



*Department of Obstetrics, Gynecology
and Reproductive Health*

36th

Annual Resident's Research Day

Wednesday, April 19, 2023

***Rosemary Gellene Room
MSB B515***

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Department of Obstetrics, Gynecology & Reproductive Health
36th Annual Resident's Research Day Program

8:00 A.M.

Breakfast - Rosemary Gellene Room - MSB B515

8:30 A.M.

Welcome Remarks

Mark Einstein, M.D., M.S. - Chair

8:40 A.M.

Introductory Remarks

David Howard, M.D., Ph.D. - Director of Resident Research

8:45 A.M.

Increasing the Prescribing of Low Dose Aspirin in an Obstetric Population at Risk for Preeclampsia: A Checklist Approach.

Resident: Michael Scutella, D.O.

Preceptors: Theodore Barrett, M.D.

David Howard, M.D., Ph.D.

9:05 A.M.

RNA-Seq analysis suggests endometrial opioid signaling is increased in ovarian stimulated cycles during the window of implantation.

Resident: Lea George, M.D.

Preceptors: Nataki Douglas, M.D., Ph.D.

Andy Babwah, Ph.D.

9:25 A.M.

The Effect of Metabolic Syndrome on Postoperative Morbidity and Mortality of Patients with Endometrial Cancer, An ACS-NSQIP Study.

Resident: Stephanie Casey, D.O.

Preceptors: Yasmin Abedin, M.D.

9:45 A.M.

To treat or not to treat: Assessing the rate of expedited partner therapy for C. Trachomatis infections after provider education.

Resident: Becky Gendelman, M.D.

Preceptor: Lauren Naliboff, D.O.

10:05 A.M.

Neonatal outcomes in patients who underwent an induction of labor for trial of labor after cesarean section.

Resident: Lauren Gottshall, M.D.

Preceptor: Shauna Williams, M.D.

10:25 A.M.

Break

10:45 A.M.

Assessing the Effectiveness of a Unique Visual Aid in Improving Women's Knowledge of the Hysterectomy Procedure.

Resident: Talicia Jackson, M.D.

Preceptor: David Howard, M.D., Ph.D.

11:05 A.M.

Describing Changes to Abortion Clinical Practices in Response to the Covid-19 Pandemic: A Regional-Based Analysis.

Resident: Madeline Lang, M.D.

Preceptor: Lauren Naliboff, D.O.

11:25 A.M.

Occult uterine malignancy at the time of surgery for benign uterine disease: a systematic review.

Resident: Liana Langdon-Embry, M.D.

Preceptor: David Howard, M.D., Ph.D.

11:45 A.M.

Luncheon

Rosemary Gellene Alumni Room, MSB-B515

12:30 P.M.

Honors Lecture

"Background and History of Modern Contraception"



Thomas D. Kimble, M.D. Associate
Dean Eastern Virginia Medical School

1:30 P.M.

Chlamydia and Gonorrhea screening during pregnancy: a quality improvement study.

Resident: Lisa Levine, M.D.

Preceptor: Damali Campbell, M.D.

1:50 P.M.

Maternal and neonatal outcomes in patients with pre-eclampsia with severe features less at less than 34 weeks gestation.

Resident: Estee Robin, M.D.

Preceptor: Shauna Williams, M.D.

2:10 P.M.

Closing Remarks

David Howard, M.D., Ph.D.

Please join us in welcoming our 2023 Resident Research Day
distinguished visiting professor:

Thomas D. Kimble, MD

Associate Dean of Admissions and Enrollment
Eastern Virginia Medical School
Associate Professor
Obstetrics and Gynecology

Dr. Kimble is the immediate past Chair of the Contraception Special Interest Group for the American Society for Reproductive Medicine (ASRM).

Dr. Kimble graduated from Howard University College of Medicine with his medical degree and completed his Obstetrics and Gynecology residency at York Hospital. He participated in the Clinical Research/Reproductive Scientist Program (CREST), a program jointly run by ASRM, the NIH, and Duke University.

