Abstract Title: Gender differences in the effects of sleep disruption on fatigue

Author Names:
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Abstract Text (250 word maximum)

Background: Fatigue is a common complaint that affects up to 22% of adults in developed countries. Female gender is associated with increased levels of fatigue. The factors explaining the gender difference in the incidence of fatigue or not fully understood, but studies have shown that sleep deprivation effects men and women differently.

Objectives: The study evaluated for gender differences in the effects of sleep disruption on fatigue and 52 healthy males and females.

Methods: Each subject completed a baseline Multidimensional Fatigue Symptom Inventory Short Form (MFSI-SF) and Fatigue Symptom Inventory (FSI). They then completed a repeat MFSI-SF and Question #4 on the FSI after one night of sleep disruption via a forced awakening protocol. All females were tested in the follicular phase of their menstrual cycle.

Results: Overall trends suggest that despite having less fatigue baseline, females report greater fatigue than males after sleep disruption. In this healthy population, these findings are not explained by differences in sleep time/quality, psychological factors, or social factors (i.e. increased treatment seeking) - common hypotheses for explaining gender differences in fatigue and pain.

Conclusions: These results suggest that healthy females maybe more sensitive to the effects of acute sleep disruption on fatigued than males. These findings may be important for such conditions is fibromyalgia (in which fatigue is prevalent) and chronic fatigue syndrome, both of which are more likely to occur in females. Restoration of sleep in these conditions is vitally important, and may be more so in females.
Abstract Title: Fli-1 Transcription Factor Regulates the Expression of CXCL10

Author
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Abstract

Background:
Systemic Lupus Erythematosus (SLE) is a chronic autoimmune disease that causes inflammation in different organs of the body. 90% of SLE patients are women and lupus nephritis is a major cause of death in SLE patients. The infiltration of inflammatory cells into the kidney plays a critical role in the progression of lupus nephritis. IFN-γ Inducible Protein (IP-10), also known as CXCL10, is a chemotactic for many inflammatory cells including macrophages. Altered expression of CXCL10 is associated with inflammatory diseases, including lupus nephritis and other autoimmune diseases. We have demonstrated that Fli-1 transcription factor impacts lupus nephritis in murine model of lupus, and is a key regulator in modulating inflammatory chemokines.

Objectives:
To investigate if Fli-1 directly modulates the expression of CXCL10.

Methods:
Endothelial cells were transfected with Fli-1 siRNA or negative control siRNA and supernatant was collected after TLR ligand stimulation. CXCL10 concentrations were measured with an ELISA. ChiP assay was performed to determine if Fli-1 binds to the promoter of CXCL10. The promoter of CXCL10 was cloned and a reporter and expression construct were generated for a luciferase assay.

Results:
The endothelial cells transfected with Fli-1 siRNA and stimulated with LPS produced significantly lower amounts of CXCL10 compared to the control negative siRNA. The ChiP assay demonstrated that Fli-1 binds to the multiple sites on the CXCL10 promoter. Transient transfection assays demonstrate that Fli-1 drives transcription from the CXCL10 promoter in a dose-dependent manner.

Conclusions:
Our data demonstrates that Fli-1 is a novel regulator for CXCL10, and directly regulates its expression.
Women's Health Research Day 2016
Abstract Submission

An Estrogen Receptor alpha Functional Mutant is Protective in Murine Lupus

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Last name, First name¹; Last name, First Name²; etc.
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Background: Lupus disproportionately affects females. We previously showed that a functional knockout of estrogen receptor alpha (ERα) resulted in significantly reduced renal disease and increased survival in murine lupus. Dendritic cell (DC) development, which requires both estrogen (E2) and ERα, is impacted.

Objectives: ERαKO mice have hypergonadism and partial endocrine sex reversal. Since elevated E2 and T2 levels may have immunomodulating effects, we studied the phenotype of the lupus-prone ERαKO mouse following ovariectomy (OVX) +/- E2 replacement to preserve a physiologic hormonal state.

Methods: ERKO (functional mutant) and Ex3a (deletional mutant) strains were backcrossed onto the NZM2410 lupus-prone background. Mice underwent OVX and E2-repletion (or not). Mice were sacrificed at 32 weeks, or when they had high proteinuria or >10% weight loss. Bone marrow was isolated and cultured for 7 days with Flt3L to enrich for DCs. Kidney and spleen cells were also isolated for flow. RNAseq was performed on WT vs. ERKO BMDCs.

Results: Lupus-prone ERαKO mice were protected from disease expression if they were either unmanipulated or if they were both ovariectomized and E2-repleted. These mice had fewer cDCs (CD11c+/CD11b+) from Flt3L-cultured bone marrow, ex vivo spleen and kidney cells. Protection was lost after OVX if no E2 pellet was administered, suggesting that the protective effect required E2 (despite the lack of a functional ERα). A protective effect was not observed in ERα null mice (Ex3a) treated similarly. Profound differences in gene transcripts by RNAseq were noted between WT and ERαKO DCs.

