17 promotes constitutive activation of TGF- $\beta$  and HIPPO pathways, which are two major regulators of extracellular matrix remodeling and fibrosis. Based on these findings, we suggest that SPAG17 signaling plays a key role regulating ovarian aging and fibrosis. Future studies will stimulate the search for therapeutic targets influencing SPAG17 signaling.



## 17. Understanding Mitochondrial Function in Peripheral Blood Nuclear Cells Isolated from People Living with HIV

Hannah Stadtler; Susie Turkson; Amy Wegener; Hannah Fulenwider, PhD.; Gretchen Neigh, PhD., Anatomy and Neurobiology

As new diagnoses surpass deaths each year, HIV is transitioning to a chronic disease hallmarked by daily antiretroviral (ARVs) use<sup>1</sup>. ARVs have been shown to cause deleterious metabolic effects via the generation of reactive oxidative species (ROS). While particular ARVs have been linked to an increase in ROS the true scope of this stress is unclear<sup>2,3</sup>. Fully understanding the metabolic profile of ARV treatments is possible via examining mitochondria, the organelle directly associated with metabolism and most vulnerable to oxidative stress. The Seahorse Cell Mito Stress Test allows for a functional assessment of mitochondrial damage via measuring oxidative phosphorylation. ROS have been shown to decrease oxidative phosphorylation in mitochondria in peripheral blood mononuclear cells (PBMCs) isolated from people living with HIV (PLWH), but these analyses have never been conducted in sorted cell populations, which is particularly relevant to HIV infection considering its specific impact on CD4 cells. In this work we created an optimized protocol that creates enriched cell populations of CD4, CD8, and monocyte cells from PBMCs isolated from PLWH in order to understand the relative proportion of immune cells in relation to duration of therapy and to be able to do subsequent assays on separate populations. We also created an optimized protocol to explore the impact of HIV infection on basal respiration, proton leak, maximum respiration, and non-mitochondrial oxygen consumption. This work will allow us to fully characterize mitochondrial function in PLWH, and better understand potential metabolic damage as a result of HIV infection and ARV use.

## 18. Comparison Between Nude and Balb/C Mice for Breast Cancer Using Combined Immunotherapy and Chemotherapy

Anaya Surve, School of Life Sciences; Carolyn Hayes, School of Medicine; Laura Graham, Surgery; Harry Bear, M.D. Ph.D., Surgery and Microbiology & Immunology

Breast cancer affects 1 in every 8 US women. Triple negative breast cancer is a aggressive type, but with few targeted treatment options because of the lack of estrogen or progesterone receptors, making hormonal therapy ineffective. Chemotherapeutic or immunotherapy drugs are the current treatment options, but further research must be conducted to understand the efficacy of these drugs. We conducted experiments to determine the most effective treatment combination in reducing the growth rate of 4T1 cancers in mice. In this comparison, the effect of Cyclophosphamide, anti-PD-1 checkpoint blockade, and the DNMTi Guadecitabine was studied on Balb/C and Nude mice models. Nude mice are athymic, so they lack T lymphocytes and thus have an incomplete immune system. A Tukey HSD test was used to analyze tumor growth, which showed that in the Balb/C mice, the use of these combination treatments had a greater anticancer effect than the same treatment regimen in nude mice. Although in both nude and Balb/C mice there was a significant difference ( $P < .01$ ) between the control and Cyp/aPD1/Gua group, more mice had complete tumor regression in the immunocompetent Balb/C mice and there was a more significant difference ( $P < 1 \times 10^{-12}$ ) in the Balb/C mice for both the Cyp/aPD1/Gua and Cyp/Gua groups compared to controls. These results indicate that the anti-tumor effects of these drugs are likely dependent on host T-cells, and their effect may be augmented with the use of immune checkpoint inhibitors such as anti-PD-1.

19. Estrogen receptor gene expression is not influenced by menopausal status in women with HIV

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Estrogen receptor subtypes;  $\alpha$  and  $\beta$ , promote different responses to estradiol stimulation and are implicated in global homeostasis and immune function. Given their distinct roles, it is likely that a balance of estrogen receptor  $\alpha$  (ER $\alpha$ ; ESR1) and estrogen receptor  $\beta$  (ER $\beta$ ; ESR2) expression exists, and disturbances to this expression have implications on immune function. Utilizing peripheral blood mononuclear cells (PBMCs), we aimed to interrogate the influence of HIV and menopausal status on the gene expression of estrogen receptor subtypes. We hypothesized that menopause would reduce ESR2 expression, and would be further decreased by HIV-positive serostatus. Women aged 18-65 were recruited from the Women's Interagency HIV Study and Grady Trauma Project in Atlanta, GA (n=70, 23 without HIV, 47 with HIV (WLH)) and provided informed consent. Demographic data, STRAW +10 menopausal status, and PBMCs were collected. RNA from PBMCs was converted to cDNA and assayed via RT-qPCR to assess expression of ESR1 and ESR2. ESR1:ESR2 expression was determined for each participant. Three-way ANCOVAs with covariates for age, education, income, and employment showed no effect of HIV or menopausal status on ESR1, ESR2 or ESR1:ESR2 gene expression (p's > 0.05). Our data suggest there are no influences of HIV status or menopausal status on gene expression of estrogen receptor subtypes. Future work will investigate estrogen receptor protein expression, potential concordance between gene and protein expression, and estrogen receptor responsivity to estradiol stimulation.

## 20. Social determinants of health and insomnia in women receiving buprenorphine for OUD

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Sleep difficulties are common in individuals with opioid use disorder (OUD), and psychosocial factors impact sleep health. The objective is to compare social determinants of health (SDoH) between individuals with and without insomnia among females receiving buprenorphine for OUD. This is a secondary analysis of data collected from an ongoing cross-sectional survey study investigating the relationship between sleep and recovery from OUD enrolling non-pregnant females ages 18-45 on buprenorphine from an outpatient program. Participants completed the Insomnia Severity Index (ISI), and scores of  $\geq 10$  identified clinically significant insomnia. SDoH adapted from PhenX toolkit's survey items were compared between groups using chi-squared and Fisher's exact for dichotomous variables and t-tests for continuous variables. Participants (N=42) are predominantly White (53.2%), with Medicare/Medicaid (94.9%). The median daily buprenorphine dose was 24mg (range: 6mg-24mg), and the median length of time on buprenorphine was 2.1 years (range: 21 days-5.0 years). Most participants (n=24; 51.7%) met the criteria for clinically significant insomnia. Education level (p = .292), employment status (p=.649), and social support (p=.061) were similar across insomnia groups. However, more participants with insomnia reported concern over housing insecurity (40.0%) (p = .024) and inability to see a doctor due to cost (26.1%) (p=.026) compared to participants without insomnia (5.6% and 0%, respectively). Consistent with research in other clinical populations, the insomnia-OUD co-morbidity exists in a complex socioecological context. Future research at the intersection of sleep dysfunction and OUD, including development of insomnia clinical interventions tailored to OUD treatment, should encompass SDoH, including medical and psychological factors.