Dr. Kimble joined the Clinical Research Center in 2006 as a postdoctoral fellow with CONRAD, and remained as faculty after completing his training in 2008. His primary research interests are contraception, uterine fibroids, endometriosis and inflammation in the reproductive tract.



Mark H. Einstein, MD, MS, FACS, FACOG
Professor and Chair
Department of Obstetrics, Gynecology and Reproductive Health
Associate Dean, Clinical Research
Rutgers New Jersey Medical School
Associate Director,
New Jersey Alliance for Clinical and Translational Science

CONGRATULATIONS TO THE GRADUATES

GRADUATING RESIDENTS

Danielle Calvo, M.D.
Alexander DelVlahos, M.D.
Tess Gao, M.D.
Kulveen Gill, M.D.
Schuyler Hodge, M.D.
Mandy Lacue, M.D.
Chloe Phillips, M.D.
Danielle Seltzer, M.D.
Aylin Unsal, M.D.
Blake Vessa, M.D.

GRADUATING FELLOWS

Anat Chemerinski, M.D.
Kimone Powell, M.D.

PROGRAM COMMITTEE

David Howard, M.D., Ph.D. & Peter McGovern, M.D.
Co- Director, Resident's Research Program

Joseph J. Apuzzio, M.D.
Nataki Douglas, M.D., Ph.D.
Lisa Pompeo, M.D.
Sara Morelli, M.D., Ph.D.

RESIDENT'S ABSTRACTS
Academic Year 2022-2023

**Increasing the Prescribing of Low Dose Aspirin in an
Obstetric Population at Risk for Preeclampsia: A
Checklist Approach.**

Resident: Michael Scutella, D.O.

Mentors: Theodore Barrett, M.D.;
David Howard, M.D., Ph.D.

Contributing Resident: Danielle Seltzer, M.D. - PGY 4

Objective:

Compare proportions of patients with moderate and high-risk factors receiving aspirin in the current era with aspirin checklist versus patients with moderate and high risk factors receiving aspirin in previous eras.

Methods:

This is a quality improvement study. 159 patient charts reviewed of patients presenting to university hospital's ambulatory care center for initial prenatal visit. Patient's excluded were contraindications to low dose aspirin or presented for initial prenatal visit outside of gestational age of 12-28 weeks. The proportion of women in current the high-risk category and the moderate risk category who received ASA pre- vs. post-intervention. This analysis was then repeated for whether the aspirin checklist was used vs not in the moderate risk and high-risk patient categories.

Results:

The proportion of high-risk patients receiving aspirin prescription pre-checklist intervention was 77.4% then 60.8% post-checklist intervention. The proportion of moderate risk patients receiving aspirin prescription pre-checklist intervention was 25.2% then 56.4% post-checklist intervention. Proportion of high-risk patients receiving aspirin prescription with providers using checklist template vs not was 63.6% and 58.3%. Proportion of moderate risk patient receiving aspirin prescription with providers using checklist template vs not was 61.1% and 51.8%.

Conclusions:

A benefit was identified in moderate risk patients who qualified for low dose aspirin and received prescription post-checklist intervention. The percentage in high-risk patients receiving aspirin prescription seems to have not changed. Next steps will include data collection of more patients post-checklist intervention with moderate and high risk factors.

RNA-Seq analysis suggests endometrial opioid signaling is increased in ovarian stimulated cycles during the window of implantation.

Resident: Lea George, M.D.

Mentors: Nataki Douglas, M.D., Ph.D.;
Andy Babwah, Ph.D.