Conclusions: These data suggest that the presence of the ERαKO protein (AF-1 mutant) confers protection in murine lupus, compared to mice expressing full length ERα or a full-length knockout of ERα, partially via impacting cDC number.
MicroRNA 204 Expression Disrupts Normal Lactation in the Mouse Mammary Gland

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¹ Department of Pathology & Laboratory Medicine, Medical University of South Carolina

Abstract Text (250 word maximum)

Background: The mammary gland develops through several distinct stages, pre-pubertal and pubertal growth, pregnancy, lactation and involution. However, lactation is the primary function of the mammary gland. Upon pregnancy the combined actions of progesterone and prolactin generate alveoli, which secrete milk during lactation.

Objectives: We identified miR-204 as a novel oncomir and are interested in defining its role during normal mammary gland function.

Methods: We generated a unique dox-inducible miR-204 transgenic mouse model that allows us to temporally express miR-204 specifically in the ductal epithelium of the mammary gland at specific stages of normal mammary development. We extracted mammary glands for whole mount analysis and performed H&E and immunohistochemical staining. We also extracted RNA and protein to assess miR-204 and direct target expression levels.

Results: The increased expression of miR-204 during lactation resulted in a defect that led to an inability to nurse efficiently. Histologically, the mammary glands of the lactating miR-204 transgenic mice were distinguished by the lack of glandular structure, an abundance of adipocyte tissue, abnormal/involuting lobuloalveolar structures and an accumulation of large cytoplasmic lipid droplets in the alveolar epithelial cells. Histologically we identified an inhibition of the PRLR/JAK/STAT pathway and a subsequent reduction in the milk protein genes WAP1 and CSN2. Pup weight was significantly lower as a result.

Conclusions: Our data suggests that miR-204 is important for the normal biology of the mammary gland specifically that the deregulation of miR-204 affects lactation through inhibition of the milk protein synthesis pathway.
Abstract Title
Domperidone for treatment of low milk supply in mothers of hospitalized premature infants: A multidisciplinary development of safe prescribing guidelines and a retrospective chart review (2010-2014) of maternal response to treatment

Author Names

Format as follows (the presenting author’s name should be in bold):

Last name, First name1; Last name, First Name2; etc.

1 Barbara Haase, APRN, MSN, CPNP, IBCLC, PhD candidate
2 Sarah Taylor, MD
3 Jill Mauldin, MD
4 Kristen Morella (Biostatistician)
5 Teresa Johnson, PhD, RN
6 Carol Wagner, MD, FABM
Abstract Text

Background: Mothers of hospitalized premature infants who choose to provide breast milk are at increased risk of an inadequate breast milk supply. When non-pharmacologic interventions to increase milk supply fail, clinicians are faced with limited options. There is no literature to support the use of herbal galactogogues in this population and a US Federal Drug Agency black box warning for metoclopramide for potential serious side effects. Domperidone was our only effective option for treatment of low milk supply in this population.

Methods: Following a review of the literature on domperidone, a multidisciplinary treatment protocol at our institution was developed. Data were then collected through a retrospective chart review from 2010-2014 of all lactating women with low milk supply and with a hospitalized premature infant who were eligible for treatment with domperidone. A mixed linear model was used to compare the mean milk volume in those who were treated with domperidone to those who declined treatment due to the cost of the drug over a 30-day treatment period. Any side effects reported were also documented. Data were analyzed using SAS Version 9.4 (Cary, NC).

Results: Of the 277 women assessed; 132 were eligible for treatment with domperidone. Complete data was available for 95 women. Those who declined domperidone due to cost (n=50) had lower educational levels, were more likely to be African-American, young and single or divorced (p<0.05 for all). Even after controlling for these factors, women in the treatment group (n=45) showed an increase in their adjusted mean ± SE milk volume from baseline of 125±38 mL to 415±46 mL by day 30 of treatment (p<0.001). In comparison, the women who declined domperidone had an adjusted mean ± SE decrease of 70 mL by 30 days, from 158±39 mL to 88±88 mL (p=0.39). There were 3 episodes of minor side-effects in the treatment group that included fatigue in two and headache in one. For every 30 mL increase in maternal milk production there was a cost savings of $4 per ounce of donor milk.

Conclusion: A comprehensive understanding of domperidone for use as a galactogogue with a standard treatment protocol will facilitate safer prescribing practices, minimizing potential adverse reactions in mothers and their premature hospitalized infants. Limited access to the drug in the US prohibits this treatment for mothers who have lower socioeconomic and educational status. In those mothers treated with domperidone, our data demonstrates statistical significance in the increase in maternal mean breast milk volumes with rare and minor side effects of treatment. Further research of domperidone for use as a galactogogue in healthy women of child-bearing age with low milk supply is needed.
# Abstract Title
Trauma Exposure Effects on Antisocial Behavior: Variation Based on Gender and Ethnicity

## Author Names
*Format as follows (the presenting author’s name should be in bold):*

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## Abstract Text (250 word maximum)

**Background:**
Latina and African American girls are at disproportionate risk for engaging in antisocial behavior, but the factors that place them at increased risk are poorly understood. Trauma exposure might explain ethnic differences. Not only is trauma exposure elevated among youths from these ethnic minority groups, but ethnic minority youths have been more vulnerable to adverse effects of exposure to trauma than have their Caucasian counterparts. Further, trauma exposure has been proposed to be more relevant to the development of antisocial behavior among girls than among boys. Yet, whether gender differences in the effects of trauma on antisocial behavior vary by ethnicity has received limited research attention.