## 21. The Role of Social Factor in Contributing to Buprenorphine Consistency Among Patients in Outpatient Treatment for OUD

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Buprenorphine is an essential component of treatment for many patients with opioid use disorder (OUD). However, inconsistency in buprenorphine use can lead to substance use recurrence. Several factors have been investigated to understand their association with buprenorphine consistency, however, one factor that has not been investigated is the role that social factors play in buprenorphine consistency. The purpose of this study is to identify the prevalence of consistency in buprenorphine administration and explore protective factors for buprenorphine consistency among an outpatient OUD sample. This is a secondary analysis of data collected from an ongoing cross-sectional survey and medical record abstraction study. The parent study is enrolling people between the ages of 18-65 stabilized on buprenorphine. The primary outcome is buprenorphine consistency, measured by missed doses of buprenorphine self-reported over a 28-day period. Protective factors evaluated include survey items from the PhenX Social Determinants of Health (SDoH) battery and the Substance Use Recovery Evaluator (SURE). Statistical analyses include descriptive statistics. Participants [N=108, 86% recruitment rate] are predominantly White (48.6%) and Black (40%), with Medicaid (92.9%). Most participants (n=90, 83.3%) reported no missed doses of buprenorphine over the past 28 days. These participants reporting consistency in buprenorphine administration reported feeling safe in their home (90.4%, SDoH), 88.3% reported having stable housing most or all of the time (SURE), and 58.1% reported having a regular income most or all of the time (SURE). Additional research is needed to further understand the role that specific social factors play as facilitators of optimal OUD treatment.

22. Examination of Buprenorphine Dosing Regimens and its relationship with treatment Retention in patients with opioid use disorder

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Buprenorphine is a safe and effective medication for opioid use disorder (OUD). Sublingual buprenorphine is typically prescribed in concordance with FDA-approved instructions as a once-daily sublingual medication. However, clinical providers note that patients will often split their total daily dose to take it at multiple time points during the day. The association of buprenorphine dosing patterns with OUD treatment outcomes is unknown, leaving clinicians without evidence to guide their counseling and practices. As a critical first step to address this gap in knowledge, this study reports on the prevalence of patient-reported buprenorphine dosing patterns, and secondarily provider-documented regimens, among a sample of patients stabilized on buprenorphine in outpatient OUD treatment.

23. Patient reported insight to guide development and implementation of sleep interventions in the opioid use disorder treatment setting

Michelle Eglovitch, MPH; Anna Beth Parlier-Ahmad, MS, Psychology, VCU; Sajanee Chithranjan; Saisriya Kolli; Catherine Legge, School of Medicine, VCU; Stephanie Violante, MS, Psychology, VCU; Joseph M. Dzierzewski, PhD, National Sleep Foundation; Caitlin E. Martin, MD MPH, Institute for Drug and Alcohol Studies and OBGYN, VCU

**Aim:** Among people receiving medication for OUD (MOUD), insomnia is highly prevalent and increases the risk for negative OUD outcomes. However, little is known about MOUD patient-reported needs for insomnia treatments. This mixed-methods study explored acceptability of and patient preferences for sleep interventions in the MOUD setting. **Methods:** This is an analysis from an ongoing cross-sectional survey and interview study investigating the relationship between sleep and OUD recovery. The parent study is actively enrolling non-pregnant women between 18-45 years stabilized on buprenorphine from an outpatient program. Participants complete measures including the Insomnia Severity Index (ISI), with scores of  $\geq 10$  identifying clinically significant insomnia symptoms. A sub-sample who met this threshold completed semi-structured interviews. Applied thematic analysis was used for interview data. **Results:** Participants (N=47) were 33.6 (SD=5.4) years old; 51.1% identified as White and 36.2% as Black. Many were unemployed (59.6%). The majority (61.7%) met criteria for clinically significant insomnia symptoms. Participants selected for the qualitative interview (n=11) highlighted prior positive and negative experiences with sleep medications, challenges with employing non-pharmacological sleep strategies, and preferences for medical and behavioral sleep interventions while in recovery. Women emphasized the need for flexibility of sleep therapy sessions to align with ongoing social determinants (e.g., caregiving responsibilities) as well as for sleep medications without sedating effects nor risk of dependency. **Conclusions:** Many women receiving MOUD have concomitant insomnia symptoms. Qualitative findings underscore the need for evidence-based sleep interventions that account for the unique socio-environmental factors that may impact strategy implementation in this population.

## 24. Physicians' Perspectives and Practice Patterns Toward Postpartum Salpingectomy After Vaginal Delivery in Virginia

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**Introduction:** Evidence has suggested that epithelial ovarian cancer may originate in the fallopian tubes. Randomized clinical trials have demonstrated that bilateral salpingectomy is safe and comparable to bilateral tubal ligation at the time of cesarean section, but no such studies have been carried out after a vaginal delivery. This study aims to characterize physician attitudes and practice patterns to postpartum salpingectomy after a vaginal delivery to determine potential barriers to instituting this as the standard of care. **Methods:** A survey was emailed to physicians practicing Obstetrics at academic centers in Virginia to assess demographics, knowledge, and practice patterns regarding postpartum bilateral salpingectomy after vaginal delivery. The Human Research Protection Program deemed the study exempt from oversight (IRB HM20023289). **Results:** 46 (21%) surveys were returned: 88.9% female, 52.2% resident physicians, 58.7% perform bilateral salpingectomy after a vaginal delivery, 82.6% perform bilateral salpingectomy at the time of cesarean section. Of those that do not perform salpingectomy after a vaginal delivery, 26.3 % report the primary reason for not performing is lack of training in completing this procedure postpartum. Only 48.9% correctly identified the risk-reducing benefit of bilateral tubal ligation and 48.9% identified the further benefit of bilateral salpingectomy in the development of ovarian cancer. **Conclusions:** Overall, many providers in Virginia are performing opportunistic bilateral salpingectomy after a vaginal delivery and many would offer this to patients who desire sterilization. The primary barriers to expanding this practice pattern include lack of training, patient BMI/habitus and risk of increased operative complications. Future research is needed to demonstrate that postpartum salpingectomy after vaginal delivery is safe and feasible.



## 25. Perceptions of Cannabis Use in Pregnancy: Implications for Perinatal Education

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**Purpose:** Although associated with adverse maternal/infant outcomes, perinatal marijuana use has increased. With more states liberalizing use laws, there is concern that women will equate safety with legalization. Little is known about women's perceptions of risk, an inherent part of the health behavior decision-making process. This study examined perceptions of safety and risks for perinatal marijuana use in postpartum women. **Methods:** This is a secondary analysis of data from U MATTeR study. Participants were N=193 postpartum women recruited from a Mother-Infant unit at VCU. Participants completed an anonymous survey of demographics, substance use, and perceptions of marijuana use during pregnancy. Data were assessed using descriptive statistics. **Results:** Participants were predominantly white (51%) and Black (39%) with a mean age of 29.3 years. The majority (68%) agreed marijuana should be legalized and 38% believed legalization would increase marijuana use among pregnant women. However, participants either disagreed or did not know that marijuana use during pregnancy: can lead to a smaller baby (45%), affect the baby's development (27.9%), affect baby via breastfeeding (40%); or may affect mother-infant bonding (52.6%). In addition, 26.9% either did not know or agreed marijuana is OK to use during pregnancy. **Conclusions:** Greater than 25% of participants either did not recognize or did not know potential adverse maternal/infant outcomes associated with perinatal marijuana use. These findings have implications for perinatal education. There is a need for appropriate evidence-based harm reduction messaging in an empathetic way to encourage discussion and respect for patient autonomy.