Objectives:

Decidualization of the human endometrium is a progesterone/cAMP-dependent process that is essential for acquiring receptivity. The secretory endometrium expresses opioids and opioid receptors and increased opioid signaling negatively regulates embryo implantation in the mouse. Therefore, opioid signaling is likely to be regulated during the window of implantation (WOI). Major regulators of opioid signaling include proSAAS and prohormone convertase 1 (PC1). proSAAS is a potent inhibitor of PC1, an enzyme that proteolytically processes several proteins into bioactive peptides, including the opioid peptide, met-enkephalin. proSAAS is encoded by the gene PCSK1N and PC1 is encoded by PCSK1. In women who are robust responders, ovarian stimulation (OS) induces supraphysiologic estrogen levels and a premature rise in progesterone levels. This is associated with the advanced development of the secretory endometrium and the dysregulated expression of endometrial genes negatively impacting embryo implantation. We hypothesized that during stromal cell decidualization the expression of the endometrial opioid signaling system is regulated. However, during OS, expression of this system becomes dysregulated. Mechanistically, we suggest that dysregulated opioid signaling contributes to the reduced implantation rates observed after OS.

Methods:

In vitro decidualization was performed on primary human endometrial stromal cells (HESCs, cells freshly isolated from endometrial biopsies (EMB), and an immortalized cell line, T-HESC) by culturing in a basal medium supplemented with E2+P4+db-cAMP (EPC). Nine subjects (five NC and four OS with a GNRH antagonist/hCG trigger protocol, without embryo transfer) were enrolled. During the WOI, on LH+8 (NC) and hCG+9 (OS), serum E2 and P4 levels were collected at the time of EMB. Pipelle biopsies were obtained and processed for analysis of mRNA expression by RNA-Seq. Next Generation Sequencing and bioinformatics were conducted at the Genomics Core, Albert Einstein College of Medicine, NY.

Results:

Decidualization increases PCSK1N and PCSK1 expression in both primary HESCs and T-HESCs. Increased mean E2 and P4 levels during the WOI following OS. When comparing hCG+9 to LH+8, 94 differentially regulated genes were identified where 25 genes were upregulated, and 69 genes were downregulated. PCSK1N expression was downregulated (-4-fold-change). Interestingly, on hCG+9 compared to LH+8, PCSK1 expression was upregulated (+5-fold-change).

Conclusion:

PCSK1N and PCSK1 mRNA expression is upregulated during stromal cell decidualization suggesting opioid signaling regulation via proSAAS and PC1 during the WOI. RNA-Seq analysis shows that OS reduces PCSK1N and increases PCSK1 mRNA expression, suggesting opioid signaling is increased during OS in the WOI. These data lay the foundation for investigating the role of opioid signaling during the WOI in the human endometrium.

**The Effect of Metabolic Syndrome on Postoperative
Morbidity and Mortality of Patients with Endometrial
Cancer, An ACS-NSQIP Study.**

Resident: Stephanie Casey, D.O.

Mentor: Yasmin Abedin, M.D.

Objectives:

Prior studies show metabolic syndrome (MetS) decreases 5-year survival in patients with endometrial cancer (EC), but there is limited data on hysterectomy postoperative outcomes for these patients. The objective of this study is to determine the differences in postoperative complications for patients undergoing hysterectomy for EC with or without MetS.

Methods:

The American College of Surgeons National Surgical Quality Improvement Program (ACS-NSQIP) was queried for all hysterectomies conducted between 2005 and 2016 for treatment of EC by ICD-9 code 182.0. Patients (n=7254) were divided into those with (n=1827, 24.1%) and without (n=5740, 75.9%) MetS. Consistent with previous literature and NSQIP limitations, MetS was identified in NSQIP as follows: BMI ≥ 30 kg/m², hypertension, and diabetes mellitus. Chi-squared test and student's t-test were used for analysis of surgical outcomes and complications within 30 days postoperatively with multivariate logistic regression used for significance of complication rates. SPSS version 25.0 was used for statistical analysis with $p < 0.05$ as significant. Patients without MetS served as the reference group.