**Objectives:**
The purpose of the current study is to examine whether gender differences in the effects of trauma on antisocial behavior vary by ethnicity.

**Methods:**
Data were drawn from the first wave of the National Survey of Adolescents-replication study. Participants were 3247 adolescents who identified as White/Caucasian (70.7%), African American/Black (16.8%), or Latino (12.5%).

**Results:**
Logistic regression analysis was utilized to test hypothesized models. Exposure to violent trauma increased the odds of antisocial behavior across all ethnicity and gender groups except for African American girls.

**Conclusions:**
Differential vulnerability to trauma exposure did not explain increased risk of antisocial behavior among ethnic minority girls. Among African American girls, trauma exposure was unrelated to antisocial behavior. The greater relevance of trauma exposure to antisocial behavior among girls might be limited to Caucasian youths, highlighting the need to attend to ethnic differences in gender effects.
Abstract Title

In vivo Modeling of a Pre-eclampsia like Syndrome by an Nkx2-5-Controlled Transcriptional Pathway

Author Names

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Abstract Text (250 word maximum)

Background:
In recent studies, we detected high levels of expression of the cardiovascular transcription factor, Nkx2-5 in trophoblast cells of human placenta from cases of early onset and severe pre-eclampsia (EOSPE). These elevations occurred in racially disparate fashion (Caucasian American > African American) and were highly correlated with increased expression of the PE marker sFlt-1, and the expression of an mRNA splicing factor, Sam68, which potentially mediates sFlt-1 production. These findings raised the hypothesis that ectopic expression of Nkx2-5 in placental trophoblast might contribute to EOSPE severity through increased placental sFlt-1 production.

Objectives:
To determine whether ectopic expression of Nkx2-5 in mouse placenta induces aspects of a PE-like syndrome.

Methods:
Transgenic overexpression of Nkx2-5 in mouse placental trophoblasts (Nkx2-5 OE); histologic analysis; and qPCR assay of Nkx2.5 and target gene expression; sFlt-1 ELISA assay; urine protein ELISA.

Results:
Conditional activation of Nkx2-5 expression in select mouse trophoblast giant cell (TGC) cytotrophoblast populations in Nkx2-5 OE embryos resulted in cytotrophoblastic thinning, TGC hypoplasia, and appearance of hyaline changes in myometrial spiral arteries. Placental expression Sam68 was found to be elevated, as were maternal serum sFlt-1 levels. A mild degree of proteinuria was detected in mice bearing Nkx2-5 OE as compared to controls.

Conclusions:
Activation of ectopic placental Nkx2-5 expression may play a direct role in the genesis of PE via regulation of placental Sam68 and sFlt-1 production.
Defining the implications of sugar derived metabolites (A.G.E.s) to tamoxifen resistance and breast cancer disparity: Is it a question of lifestyle?

Author Names

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Abstract Text (250 word maximum)

Background: Tamoxifen is the most widely prescribed adjuvant therapy for estrogen receptor positive (ER+) breast cancer. Compared to European American women, African-American women with ER+ breast cancer, have worse progression-free and overall survival, and increased resistance to anti-cancer therapy. Glycation is the non-enzymatic glycosylation of sugar moieties to biological macromolecules which produces reactive metabolites known as advanced glycation end products (AGE’s). AGE’s accumulate in our tissues as we age and drive many of the complications associated with systemic disease. Significantly, low income and an inactive lifestyle are established factors driving health disparity that also contribute to increased AGE accumulation.

Objectives: To examine the biological effects of lifestyle derived AGEs on tamoxifen therapy.

Methods: 1) Immunohistochemical staining was used to assess AGE levels in breast tumors. 2) Western blot was used to examine the effects of AGEs on ER expression and post-translational modification. 3) Cytotoxicity assays were used to assess the effects of AGEs on tamoxifen therapy

Results: AGE treatment in ER+ breast cancer cell models promoted tamoxifen resistance via the activation of the MAPK and AKT pathways leading to resistance associated changes in ERα phosphorylation. We observed higher AGE within breast cancer tumor and serum samples and showed a correlation between tumor progression and intra-tumoral AGE concentration.