## 26. From Thoughts to Actions: The Role of Planning Eating Disorder Behaviors in Anorexia Nervosa

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**Introduction.** Anorexia nervosa (AN) is a severe eating disorder (ED) predominantly affecting women. Individuals with AN engage in a range of ED behaviors; however, current mechanistic models provide limited understanding of these actions. ED behaviors and their effects on psychological variables are typically studied as they occur in the moment. However, many individuals with AN anticipate or plan ED behaviors well before engaging in them, and little is known about planned ED behaviors. Thus, among participants with AN, we examined: (1) the frequency of planning versus engaging in ED behaviors; (2) whether planning ED behavior predicted later engagement in the behavior; and (3) the effects of planning ED behavior on mood. **Methods.** Participants with AN ( $n=28$ ) completed two weeks of mobile surveys; they reported beginning-of-day plans and mood and ED behaviors multiple times/day. **Results.** Among most planned and engaged in behaviors were restriction (53.7%, 41.8%), exercise (35.9%, 45.4%), and meal skipping (24.5%, 30.3%). Planning restriction, exercise, and meal skipping predicted engaging in said behaviors ( $p<.05$ ); planning to use laxatives did not predict laxative use ( $p=.56$ ). Planning to restrict predicted higher negative and lower positive mood throughout the day. **Conclusion.** Planning ED behaviors was common in AN, occurring on nearly 75% of days. ED behaviors were more frequent when they were planned, and planning to restrict was associated with poorer mood states. Researchers should develop interventions that target the act of planning ED behaviors, in addition to engaging in the behaviors.

## 27. Identification and Management of Radiation-Induced Premature Ovarian Failure

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Premature ovarian failure (POF) is the dysfunction of ovarian follicles resulting in amenorrhea before the natural age of menopause. For women with locally advanced cervical cancer (LACC), it is known that POF is caused by chemoradiation due to the cytotoxic effects of radiation on the ovary. The symptoms and signs of POF often occur during radiation treatment. Patients with LACC undergoing pelvic radiation have a frequent treatment and follow-up schedule with their radiation oncologist, offering a convenient and accessible path for identifying and initiating hormone replacement therapy (HRT). However, the role that radiation oncology plays in the management of POF is not well established. We retrospectively reviewed medical charts of premenopausal patients who underwent RT for LACC at VCU from 2010 to 2020. Out of the 45 charts reviewed, 20 patients had menopausal symptoms documented in their radiation oncology visit notes, 9 patients had FSH measured, and 23 of the patients were started on HRT. Of the patients started on HRT, it was prescribed by a radiation oncologist 39% of the time. Our study illustrates the need for a standardized method to routinely assess the onset of POF while undergoing radiation treatment. Radiation oncologists have the opportunity to identify early signs POF and provide adequate treatment. Additional studies are needed to evaluate if patients initiated and maintained HRT for the recommended length of time.

## 28. Differences in Health Care Use in Early Adulthood Between Male and Female Patients with Psychosis

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**Background.** Psychotic episodes are marked by substantial misperceptions in reality, bizarre or catatonic behaviors, and disorganized thinking and speech. The prevalence of first-episode psychosis onset peaks in late adolescence/young adulthood, and treatment can be intensive and include individual and/or group psychotherapy, medication management, and more to meet patient needs. **Objective.** This study sought to explore differences in medical services use by patient sex and pregnancy status using electronic medical records accessed through TriNetX. **Methods.** For the primary analysis, individuals were grouped by sex and history of psychosis. Eligible patients for this analysis were between the ages of 10 and 25, had no history of pregnancy, and had at least one ICD10 code for nonspecific psychosis unrelated to drug use or physiological condition (i.e., F29). For the pregnancy status analysis, female patients were grouped by pregnancy status (none vs. any). The same age limits and definition of psychosis were applied for consistency. **Results.** Health records from over 17 million patients were analyzed. No significant differences in average health record category counts were observed by patient sex for total number of facts, diagnoses, labs, procedures, or medications, but striking differences were observed by pregnancy status. The average number of total medical facts for females and males without a history of psychosis or pregnancy was 220 and 221, respectively. In contrast, individuals with a history of both psychosis and pregnancy had ~15x more medical facts as age-matched never-pregnant females or males without psychosis and ~4x more medical facts as pregnant females without psychosis.

## 29. Association of nicotine use with treatment outcomes and sleep dysfunction among women with OUD

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Introduction: Nicotine use is prevalent among women with opioid use disorder (OUD). This study compares insomnia severity and OUD treatment outcomes between individuals using and not using nicotine daily among females stabilized on buprenorphine for OUD. Methods: Participants receiving buprenorphine for at least six weeks at an outpatient clinic completed a cross-sectional survey. Inclusion criteria included females aged 18-45 who are not pregnant nor within six weeks of a pregnancy. Timeline Follow-Back assessed nicotine use. No nicotine use was defined by no tobacco/e-cigarettes use in the preceding 28 days. Daily nicotine use was defined by use all 28 days. Opioid craving (3-item Visual Analog Scale, range 0-100), withdrawal (Subjective Opioid Withdrawal Scale, range 0-50), and sleep (Insomnia Severity Index, range 0-27) were compared using the T-test with  $p = 0.05$  considered significant. Results: Participants (N=64) are predominantly White (53.1%) with Medicare/Medicaid (93.0%). Median daily buprenorphine dose was 24mg (6mg-24mg). Median length of time in OUD treatment was 2.1 years (21 days-5.0 years). Fifty-two participants (81.3%) used nicotine daily (n=41 tobacco/cigarettes, n=11 e-cigarettes/vape). Twelve (18.8%) participants reported no nicotine use. There were no significant differences between groups for intensity of opioid wanting (0.88 vs. 5.44,  $p= 0.416$ ), desire to avoid opioids (51.80 vs. 69.44,  $p=0.265$ ), self-control over opioid use (69.40 vs. 78.00,  $p=0.542$ ), opioid withdrawal (0.00 vs. 2.58,  $p=0.357$ ) nor insomnia severity (8.44 vs. 13.72,  $p=0.086$ ). Conclusions: While not statistically significant, insomnia scores were higher with daily nicotine use. Future studies should explore how nicotine impacts sleep and OUD treatment longitudinally.