Results:

MetS patient demographics were 71.9% White, 10.8% Black, 5.9% Hispanic, and 11.8% other (Asian, Hawaiian, Pacific-Islander, Native-American, and unknown). Demographics for patients without MetS were 75.2% White, 7.7% Black, 5.8% Hispanic, and 11.8% other. The MetS population had significantly lower rates of White patients ($p=0.005$) and significantly higher rates of Black patients ($p < 0.001$). Patients with MetS had higher baseline comorbidity rates for dyspnea (13.5% vs 7.7%, $p < 0.001$), history of previous cardiac surgery (3.7% vs 0.9%, $p < 0.001$), history of renal failure requiring dialysis (0.8% vs 0.3%, $p=0.002$), history of wound infections (1.3% vs 0.6%, $p < 0.001$), and history of bleeding disorders (3.0% vs 2.1% $p < 0.001$). Patients with MetS had a lower rate of minimally invasive surgery (71.3% vs 74.2%, $p=0.016$) and a higher rate of laparotomy (28.7% vs 25.8%, $p=0.016$) compared to patients without MetS. MetS population had higher rates of post-surgical superficial site infection (3.4% vs 2.2%, $p=0.004$), postoperative bleeding (5.4% vs 3.2%, $p < 0.001$), myocardial infarction (0.3% vs 0.1%, $p=0.036$), cardiac arrest (0.2% vs 0.1%, $p=0.041$), reintubation post-surgery (0.9% vs 0.3%, $p=0.001$), post-surgical acute renal failure (0.5% vs 0.1%, $p=0.005$) and urinary tract infection (3.1% vs 2.1%, $p=0.008$). Post controlling for race, age, comorbidities, and route of surgery, patients with MetS had a higher likelihood of all complications (surgical and medical) 30 days postoperatively (OR 1.4, 95% CI 1.007-2.036), an increased chance of having postoperative bleeding (OR 2.3, 95% CI 1.184-4.307) and an increased readmission rate (6.4% vs 5.0%, $p=0.033$) compared to patients without MetS.

Conclusions:

Based on this large database study, patients being treated for EC with MetS have an increased likelihood of all complications postoperatively. Physicians may elect to monitor these patients more closely for complications. A specific limitation in the NSQIP database is the inability to assess waist circumference, HDL level, and triglyceride level to accurately identify those with MetS. Despite this, there are differences in postoperative outcomes for patients with MetS. Further studies should be conducted to identify reasons and make changes to minimize complication rates.

To treat or not to treat: Assessing the rate of expedited partner therapy for C. Trachomatis infections after provider education

Resident: Becky Gendelman, M.D.

Mentor: Lauren Naliboff, D.O.

Introduction:

Despite millions of dollars in yearly funding for sexual health education in the United States, the country continues to demonstrate exceedingly high rates of sexually transmitted infections. In 2018, the CDC estimated the total number of cases of all sexually transmitted infections to top 26 million (1,2). In the year 2021 alone, cases of bacterial sexually transmitted infections, including *Chlamydia trachomatis* and *Neisseria gonorrhoeae* totaled 2.5 million (3). Not only do these infections lead to a significant financial burden on the healthcare system in the United States, costing approximately 16 billion dollars yearly per incident case (4), but they have profound long and short-term effects for patients.

In our female patients, bacterial sexually transmitted infections can yield significant complications including such as cervicitis, pelvic inflammatory disease, ectopic pregnancy, tubal factor infertility, and chronic pain. In male patients, these infections can lead to outcomes such as urethritis and epididymitis. Furthermore, despite rising rates of infection in the United States, particularly in the adolescent age group where these effects can be profound, there are distinct sex gaps in screening protocols (1,2). While the Center for Disease Control of the United States recommends yearly screening for all women under the age of 25, regardless of presence/absence of symptoms, there are no such screening recommendations for men.