Conclusions: We have identified a potential mechanistic link between sugar derived metabolites and estrogen receptor (ER) phosphorylation which provides a biological consequence of these established lifestyle factors that may directly impact tamoxifen therapy and therefore minority health.
Abstract Title
Effects of Peripheral and Central Oxytocin on Reinstated Cocaine Seeking in Male and Female Rats

Author Names
Kah-Chung Leong\textsuperscript{1}, Linnea R. Freeman\textsuperscript{2}, Shannon M. Ghee\textsuperscript{1}, Carole Berini\textsuperscript{1}, Trevor Stubbs-Stroud\textsuperscript{3}, & Carmela M. Reichel\textsuperscript{1}

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Abstract Text (250 word maximum)

**Background:**
Oxytocin has gained increasing attention as a possible treatment for multiple neuropsychiatric disorders, including addiction. Oxytocin impacts natural and drug reward due to extensive innervation of central reward and emotional pathways. Sex differences exist in cocaine addiction but the majority of research has only focused primarily on males. Furthermore, the oxytocin system is sexually dimorphic. These sexual dimorphisms in addiction and oxytocin mechanisms should be taken into account when investigating the therapeutic effect of oxytocin on cocaine addiction.

**Objectives:**
We used a 2 hr cocaine self-administration, extinction, reinstatement protocol, to determine whether oxytocin would alter cued reinstatement of cocaine seeking in males and females following systemic and intra-cranial oxytocin treatment. In addition, we characterized the activation of oxytocin cell bodies within the paraventricular nucleus (PVN) following cued reinstatement regional fos activation of downstream targets of the PVN to determine the extent of sexual dimorphisms in these areas.

**Methods:**
Male and female rats underwent cocaine self-administration followed by extinction and cued reinstatement tests. Rats received systemic (1 mg/kg, i.p.), central (3 µg; ICV) oxytocin or vehicle treatment prior to cued reinstatement test. Following testing, rats were perfused and the brains were processed for c-fos staining and c-fos/oxytocin double-labeling in the paraventricular nucleus of the hypothalamus (PVN).

**Results:**
Oxytocin attenuated cue-induced cocaine-seeking in male and female rats following systemic and intracerebral ventricular administration. Immunohistochemical analysis of the PVN and PVN-projection targets revealed few sexual dimorphisms between males and females indicating oxytocin may be a viable treatment for cocaine addiction across both sexes.

**Conclusions:**
Oxytocin attenuated cocaine seeking similarly in both sexes. This similarity is in contrast to the well-known sex differences in the role of oxytocin. Immunohistochemical analysis of the PVN and PVN-projection targets revealed few sexual dimorphisms between males and females indicating oxytocin may be a viable treatment for cocaine addiction across both sexes.
Examining gender differences in cortisol reactivity to dyadic conflict

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Abstract Text (250 word maximum)

Background: There is a high prevalence of dyadic conflict among individuals with substance use disorders (SUD). Stress, including that induced by dyadic conflict, is an important risk factor in the development of SUD and vulnerability to relapse. One important health consequence of persistent substance use is dysregulation of the hypothalamic-pituitary axis (HPA), which controls reactions to stress and regulates many processes integral to physical and emotional wellbeing. Cortisol is the primary hormone responsible for adaptive and maladaptive stress response. Few studies have examined the effects of dyadic conflict on cortisol reactivity among healthy controls and none have extended this literature to substance using couples. While existing literature indicates that cortisol levels may differ between males and females, no study to date has investigated sex differences in cortisol responses to dyadic conflict among substance using couples.

Objectives: The primary objective of this analysis was to examine the baseline cortisol levels in substance using couples and examine the sex differences in cortisol reactivity to a conflict resolution task.

Methods: Participants (N=66) a total of 33 couples who meet inclusion criteria. Participants completed one conflict resolution task and provided two salivary cortisol samples.

Results: No significant sex differences in baseline cortisol levels and no significant sex differences in the cortisol reactivity to the conflict resolution task emerged in this sample. The mean cortisol baseline level for females was slightly higher than males; however, it did not reach statistical significance. Both male and female cortisol levels reduced during the course of the conflict resolution task.

Conclusions: Continuing research on the associations between dyadic conflict and HPA function and sex differences in stress reactivity to dyadic conflict between male and female substance users may yield insights into how addiction can be treated more effectively.
Abstract Title
Characteristics and preferences of female veterans most likely to engage in mental health services

Author Names
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Abstract Text (250 word maximum)

Background:
Data shows that 1 in 4 women screen positive for Military Sexual Trauma (MST) compared to 1 in 1000 men. However, women with MST victimization are also highly unlikely to seek treatment. The underutilization of services is worrisome given that MST is associated with heightened risk of a variety of mental health problems including substance use, depression, and most notably Post-Traumatic Stress Disorder (PTSD).

Objectives:
Given the traditional difficulties in engaging women with MST in therapy services, the current project will provide baseline characteristics of women who are more likely to engage in therapy and identify factors that can enhance their attendance rates.

Methods:
A mixed method design allows for interpretation of qualitative data provided by women with MST incidents about barriers and facilitators of mental health treatment. Participants are 20 women with MST histories who are involved in treatment and have completed a 60 minute qualitative interview (e.g., What mental health care issues are unique to you as female veteran?) as well as self-report assessments.