30. Benzodiazepine, Z-Drug and Sleep Medication Prescriptions in Male and Female People with Opioid Use Disorder on Buprenorphine and Comorbid Insomnia: An Analysis of Multi-State Insurance Claims

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**Study Objectives:** In adult populations, women are more likely than men to be prescribed benzodiazepines. However, such disparities have not been investigated in people with opioid use disorder (OUD) and insomnia receiving buprenorphine, a population with particularly high sedative/hypnotic receipt. This retrospective cohort study used administrative claims data from Merative™ MarketScan® Commercial and Multi-State Medicaid Databases (2006-2016) to investigate sex differences in the receipt of insomnia medication prescriptions among patients in OUD treatment with buprenorphine. **Methods:** We included people aged 12-64 years with diagnoses of insomnia and OUD initiating buprenorphine during the study timeframe. The predictor variable was sex (female versus male). The primary outcome was receipt of insomnia medication prescription within 60 days of buprenorphine start, encompassing benzodiazepines, Z-drugs, or non-sedative/hypnotic insomnia medications (e.g., hydroxyzine, trazodone, and mirtazapine). Associations between sex and benzodiazepine, Z-drug, and other insomnia medication prescription receipt were estimated using Poisson regression models. **Results:** Our sample included 9,510 individuals (female n=4,637; male n=4,873) initiating buprenorphine for OUD who also had insomnia, of whom 6,569 (69.1%) received benzodiazepines, 3,891 (40.9%) Z-drugs, and 8,441 (88.8%) non-sedative/hypnotic medications. Poisson regression models, adjusting for sex differences in psychiatric comorbidities, found female sex to be associated with a slightly increased likelihood of prescription receipt: benzodiazepines (risk ratio [RR], RR=1.17 [1.11-1.23]), Z-drugs (RR=1.26 [1.18-1.34]), and non-sedative/hypnotic insomnia medication (RR=1.07, [1.02-1.12]). **Conclusions:** Sleep medications are commonly being prescribed to individuals with insomnia in OUD treatment with buprenorphine, with sex-based disparities indicating a higher prescribing burden among female than male OUD treatment patients.

31. Examination of sex differences in the association of interpersonal violence and symptoms of depression and alcohol use disorder among college students

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Interpersonal violence (IPV) exposure increases the risk for major depression and alcohol use disorder (AUD). The purpose of this study was to examine phenotypic associations between IPV exposure and symptoms of depression and AUD and if these associations vary between sexes in a college-age sample. Data were from the Spit for Science project collected from college students (N = 7,561, 64% female). Participants self-reported IPV exposure (experiencing physical or sexual assault prior to starting college), depression symptoms (4-item abbreviated Symptoms Checklist-90 for previous 30 days), and AUD symptoms (11-item DSM-5 criteria for the last year). Mean depression symptom scores were significantly higher in females than males (9.52 vs. 8.22,  $t = 14.51$ ,  $p = 6.17 \times 10^{-33}$ ) as well as the IPV exposure rate (42% vs. 32%,  $p = 2.68 \times 10^{-17}$ ). These results support the greater risk and prevalence of major depression and IPV exposure in women. However, there was no difference in the rate of AUD between the sexes (31% vs. 31%,  $p = 0.53$ ), lending evidence to the decreasing gap in negative alcohol phenotypes between the sexes. In a multiple logistic regression model, IPV exposure ( $p = 2.70 \times 10^{-20}$ ) and depression symptom scores ( $p = 4.85 \times 10^{-9}$ ) were statistically significant and positively predicted AUD, while sex was not statistically significant. Further investigation into the increase in negative alcohol phenotypes among females is needed to inform prevention and treatment options.

32. Development and clinical feasibility of an abbreviated addiction-focused phenotyping battery piloted in a female OUD sample receiving buprenorphine treatment

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Introduction: We aimed to streamline the National Institute on Drug Abuse Phenotyping Assessment Battery (PhAB), a package of self-report scales and neurobehavioral tasks used in substance use disorder (SUD) clinical trials, for clinical administration ease. Tailoring the PhAB to shorten administration time for a treatment setting is critical to expanding its acceptability in SUD clinical trials. This study's primary objectives were to develop a brief version of PhAB (PhAB-B) and assess its operational feasibility and acceptability in a female clinical treatment sample. Methods: Assessments of the original PhAB were evaluated along several criteria to identify a subset for the PhAB-B. Non-pregnant females (N=55) between ages 18-65, stabilized on buprenorphine for opioid use disorder (OUD) at an outpatient addiction clinic, completed this abbreviated battery remotely or after a provider visit in clinic. Participant satisfaction questions were administered. REDCap recorded the time to complete PhAB-B measures. Results: The PhAB-B included 11 measures that probed: reward, cognition, negative emotionality, interoception, metacognition, and sleep. Participants who completed the PhAB-B (N=55) were 36.1±8.9 years of age, White (54.5%), Black (34.5%), and non-Latinx (96.0%). Most participants completed the PhAB-B remotely (n=42, 76.4%). Some participants completed it in-person (n=13, 23.6%). PhAB-B mean completion time was 23.0±12.0 minutes. Participant experiences were positive, 96% of whom reported that they would participate in the study again. Conclusion: Our findings support the clinical feasibility and acceptability of the PhAB-B among a female OUD outpatient addiction treatment sample. Future studies should assess the PhAB-B psychometric properties among broader treatment samples.



### 33. Functional near-infrared spectroscopy during natural bladder filling: methodologic description

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**Background/Aim:** Cortical functional near infrared spectroscopy (fNIRS) measures changes in neuroexcitation based on the chromophores of deoxy and oxyhemoglobin (O<sub>2</sub>Hb) to a cortical depth of 1-2 cm. fNIRS is a versatile, noninvasive tool alternative to costly fMRI; however, the sensitive measurement can be overlay with signal disruption. This study aimed to provide a carefully outlined, repeatable methodology that can be utilized in future studies to improve collection and processing of the raw signal to better identify differences in cortical excitation patterns during bladder filling. **Methods:** Healthy controls without known urologic diagnoses completed a validated oral hydration protocol, during which they reported “first desire” to void and real time sensation of bladder fullness (0-100%) using a Sensation Meter. A 24-channel fNIRS head cap simultaneously recorded prefrontal cortical O<sub>2</sub>Hb. Raw optical density signals were processed in Matlab. **Results:** A total of 8 participants (male: n=4, female: n=4) were enrolled with mean age 39 years and BMI of 25, and no significant differences in age, BMI, race, or urgency survey scores. Signal acquisition improved with postural support to reduce head motion and head cap optimization to increase contact between sensors and the scalp. Accelerator-based concurrent motion measurement was utilized to remove motion artifacts. Although readings were more irregular during low urgency, O<sub>2</sub>Hb patterns increased across the frontal cortex during the elevated urgency period (first desire to 100% sensation). **Discussion:** This protocol demonstrates the ability to noninvasively measure changes in O<sub>2</sub>Hb through natural bladder filling in a physiologic seated position. We highlighted some troubleshooting and technical considerations to improve data collection, processing and analysis for application in similar urologic protocols.

34. Perianal Paget's: Preserving Performance Status with Photons. A Case Series of Three Women with Extramammary Paget's Disease Treated with Primary Radiotherapy

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Introduction/Background: Extramammary Paget's Disease (EMPD) is a rare cutaneous malignancy, most commonly affecting the anogenital region of postmenopausal women. Like Paget's Disease (PD) of the breast, EMPD presents with eczematous lesions, often misdiagnosed as inflammatory dermatosis. Standard of care has historically been surgical excision; however, positive resection margins and local recurrences are common due to multifocal nature of the disease. The purpose of this study is to report on our outcomes with 3 consecutive women treated with definitive RT. Methods: We retrospectively reviewed the medical documentation and treatment records of 3 women treated at Massey Cancer Center for EMPD of the perianal area between 2018 and 2023 including work-up, treatment plans, toxicity and outcomes. Case Presentation/Results: The 3 women were aged 69-83 years and all presented with perianal lesions with subsequent histopathological confirmation of EMPD. Based on multi-disciplinary discussion, were each recommended for organ-preservation with primary RT. All 3 were treated with Volumetric Modulated Arc Therapy to a dose of 54-60Gy to the region of visible EMPD and 45Gy to the elective pelvic nodes. Acute toxicities included grade 2-3 dermatitis, cystitis, anorectal pain, and diarrhea. Chronic toxicities included RT related skin changes and changes in bowel habits. Four- and five-year follow-up of two of the women show no clinical or pathological evidence of disease. Conclusion: EMPD is rare, frequently misdiagnosed, and often a harbinger of invasive disease, requiring a high index of suspicion and low threshold to biopsy concerning anogenital lesions. It is essential to evaluate for advanced or associated malignancies. RT is well tolerated and an effective method of treatment.

35. From past to present: Predicting anorexia nervosa symptom outcomes from prior symptom duration, pattern, and latency

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Background: Outcomes for anorexia nervosa (AN), a severe eating disorder (ED) predominantly affecting women, are variable; ~40-50% of individuals relapse following acute weight-restoration. Longer illness duration has been implicated as a predictor of AN outcomes, with mixed evidence. Other metrics, such as historical illness patterns (e.g., continuous vs. intermittent symptom course), may be stronger predictors. We conducted the first comparison of duration, pattern, and latency of ED symptoms as cross-sectional and longitudinal predictors of AN symptoms. Methods: Participants with weight-restored AN (n=35) completed a Course of Illness scale assessing duration, pattern, and latency of ED diagnosis, restriction, low weight, and weight/shape preoccupation. ED symptoms (BMI, Eating Disorder Examination scores) were assessed at baseline and 3-, 6-, 9-, and 12-month follow-up. Multilevel modeling examined duration, pattern, and latency since illness as predictors of symptom severity and change. Results: Across timepoints, ED symptom severity was predicted by the prior duration and pattern of multiple symptoms ( $p < .05$ ); longer and more continuous prior symptom courses were associated with more severe symptoms over time. Restrictive eating pattern was the sole symptom trajectory predictor; more continuous patterns of prior restriction predicted higher baseline ED symptoms, but steeper longitudinal symptom declines ( $p = .043$ ). Conclusion: ED duration and course may be more effective at determining symptom severity than predicting symptom trajectory. Participants with more continuous prior restrictive eating demonstrated steeper declines in ED symptoms, a potentially hopeful message in the context of debates regarding the merits of continuing to treat individuals with enduring AN.

### 36. Perinatal Meaning Making in the COVID-19 Pandemic

Madison, Weinstock, Sara Moyer, Nancy Jallo, Amy Rider, Patricia Kinser; School of Nursing VCU

The COVID-19 pandemic caused unprecedented levels of stress amongst pregnant women and new mothers. The current qualitative study explored the ways in which perinatal women made meaning of their experiences during the COVID-19 pandemic. Data came from a parent study in which 54 perinatal (pregnant and postpartum) women completed semi-structured interviews describing their experiences during the pandemic. The data was interpreted using a hermeneutic, phenomenological approach to delve deeply into the concept of meaning-making. Despite high levels of stress and challenging circumstances, participants reported engaging in meaning-making in many ways. The following key themes of meaning-making were identified: Connection (with sub-themes of connection with mothers and other women throughout history, connection with immediate family, and connection with the baby), Appreciation (with subthemes of privilege and gratitude), and Change (with subthemes of systemic changes and personal changes). Unique forms of meaning-making amongst this population include a sense of connection to women throughout history, connection to their baby, and recognition of the need for systemic change for perinatal women. Overall, perinatal women coped with the stress of the pandemic by making meaning from their experiences. Future research should further explore the importance of these aspects of meaning-making to perinatal women and implement these findings to adapt prevention and treatment approaches to address perinatal stress, especially during times of crisis.

### 37. Insomnia is Associated with Neurofunctional Differences among Females Treated for OUD

Augustus M. White, BA, Dept Health Behavior and Policy, School of Medicine; Michelle Egllovitch, MPH, Psychology, College of Humanities and Sciences; Anna Beth Parlier-Ahmad, MS, Psychology, College of Humanities and Sciences; Joseph M Dzierzewski, PhD, National Sleep Foundation; F. Gerard Moeller, MD, Dept. Pharmacology and Toxicology, School of Medicine; Caitlin E. Martin, MD-MPH, Dept. Obstetrics and Gynecology, School of Medicine

Introduction: Emerging evidence suggests that poor sleep negatively impacts OUD treatment outcomes. While the precise pathways connecting poor sleep to OUD treatment outcomes remain unclear, one potential mechanism is through the impact of sleep disturbances on the neurofunctional domains inherent to addiction. This study assessed differences in five neurofunctional domains, as a function of insomnia symptom severity, among females stabilized on medication for OUD. Methods: Fifty-two non-pregnant females (18-45 years) who have received buprenorphine for at least 6 weeks from an outpatient addiction treatment clinic participated in an ongoing cross-sectional survey study. Participants completed an abbreviated version of the NIDA Phenotyping Assessment Battery, a package of measures assessing 6 neurofunction domains deemed critical to addiction: sleep/insomnia severity, negative emotionality, metacognition, interoception, cognition, and reward. Chi-squared and t-tests ( $\alpha=0.10$ ) compared females with moderate-to-severe versus minimal-to-subthreshold insomnia symptoms across neurofunction measures. Results: Relative to females with minimal-to-subthreshold insomnia symptoms ( $n=26$ ), females with moderate-to-severe insomnia symptoms ( $n=26$ ) reported higher levels of negative emotionality (e.g., depression, anxiety, post-traumatic stress, distress intolerance, and poorer global mental health) and higher levels of unhelpful metacognition ( $p<0.05$ ). Participants with moderate-to-severe insomnia symptoms were more likely to report that poor sleep was interfering with their OUD treatment ( $p<0.10$ ) and that improved sleep would help with their treatment ( $p<0.05$ ). Other measures assessed did not differ between groups. Conclusions: Improving sleep quantity and quality, with specific attention paid to addressing negative emotionality and metacognition, are promising targets in the creation of individualized treatment plans for women with OUD experiencing sleep disturbances.

38. What Motivates Saudi Females' Intentions to Get a Mammogram? A Randomized Control Trial to Evaluate Effective Preventative Message

Bin Khulayf, Saleh, Carlyle, K.E., Alkazemi, M.F., Fine, R., Hill, A. & Guidry, J.P.D.