Results:
Results will include identified themes found in the qualitative analyses. Initial quantitative analyses will also be conducted, including information on baseline PTSD symptoms, attendance/no show rate, quality of life, and social support.

Conclusions:
Based on results of the qualitative analyses, further modifications to the process, method, or type of treatment implemented that address unique issues related to the MST victim population will be discussed. Qualitative feedback on how mental health providers should tailor services to female MST victims will be provided.
Abstract Title
Gender differences in daily behavioral stress in drug using parents

Author Names
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Abstract Text (250 word maximum)
Background:
Long-standing evidence indicates that both acute and chronic stress play a critical role in drug use, with particular emphasis on the negative impact of behavioral stress (Sinha, 2000). Despite this link, less literature has examined the role of stress caused by parenting – which is surprising given the cumulative negative effect of seemingly minor stressors, such as those related to parenting (Almeida, 2005; Fox et al., 2010).

Objectives:
This study aims to address this gap in the literature among a sample of drug using parents and non-parents, hypothesizing that: (1) drug using parents will report higher baseline levels of behavioral stress than non-parents; and (2) female parents will indicate higher levels of behavioral stress than non-parents.

Methods:
Participants (n=115) were collected in two distinct medication/laboratory studies of cue reactivity and relapse factors in cocaine dependent participants.

Results:
Results found a differential effect of parental stress on daily hassles scores for men and women. Female parents reporting significantly higher daily hassles total scores as compared to male parents, while female and male non-parents were not appreciably different from one another.

Conclusions:
This study builds on previous literature by concluding that daily behavioral stress was similar for parents and non-parents, although gender played an important role in the relationship. This suggests that, for drug using parents, females may be impacted more significantly by daily behavioral stressors in their environment than males. Further research is necessary to increase generalization and knowledge regarding this important link, as well as to examine additional factors.
**Abstract Title:** Castor oil as a natural alternative to labor induction: A retrospective descriptive study

**Author Names**

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**Abstract Text (250 word maximum)**

**Background:** Fifty percent of US women report receiving Pitocin to induce or augment labor. Side effects include increased risk of caesarean birth, infection, uterine hyperstimulation, and decreased maternal satisfaction with the birth experience. Castor oil is a common pharmacological induction alternative.

**Objectives:** The purpose of this study is to better understand castor oil as a nonmedical agent of labor stimulation.

**Methods:** A retrospective clinical chart review was conducted of all women who gave birth at a freestanding birth center located in the southeastern US between January 2008 and May 2015. Overall, 323 women who used castor oil for labor stimulation gave birth afterwards.

**Results:** Of the mothers who utilized castor oil to stimulate labor, only 30 (9.3%) required a caesarean birth, while 287 (88.9%) were enabled to birth vaginally at the birth center or hospital. The incidence of maternal side effects was less than 7%, and adverse effects of any kind were reported in less than 15% of births. Independent sample t-tests revealed that gestational age (p=0.26), woman’s age (p=0.23), and BMI (p=0.28) were not significantly associated with ability to successfully give birth at the birth center after castor oil consumption. A t-test revealed significant differences by parity (p<0.01), suggesting parous women were more likely to birth at the birth center after using castor oil.

**Conclusions:** Our study demonstrated castor oil use as a natural alternative to stimulate labor. Findings indicate further research is needed to compare the safety and effectiveness of castor oil to other labor induction techniques in a clinical trial.
Abstract Title
Genome-Wide DNA Methylation Analysis in Blood and Dermal Fibroblasts from Twin Pairs Discordant for Systemic Sclerosis (SSc) Reveals Distinct Signatures in Limited and Diffuse Disease Subsets

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Abstract Text (250 word maximum)

Background: SSc is a systemic autoimmune disorder that disproportionately affects women. The reasons underlying the wide variation in disease heterogeneity and severity remain unknown. The low concordance rate in monozygotic twins suggests an important role for epigenetic factors in SSc susceptibility.

Objectives: This analysis was conducted to characterize DNA methylation patterns in SSc.

Methods: Genome-wide methylation was assessed on approximately 480,000 CpG sites using genomic DNA isolated from 1) whole blood from 20 twin pairs discordant for limited cutaneous SSc (lcSSc) and 10 twin pairs discordant for diffuse cutaneous SSc (dcSSc), and 2) skin fibroblasts cultured from dermal punch biopsies of 7 twin pairs discordant for dcSSc and 5 twin pairs discordant for lcSSc. An efficiency analysis was performed with caGEDA to determine best normalization and feature selection methods and to identify differentially methylated probes between unaffected and affected twins.

Results: Dramatic differences were observed both between tissues and disease subsets, with very little overlap of differentially methylated CpGs common between lcSSc and dcSSc in both blood and fibroblasts. Despite the enrichment of different pathways and biological functions in each disease subset driven by differential hyper- or hypomethylation of different genes, most of these pathways can be placed into broader categories implicating an overall involvement of developmental and cancer functions.