**Background.** In Saudi Arabia, breast cancer mortality is a public health concern where females often discover breast cancer at an advanced stage due to ignoring preventative testing such as mammography. While increasing mammography awareness is essential in Saudi Arabia, almost nothing is known about the effectiveness of health communication messages in mammography's context. This research tested whether exposure to Entertainment-Education (E-E) message or educational infographic messages would influence Saudi females' intentions to get mammography. **Method.** This research relied on a randomized control trial among n=240 Saudi females older than 40. Respondents were randomly assigned to watch YouTube E-E message or read educational infographic messages. The control group was not exposed to any preventative messages. All participants in the three arms received one validated questionnaire that measured the constructs of the Theory of Planned Behavior (TPB) (i.e., attitude, subjective norms, and perceived behavioral control) and issue involvement. **Results.** Hierarchical regression revealed that females' intent to get mammography was associated with those who watched the E-E message and had a positive attitude, norms, control, and involvement. Moreover, females' intent to get a mammogram was associated with females who got a mammogram in the past, at younger ages, without a family history of breast cancer in their mothers. **Conclusion.** The findings explain what Saudi health communication professionals should consider when designing mammography educational messages for Saudi females. However, to reduce breast cancer mortality in the future, it is essential to increase health communication campaigns and assess its impacts on females' screening decisions.

### 39. Empowering Women's Health Through Healing Design

Tawny Chamberlain, VCUarts Interior Design

**BACKGROUND** Despite the immense focus on patient-centered care over the past two decades, a lack of knowledge exists regarding how to apply these guidelines to women, which contributes to gender disparities in healthcare (Filler et al, 2020). Decreased engagement with providers, coupled with disjointed healthcare, leaves women in a vulnerable position. This research will explore if designers have the tools they need to advocate for patient-centered care for women (PCCW) and the design of holistic, healing environments. **METHODS** A comprehensive literature review, precedent studies, a user survey, and interviews with designers have been conducted to determine which environmental factors impact women's engagement with their healthcare center. **RESULTS** There is ample evidence that the environment impacts patient care and satisfaction, providing designers with a unique opportunity to deliver innovative environments that promote wellbeing and active health (Locatelli et al., 2015). Designers must recognize that women often have significant fear and anxiety surrounding exams and take care to utilize strategies that can mitigate these emotions, including empowering women by giving them a sense of control over their environment. Biophilic and salutogenic design principles should be incorporated and care should be provided in a safe, women friendly environment with strong continuity of care from an interdisciplinary team (Peters, 2010). **CONCLUSIONS** To promote optimal health and wellness, women should have access to a holistic healthcare center they perceive as non-intimidating. This research will help interior designers better understand how to advocate for PCCW and encourage engagement with the clinics they design.

40. Electronic nicotine delivery system use behavior and quitting-related weight concerns: An exploration of sex differences

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Background: Electronic nicotine delivery system (ENDS) use has been steadily increasing. A common motivation for ENDS use is weight control which also represents a potential barrier to quitting. There is inconsistent evidence of sex differences in the use of ENDS for weight control. It remains unknown whether weight concerns related to quitting ENDS differ by sex. Methods: This is a secondary analysis of data from a clinical lab study of 34 current users of ENDS. This analysis focuses on baseline measures of ENDS use behavior, quitting-related weight concerns, and future quit program interest. Descriptive statistics and bivariate tests were used to detect differences by sex ( $\alpha < 0.05$ ). Results: Participants were 26 (SD=8) years old on average, and more than half (56%) identified as a race other than white. Sex assigned at birth was 59% male (41% female). Most used ENDS every day (79%) and were moderately dependent. Most (68%) were not worried about weight gain related to quitting ENDS, but among the 32% that were worried, 64% cited this worry as influencing their decision not to stop. About 41% indicated interest in a quit program to prevent weight gain. While not significantly different by sex, more women reported worry regarding post-cessation weight gain (43% vs. 25%) and had higher interest in a weight management quit program (50% vs. 35%). Discussion: Findings provide evidence that weight concerns are a potential barrier for ENDS cessation among men and women. Research with larger samples is needed to further explore perceptions of ENDS-related weight control.



41. Plans to create community-located trauma-informed culturally responsive mental health support for Latinx pregnant people

Daniel Gutierrez, Ph.D., LPC, CSAC; Counseling and Special Education; Courtney Holmes, PhD, LPC, LMFT, CRC, NCC; Rehabilitation Counseling; Patricia Kinser, PhD, WHNP-BC, RN, FAAN, School of Nursing; Amy Salisbury, PhD, APRN, PMH-CNS, BC, School of Nursing

Perinatal stress is correlated with a variety of poor maternal-child outcomes ranging from mental health symptoms, decreased utilization of recommended prenatal and mental health care, and poor maternal-child outcomes, particularly in populations that might delay or avoid seeking care due to experiences of discrimination and medical mistrust. When compared to White Americans, Latinxs are significantly more likely to be uninsured, experience greater numbers of COVID-19 deaths, live in poverty, and be unemployed. They also experience stressors related to acculturation, enculturation and perceived racism, all of which considerably impact their mental health. Consequently, about 60% of Latinas experience perinatal depression and Latina mothers experience postpartum depression at a rate 40% higher than non-Hispanic mothers. Preliminary evidence from our research team shows a promising pathway to enhancing maternal outcomes in this population: we have manualized an intervention that involves motivational interviewing and strengths-based discussions with the pregnant individual during fetal ultrasound to enhance maternal-child attachment and self-efficacy. We propose combining this intervention with care navigation by a bilingual Community Health Worker and co-located, bilingual trauma-informed culturally responsive mental health support with a mental health provider. This model builds upon pilot data from our current NIH-funded study and will leverage infrastructure from our established community partnerships so that all activities of the study occur in the community. The premise is that a strength-based, motivational protocol during ultrasound may encourage more healthcare engagement that, when delivered in a trauma-informed culturally responsive environment, may lead to improved pregnancy outcomes and transformative changes in health equity.

## 42. Designing an Online Module on Automated Bias and Discrimination in Healthcare

Linda Hamrick, BA, English, College of Humanities and Sciences

Artificial intelligence's predisposal to bias and discrimination has been well documented in policing and education, but is only beginning to be uncovered in healthcare. It has been identified in regards to thoracic disease that there is a consistent decrease in the performance of computer-aided diagnostics for gender-based underrepresented populations when a gender imbalance is found in datasets (Larrazabal). Unsurprisingly, this is not the only area in which gender bias has been detected. In 2022, a machine learning model trained to predict future administrations of benzodiazepines was found to have an unexpected relationship with gender in its predictions (Mosteiro). Working collaboratively with the Health Humanities Lab and History and Health within the Office of Health Equity, an online training module is in development to provide educational resources to physicians, nurses, pharmacists, psychologists, students, and more on the role bias and discrimination has in artificial intelligence. This poster presentation will focus on the development of the online module, including a review of the research behind its development, the resources that will be provided in its conception, and potential solutions to approach the problem of bias and discrimination of artificial intelligence in healthcare.

#### 43. Cannabis Use on Clinical and Psychosocial outcomes in Women in Treatment for Opioid Use Disorder

Saisriya Kolli, BS, VCU School of Medicine; Michelle Eglovitch, MPH, Psychology, VCU; Bhushan Thakkar, PT, MS, Obstetrics & Gynecology; Stephanie Violante, Psychology, VCU; Caitlin E. Martin, MD MPH FACOG FASAM, Obstetrics & Gynecology, Institute for Drug and Alcohol Studies, VCU

Although concomitant cannabis use during opioid use disorder (OUD) treatment is common, how cannabis use impacts outcomes remains unexplored. This study reports on the clinical characteristics and compares OUD outcomes of women receiving buprenorphine for OUD by frequency of self-reported cannabis use. It is a secondary analysis of an ongoing survey study investigating sleep and OUD recovery among non-pregnant females ages 18- 46 stabilized on buprenorphine in outpatient treatment. The Timeline Follow-Back assessed past 28-day cannabis use and was categorized as nonuse (0 days), occasional, (1-27 days), and daily use (28 days). Clinical characteristics included: the Insomnia Severity Index, Generalized Anxiety Disorder-7, and pain interference (range 0-4, adapted from Short Form-36). OUD outcomes (opioid craving and withdrawal, range 0-100) were compared between cannabis groups using a one-way ANOVA. Participants (N=42) are predominantly white (53.2%), with Medicare/Medicaid (94.9%). Half reported not using cannabis in the last 28 days, 9 participants used cannabis daily, and 12 used cannabis occasionally. For all groups, mean scores were above the clinical cutoff for insomnia (4.00, 10.78, 14.25) and mild-moderate anxiety (9.44, 8.29, 8.33), and pain interference was at least 'moderate' (2.29, 2.00, 2.58). Participants with occasional cannabis use reported higher intensity of opioid wanting (15.33;  $p=.05$ ) and withdrawal (6.5;  $p=0.11$ ), than participants using cannabis daily (2.78, 3.11) or not at all (1.33, 0.00). Patient-reported OUD outcomes differed by levels of cannabis use, yet not by a dose-response trend. Future studies should employ both qualitative and longitudinal data to investigate associations of cannabis use with treatment outcomes.

#### 44. Women and Well-being: Sex Differences Among Male and Female College Students' at VCU

Amelia Liadis, M.Ed., School of Education & VCU Recreation and Well-being; Starr Robinson, B.S. & B.A., School of Education & VCU Recreation and Well-being; Brenna Denicola, B.A., College of Health Professions & VCU Recreation and Well-being

This poster will present data from VCU's National College Health Assessment in 2020 broken down by male and female participants. In particular, it will highlight differences among students' mental health concerns, challenges on campus including microaggressions, relationships and harassment, as well as challenges related to sleep. It will include a literature review that examines social determinants of health as they relate to women and the aforementioned topics.

45. The PMH Connect, an information resource, self-empowerment tool, and connection aid related to Perinatal Mental Health inform

Moyer Sara, BS, RN, School of Nursing, VCU; Weinstock Maddison, MS, Psychology, VCU; Laura Stevens, BS, RN, School of Nursing, VCU; Nunziato Jaclyn, MD, MS, Virginia Tech Carilion School of Medicine; Karjane Nicole, MD, School of Medicine, VCU; Rivera Alexis, BS, Bon Secours Saint Francis Medical Center; Wisner Katherine, MD, MS Dept.s of Psychiatry and Behavioral Sciences and Obstetrics and Gynecology, Director, Asher Center for Research and Treatment of Depressive Disorders, Northwestern University; Salisbury Amy, PhD, APRN, PMH-CNS, BC, FAAN School of Nursing, VCU; Kinser Patricia, PhD, WHNP-BC, RN, FAAN, School of Nursing, VCUed by participant experiences

Mental health disturbances and related symptoms in the perinatal period present a challenge to patients and providers alike, particularly regarding identification and appropriate management. With recommendations related to increased and universal screening protocols, Perinatal Mental Health (PMH) screening now occurs in clinical settings more frequently; however, pregnant and postpartum individuals report several concerns related to PMH screeners and connections to subsequent care and support. Through qualitative interviews, our team explored these concepts and concerns with n=54 pregnant and postpartum individuals from April to July 2020. The resulting themes highlighted areas for improvement and were integrated in developing the PMH Connect: a Perinatal Mental Health Screening Connection, Education, and Decision Aid. The PMH Connect provides brief anticipatory guidance about PMH symptoms, normalizing trauma-informed language about prevalence, and provides a connection to resources in a supportive, unobtrusive manner. Inspired by the Cycle to Respectful Care model, the PMH Connect is designed to shift power to patients themselves, as valued experts on their own care team, promotes feeling heard and supported and strives to provide awareness of available resources before they are needed, decreasing the burden on individuals and providers alike. Our hope is that the PMH Connect will bridge many of the barriers to effective PMH screening, assessment, and treatment by improving patients' experiences and outcomes, with the ultimate goal of impacting health disparities in PMH screening and subsequent care.

46. Heartbeats: A Hospital-Based / Community-Linked Interdisciplinary Program to Reduce Maternal Deaths Through Enhanced Collaborative Services.

Carol Olson, MA, LPC, VCU Injury and Violence Prevention Program; Leann Ragland, MSW, VCU Injury and Violence Prevention Program / Project Empower / Heartbeats; Tia Cochran, MA, LPC, VCU Injury and Violence Prevention Program / Counseling Services; Reed Bohn, BSW, VCU Injury and Violence Prevention Program / Project Empower; Kelly O'Conner, PhD, VCU Injury and Violence Prevention Program / Research and Evaluation; Nicholas Thomson, PhD., UKCP, CPC, Surgery & Psychology and VCU Injury and Violence Prevention Program / Research and Evaluation; Michel Aboutanos, MD, MPH, FACS, NOTW, Professor and Chief, Division of Acute Care Surgical Services, Surgery, VCU Trauma Center/Trauma System Network, VCU Injury and Violence Prevention Program

Pregnant and postpartum survivors of intimate partner violence (IPV) experience higher risks of violence, suicide, and homicide. In the study area, 12% of maternal deaths are due to homicide and 7% are due to suicide. Our group has previously shown that a hospital based DV/IPV prevention and intervention programming Project Empower (PE), based on training healthcare workers with evidenced-based screening tools in an integrated victim response model which leads to improved hospital DV/IPV screening and a more trauma informed response to survivors of violence. Our specialized Heartbeats program expands Project Empower to peri/postpartum patients (PPP) at risk of violence via a collaborative initiative with OB/GYN and community pregnancy support programs. Heartbeats is part of VCU (Virginia Commonwealth University) Injury and Violence Prevention Program under Acute Care Surgical Services & Trauma program. Having the program housed this way provides additional support in trauma-based care and has aligned the unit with other hospital-based and community-linked services of intersecting issues like community violence, in addition to medical care for pregnancy/postpartum needs, and community based organizations who are population specific and provide care like mental health support and crisis response; all of which creates an allied collaboration to DV/IPV, community violence, gun violence, and suicide. Results: Project Empower: Heartbeats' initiative of integrating health services staff and provider training with evidenced-based screening demonstrates promise as an effective hospital-based intervention/prevention for peri and postnatal patients at risk of violence.

47. The fourth trimester: Does mother's brain health and income affect son's brain health?

Hakinya Karra, Matthew Ridder, BS, Neurology, VCU School of Medicine, Aiman Hanif, Edward Boone, PhD, Statistical Science and Operations Research, Aaron Kaat, PhD, Northwestern University, Mathula Thangarajh, MD, PhD, Neurology, VCU School of Medicine.