Conclusions: The distinct methylation patterns observed in blood and fibroblasts between lcSSc and dcSSc corroborate a similar observation reported in skin fibroblasts and suggest that subset-specific epigenetic signatures may be, at least in part, responsible for the clinical heterogeneity of the disease.
Abstract Title: Shortened Poly-N-Acetyl Glucosamine (sNAG) Nanofibers as a Novel Biomaterial for Enhancing Vascularization in Breast Tissue Reconstruction

Author Names:

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Abstract Text (250 word maximum)

Background: Breast cancer is the most frequently diagnosed malignancy and a leading cause of cancer-related death in women worldwide. Late-stage treatment options include either lumpectomy or mastectomy to remove the cancerous tissue. However, conventional oncological extirpation produces undesirable effects ranging from tissue asymmetry to severe disfigurement.

Objectives: The long-term objective of our research is to develop an injectable composite system consisting of poly-n-acetyl glucosamine (sNAG) nanofiber scaffolds and vascular progenitor cells that can be delivered in combination with lipo-injection for augmentation of adipose graft vascularization that will enhance graft survival. The primary goal of the current study was to evaluate the efficacy of sNAG nanofibers for optimizing vascular progenitor cell differentiation, assembly, and stabilization of vascular networks in vitro.

Methods: To gain initial insights into the potential use of sNAG nanofibers for soft tissue regeneration, vascular progenitor cells were cultured in tissue aggregates in the presence of sNAG nanofibers. Immunoblot, Matrigel vascular assembly, and immunohistological analyses were used to characterize the impact of sNAG nanofibers on progenitor cell phenotype and function.

Results: Immunohistological analyses detected significantly higher microvessel density in sNAG-treated cell aggregates compared to untreated aggregates. Immunoblot analyses revealed greater synthesis of Col-1/Col-4, which are essential mediators of vascular stabilization, in sNAG-treated aggregates compared to untreated aggregates. Finally, Matrigel assays showed increased branching and diameter in sNAG-treated vascular networks.

Conclusions: Collectively, our preliminary analyses suggest that sNAG nanofibers provide an instructive, biocompatible matrix for the rapid assembly and stabilization of capillary networks for enhancing adipose graft survival and retention.
Abstract Title
Gender differences in cannabis use disorder (CUD) treatment: Change readiness and taking steps predict worse outcomes for women.

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Abstract Text (250 word maximum)

Background:
Gender differences in cannabis use and CUD have been established, yet differences in treatment response are not well understood. Though some evidence suggests women fare worse than men, the mechanisms are unclear. The current study aims to identify factors associated with gender differences in cannabis use outcomes.

Objectives:
Examine how motivation to change and self-efficacy impact treatment outcomes, and whether gender moderates these relationships.
Explore additional clinical correlates that may account for gender differences in cannabis outcomes.

Methods:
A secondary data analysis of a double-blind placebo controlled trial of buspirone treatment for cannabis dependence (N = 175) was conducted. Self-report assessments of motivation for change, self-efficacy, and other clinical correlates were completed at baseline, and cannabis use was measured throughout the study.

Results:
There was a significant interaction between gender and SOCRATES-Taking Steps on abstinence (p=.018). Higher taking steps reduced likelihood of achieving abstinence among women (p=.001); but not men. Subsequently, taking steps was positively associated with self-efficacy (p=.006) and quantity of use (p=.000) among men, and cannabis related problems (p=.04) among women. There was a significant interaction between gender and readiness to change on cannabinoid levels (p=.004). Change readiness was positively associated with cannabinoid levels among women (p=.000), but not men.

Conclusions:
Readiness to change and initiation of change behavior predicts worse cannabis outcomes in women. Men and women differ in what motivates change behavior. Social desirability, neurobiology, and treatment type may impact these effects. Gender differences in cannabis treatment response must be considered in future studies.
THC self-administration in Sprague-Dawley rats

Author Names

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Abstract Text (250 word maximum)

**Background:** Cannabis is the most frequently used illicit drug worldwide, but preclinical research on its effects has been hampered by lack of an animal model since rats will not maintain self-administration of purified Δ9-tetrahydrocannabinol (THC), the drug’s main psychoactive component. Self-administration of a synthetic cannabinoid receptor agonist (WIN55, 212-2) has revealed marked sex differences in drug taking and seeking with females showing enhanced physiological and behavioral responses, but this is untested with THC.

**Objectives:** The present study extends these findings by establishing a reproducible rat model of THC self-administration. We hypothesize that THC vapor pre-exposure will promote acquisition of self-administrating and that combining cannabidiol (CBD) with THC will reduce the drug’s aversive properties facilitating drug taking. Moreover, we expect that female rats will display greater sensitivity to the drug as well as higher levels of drug-taking and drug-seeking during reinstatement in line with the clinical literature.