Intergenerational risk of poor brain health is unexplored in Duchenne Muscular Dystrophy, an X-linked genetic condition, in which boys are affected by disease but mothers are mutation carriers. We explored two hypotheses: (1) Do carrier mothers have poor brain health compared to non-carrier mothers? (2) Do carrier mothers self-reporting lower income have poorer brain health compared to non-carrier mothers? (3) What is the effect of mother's brain health on the son's brain health? We prospectively assessed brain health in 25 mother-son dyads using the National Institutes of Health Toolbox Cognition Battery, a scientifically robust psychometric tool. Self-reported annual household income was also obtained from mothers. We assessed total, crystallized and fluid cognition scores. Our preliminary analyses show that compared to non-carrier mothers, carrier mothers scored lower in all cognition scores. Mothers cognition score based on income was statistically null. We are analyzing the relationship between mothers' cognition score and sons' cognition score. Our preliminary result underscore the importance of maternal brain health in optimizing the health of children.

48. To who and by who: Discussions on sexual health for women with locally advanced cervical cancer

Catherine Sport, B.S.; Nophar Yarden, B.S., VCU School of Medicine; Nitai Mukhopadhyay, Ph.D., Biostatistics, VCU; Emma Fields, M.D., Radiation Oncology, VCU

The standard treatment for locally advanced cervical cancer (LACC) includes pelvic radiation therapy and brachytherapy, which can cause vaginal stenosis, dryness, and dyspareunia - all factors that affect a woman's sexual health. The purpose of this study was to investigate whether gynecologic and/or radiation oncologists at a large health system discuss the effect of chemoradiation treatment (CRT) on sexual health and if so, what patient and oncologist factors make discussions more likely. Women with LACC (FIGO stage IB2-IVA) treated with definitive CRT between 2010-2021 were included. Clinical notes from visits with oncologists were reviewed for discussions of sexual health, including vaginal dilators, pelvic physical therapy, dyspareunia, and vaginal stenosis. Variables collected were patient demographics, disease and treatment details, age and gender of the oncologists. Univariate and multivariate analyses were performed using software R v 4.2.1. 93 women were included (22-91 years old) and most were IIB (34%) or IIIB (32%). Oncologists discussed sexual health with 74.2% of patients. Having a younger (41.3 years old versus 55.3 years old,  $p < 0.001$ ) and female ( $p < 0.001$ ) radiation oncologist made sexual health discussions more likely. Having a female radiation oncologist remained significant after multivariable analysis. It is promising to see that most oncologists discussed sexual health with their patients. Interestingly, younger, female radiation oncologists discussed sexual health more than their older, male counterparts. This highlights the importance of training residents to be comfortable talking to their patients about sensitive issues, no matter their age and gender.



#### 49. Demographic Correlates of the Perceptions of Prenatal Cannabis Use Survey

Anna Wiese, B.S., B.A., Psychology, College of Humanities and Sciences, VCU; Judy Chang, MPH, MD, Obstetrics, Gynecology, and Reproductive Sciences, School of Medicine, University of Pittsburgh; Jeanelle Sheeder, MSPH, PhD, Obstetrics and Gynecology, School of Medicine, University of Colorado; Nancy Jallo, PhD, Family and Community Health Nursing, School of Nursing, VCU; Lisa Brown, PhD, Family and Community Health Nursing, School of Nursing, VCU; Nicole Karjane, MD, Obstetrics and Gynecology, School of Medicine, VCU; Divya Sharma, MA, Psychology, College of Humanities and Sciences, VCU; Enkelejda Ngjelina, JD, MS, Psychology, College of Humanities and Sciences, VCU; Nicole Boss, BA, MA, Psychology, College of Humanities and Sciences, VCU; Carl Wolf, PhD, Pathology, School of Medicine, VCU; Robert Balster, Ph.D. Pharmacology and Toxicology, School of Medicine, VCU; Leslie Lantz, MSN, Family and Community Health Nursing, School of Nursing, VCU

Background: While prenatal cannabis use is increasing, there is a lack of a standardized measure of perceptions about prenatal cannabis use. To address this need, researchers developed the Perceptions of Prenatal Cannabis Use (PPCU) survey. Methods: This is a secondary analysis of three sites (Denver, Pittsburgh, Richmond) where women completed an anonymous survey of demographic variables and the PPCU. PPCU scores ranged from 1-5, with higher scores favoring the safety/benefits of prenatal cannabis use. The present study 1) examined the reliability of the PPCU using Cronbach's alpha and 2) compared PPCU scores across demographic variables using bivariate correlations and independent-samples t-tests. Results: Participants were (N=582) women recruited from an OB/GYN clinic, a prenatal clinic, or a postpartum unit. The PPCU was found to have good reliability ( $\alpha = 0.89$ ). Age was significantly positively correlated with PPCU scores ( $p < .01$ ). Women who were married/living as married ( $M=2.56$ ) had significantly lower PPCU scores than women who were unmarried ( $M=2.94$ ;  $p < .001$ ). Additionally, women with  $\leq$ high school diploma/GED ( $M=2.94$ ) had significantly higher PPCU scores than those with  $>$ high school diploma ( $M=2.66$ ;  $p < .001$ ). Conclusion: Women across various locations and statuses of cannabis legality differed in their perceptions of prenatal cannabis use depending on their age, marital status, and education level, such that women who were younger, unmarried, and had a lower education level were more likely to view prenatal cannabis use as safe/beneficial. This study emphasizes the need for further research regarding perceptions and behaviors related to prenatal cannabis use.

50. Does receiving EBRT at a different location from the brachytherapy impact treatment duration for patients with locally advanced cervical cancer?

Nophar Yarden, B.S., VCU School of Medicine; Catherine Sport, B.S., VCU School of Medicine; Nitai Mukhopadhyay, Ph.D., Biostatistics, VCU; Emma Fields, M.D., Radiation Oncology, VCU

Prolonged duration of radiotherapy (RT) for locally advanced cervical cancer (LACC) is strongly associated with poor pelvic control and survival. With increasing complexity of brachytherapy (BT), there is a decrease in providers offering this service. Subsequently, the number of patients who receive EBRT at one facility and are then referred to another center for BT is increasing. This study aims to compare RT duration in patients receiving RT at different locations versus patients receiving all treatment at one facility. Women with stage IB2-IVA LACC treated with RT between 2010-2022 were included. Patients were grouped by EBRT site, at the PI or an outside center (split group). Treatment duration was defined in days from the first EBRT to the last BT date. Analysis was completed using paired t-test and chi-square, as appropriate. Of the 116 women included, 19.8% underwent EBRT at an outside location. Differences in distance traveled to the PI was statistically significant with split group women traveling a mean of 66.1 miles and PI-only traveling an average of 41.6. The median duration of RT was statistically significant (51 days in the PI vs. 57 in the split group,  $p=0.030$ ). 65.6% of the PI-only and 47.8% of the split group patients completed treatment within the recommended 56 days. We observed shorter treatment durations for patients who received their entire course of RT at the PI. Yet, most of the patients came close to completing treatment within the recommended guidelines of 8 weeks.