**Methods:** Adult Sprague-Dawley rats were exposed to ten minutes of THC:CBD vapor (ratio of 10:1, 10 mg THC per vapor pad) for 5 days. Following vapor exposure, rats transitioned to iv THC:CBD self-administration (2µg/kg).

**Results:** During THC self-administration, clear lever discrimination was observed in the male rats with greater than 2-fold preference for the drug-associated lever while female rats displayed higher inter- and intra-individual variability in responding for drug. Both male and female rats demonstrated similar levels of cue-induced reinstatement after extinction.

**Conclusions:** We have established a rodent model of THC self-administration allowing us to evaluate THC-dependent brain changes relevant to addiction and sex differences in THC response.
Abstract Title
Mobile vs. Stationary Mammography: Examining Patient Characteristics and Behaviors

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Abstract Text (250 word maximum)
Background:
Breast cancer is the second leading cause of cancer death among women in the United States. Mobile mammography units have been used to address patient health disparities; however, there is limited data comparing these programs to ones at stationary sites.

Objectives:
This study aims to evaluate the characteristics of women who utilize mobile mammography screening programs versus stationary facilities.

Methods:
In this IRB-approved retrospective study of 2,867 screening mammograms, 1,434 mammograms performed in 2014 at the Medical University of South Carolina’s Hollings Cancer Center (HCC) were analyzed against 1,433 mammograms performed on its mobile unit. BI-RADS, follow-up adherence, and socio-demographic variables were recorded.

Results:
Significant associations were found between race, marital and insurance status, adherence to guidelines, and recall rate. Patients visiting HCC were significantly older, while the mobile unit exhibited a more uninsured, diverse population: white (HCC = 47.28%, mobile = 33.30%), black (HCC = 49.30%, mobile = 54.15%), and Hispanic (HCC = 1.05%, mobile = 6.77%) patients; married (HCC = 49.16%, mobile = 38.31%), single (HCC = 25.17%, mobile = 34.47%), and widowed (HCC = 8.09%, mobile = 4.47%) patients; health insurance (HCC = 68.62%, mobile = 54.01%), Medicare (HCC = 27.68%, mobile = 7.26%), and no insurance (HCC = 3.70%, mobile = 38.73%). Stationary site patients were more often adherent (HCC = 56.90%, mobile = 34.47%), with a lower recall rate of 13.32% (vs. mobile = 15.98%). In addition, of those patients with a BI-RADS 0 (additional imaging needed), patients utilizing the mobile unit appeared less likely to return (HCC = 2.65%, mobile = 17.03%).

Conclusions:
Patients utilizing the mobile van were younger, less likely to have insurance, and had greater racial and marital diversity. The stationary site patients were more adherent to guidelines and follow-up; whereas, the mobile van exhibited a higher recall rate. By identifying these characteristics, we can develop programs targeted to patients’ specific needs and behaviors, ultimately increasing mammography screening rates, adherence to guidelines and follow-up among underserved populations.
**Abstract Title:** “People are Struggling in this Area:” Fulfilling the Promise of Telehealth in South Carolina

**Author Names**

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**Abstract Text (250 word maximum)**

**Background:** South Carolina ranks 43rd in the nation for primary care physician-to-patient ratio and all but one county in the state are designated health care professional shortage areas. Rural communities face disparities and barriers to health care access that may be addressed through telehealth.

**Objectives:** Researchers partnered with a women’s health organization to determine the feasibility of a women’s telehealth intervention in rural South Carolina.

**Methods:** Researchers conducted a case study of telehealth in South Carolina through a combination of interviewing and document analysis. Documents, archival legal records and public artifacts were analyzed and 11 in-depth interviews were conducted with local and national experts. In addition, researchers conducted 52 in-depth interviews with women ages 18-44 years in rural South Carolina. Women from five rural counties (Allendale, Beaufort, Colleton, Jasper, and Hampton) were eligible for recruitment.

**Results:** In South Carolina, relationship-based collaboration and understanding the interplay of current legal policies were critical in developing a successful telehealth intervention. Among women in rural South Carolina, participants believed that a telehealth intervention would benefit the community by addressing health barriers, such as cost and transportation. These women described telehealth as convenient, accessible, and affordable. A strong emphasis was placed on relationship-centered care, including the importance of physician credibility, doctor-patient communication, and the opportunity to build a relationship with telehealth care providers. Participants’ main concerns included issues of privacy and confidentiality.

**Conclusions:** Findings provide recommendations for employing telehealth to reach underserved populations and increase access to care in South Carolina’s rural communities.
Modulation of functional network connectivity by oxytocin in women with PTSD

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Background:

Risk for substance use disorders is higher in people with PTSD and women are more likely to develop PTSD. Sex differences have also been reported with respect to alterations in neurocircuitry due to substance abuse. Oxytocin (OT) is being explored as potential medication to reduce stress reactivity in PTSD and substance abuse, but more research is needed to understand the effect of OT on functional brain activation and connectivity.

Objectives:

This study examines the role of OT in modulating functional brain connectivity in women with and without PTSD.

 Methods:

Seven women with PTSD and 11 women with no PTSD completed a 6-minute resting state fMRI scan. Half of the subjects received intranasal OT (3 PTSD+ and 6 PTSD-) and half received placebo prior to the scan.

Results:

Graph-theory based network measures (eigenvector centrality and clustering coefficient) were computed from resting state time series for each subject. Regions-of-interest included nodes of the salience network (anterior cingulate, insula) and dorsal attention network (inferior parietal) reported to have higher connectivity in female than in male smokers in prior studies. These same nodes show modulation by childhood trauma. The left anterior cingulate showed a significant Group (PTSD+, PTSD-) x drug (OT, placebo) interaction, with OT reducing and normalizing the over-connectivity in the PTSD group. This interaction was not significant for a random network configuration.

Conclusions:

These very preliminary results indicate that OT may reduce overconnectivity in regions associated with integrating external environmental cues with internal bodily states and this reduction is especially pronounced for women with PTSD.
Abstract Title
Effects of Oxytocin on Cocaine Seeking in Rats

Author Names
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Abstract Text (250 word maximum)
Background: Cocaine addiction is a sexually dimorphic disorder, as men and women differ in etiology of drug taking. Animal models also uncovered corroborating sex differences throughout all phases of the addiction cycle. This study aims to determine whether oxytocin may impact motivation for cocaine-seeking differently in both male and female rats.

Objectives: Here we determined whether 1) oxytocin would impact motivation to self-administer (SA) cocaine in males and females and 2) whether oxytocin would impact cocaine-seeking on a fixed ratio (FR5) reinforcement schedule.

Methods: Rats self-administered cocaine (2 hr/day) on an escalating fixed ratio schedule (i.e., FR1, FR3, and FR5). When responding stabilized on an FR5 rats underwent progressive ratio (PR) tests, which requires rats to increase lever responding such that each infusion requires a greater behavioral output on the following schedule: 1, 2, 4, 6, 9, 12, 15, 20, 25, 32, 40, 50, 62, 77, 95, 118, 145, 178, 219, 268, 328, 402, 492, 603. Rats were given systemic oxytocin (0, 0.1, 0.3, or 1mg/kg, i.p.) 30 min before testing on both a PR and FR. Each rat was tested with a unique test order and given 3 days to stabilize on an FR5 between tests.

Results: Break point, defined as the last ratio completed to receive a cocaine infusion, was analyzed with a two-way mixed ANOVA. Sex was the between subjects variable and oxytocin dose as the within subjects variable. There were main effects of sex, F(1,20)=5.83, p<0.05, and oxytocin dose, F(3,60)=4.63, p<0.05. Specifically, female rats on vehicle reached higher break points than males, and oxytocin decreased break point in females only. Oxytocin decreased active lever presses in both males and females on the FR5 schedule of reinforcement, F(1,60)=48.83, p<0.05).

Conclusions: Overall, females were more motivated to take cocaine than males and oxytocin reduced motivation in females only. However, when rats were tested on a fixed ratio schedule, oxytocin reduced intake in both sexes. Taken together, sex differences in oxytocin’s impact on cocaine taking may be subject to reinstatement schedules.
## Abstract Title

Gender Differences in Behavior of Youth Living in Kinship Care

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### Author Names

*Format as follows (the presenting author’s name should be in bold):*

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Abstract Text (250 word maximum)

Background: More than five percent of youth today live in kinship care settings, defined as being raised by a relative other than their biological parents.

Objectives:

1) To describe the behavioral and historical adverse events of youth living in kinship care
2) To evaluate gender differences in externalizing and internalizing behaviors of youth living in kinship care.

Methods:
Children, ages 8 to 17, and their guardians were recruited from Medical University of South Carolina (MUSC) clinics and the community. All subjects and their guardians completed questionnaires including the Behavioral Assessment for Children (BASC-2), Brief Adverse Childhood Experiences scale (ACE), and a general demographic and clinical data survey. To assess differences between child gender and clinical and demographic data, chi-square test and student’s t-test were used for categorical and continuous data, respectively. To assess the association status between gender and behavior as well as identify any other clinical factors associated with behavior, mixed-effects linear models were utilized.

Results:

We enrolled 67 youth; the average age was 12.6 (SD=3.1) and 42% were female. There were no detected differences between genders with regards to total ACE score, guardian age, socioeconomic status, or race. Externalizing behavior problems were more common than internalizing behaviors for both genders with statistical significance in males (p=0.333). In addition, there was a difference, of trending significance, between internalizing behaviors in females and externalizing behaviors of males (p = 0.055), with females having greater internalizing behaviors. Also, total ACE scores and guardian marital status were associated with degree of internalizing and externalizing behaviors reported.

Conclusions:
In this understudied population of youth living in kinship care, initial analysis determined there was a trend, approaching significance, of behavioral expression by gender with males demonstrating more externalizing behaviors and females more internalizing behaviors. Further research is needed to better elucidate the unique characteristics and challenges that face this population.