Expedited partner therapy is a method through which health care providers can efficiently recognize persons at risk for active infection with a sexually transmitted pathogen through the identification of patients with positive screening/diagnostic testing. This information can then be used to provide accelerated care to identified parties, thus preventing prolonged and recurrent infections (5,6). Despite the clear positive aspects of expedited partner therapy, it has been estimated that only approximately 11-14% of clinicians in the United States practice expedited partner therapy consistently (7). Therefore, increasing this margin should not only prove to be a cost-effective measure for reducing infection burden and overall healthcare spending, but could also drastically improve patient outcomes in the short and long term.

The purpose of the study is to identify rates of expedited partner therapy and reinfection rates in women who test positive for *Chlamydia trachomatis* and *Neisseria gonorrhoea* at the University Hospital Ambulatory Care Clinic. We will then perform a re-analysis of the aforementioned data following implementation of clinical education and electronic medical record tooling.

Methods:

This study will be a retrospective chart review to assess the impact of education to providers and changes made to the electronic medical system. Patients seeking care at the University Hospital OB/GYN Ambulatory Care Clinic with positive chlamydia and gonorrhea tests will be identified. We will conduct a chart review of patients to assess patient demographics and if patients were provided with expedited partner therapy at the time of diagnosis. Re-infection rates will also be studied among groups of patients offered expedited partner therapy and not offered expedited partner therapy at time of diagnosis. Our goal is to assess the impact of our quality improvement interventions on rates of expedited partner therapy and reinfection.

Results:

Following retrospective chart review, it was found that expedited partner therapy is offered to patients after 55% chlamydia or gonorrhea diagnoses at our OB/GYN Ambulatory Care Clinic. Further analysis found reinfection rates of 0.09% for both women offered and not offered expedited partner therapy.

Conclusions:

While the rate of expedited partner therapy at the University Hospital OB/GYN Ambulatory Care Clinic far outperforms the overall rate of 11-14% in the United States, there is still significant room for improvement. Furthermore, though our data did not demonstrate significant differences in the rates of reinfection in the groups where expedited partner therapy was offered versus not offered, our short study time frame (01/2021-present) likely plays a large role. As demonstrated by multiple other studies, it is likely that, given a longer time frame for chart analysis, there would be a statistically significant decrease in reinfection rates in the group of patients offered expedited partner therapy(5).

In the next phase of this project, our interdisciplinary team will seek to develop effective education materials and useful EMR tooling to increase the rate of expedited partner therapy in our clinic. This will be followed by re-analysis of rates of implementation of expedited partner therapy as well as reinfection rates in our patient population.

Citations:

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3. "Sexually Transmitted Disease Surveillance, 2021." Centers for Disease Control and Prevention, Centers for Disease Control and Prevention, 11 Apr. 2023, <https://www.cdc.gov/std/statistics/2021/default.htm>.
4. Chesson, Harrell W., et al. "The Estimated Direct Lifetime Medical Costs of Sexually Transmitted Infections Acquired in the United States in 2018." *Sexually Transmitted Diseases*, vol. 48, no. 4, 2021, pp. 215-221., <https://doi.org/10.1097/olq.0000000000001380>.
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7. Hogben, Matthew, et al. "Patient-Delivered Partner Therapy for Sexually Transmitted Diseases as Practiced by U.S. Physicians." *Sexually Transmitted Diseases*, vol. 32, no. 2, 2005, pp. 101-105., <https://doi.org/10.1097/01.olq.0000151417.43230.18>.

**Neonatal outcomes in patients who underwent an
induction of labor for trial of labor after cesarean
section.**

Resident: Lauren Gottshall, M.D.

Mentor: Shauna Williams, M.D.

Introduction:

Cesarean sections have been increasing in the United States and internationally since the later part of the 20th century, and now account for 21% of births worldwide and 31% of births that occur in the United States (1, 2). However, the cesarean delivery is known to cause higher rates of maternal morbidity, in a dose dependent manor in a dose dependent manor with each subsequent cesarean delivery increasing the risk of cystotomy, hysterectomy and placenta accreta spectrum disorder (3). Several studies have shown as much as a 3x increased odds of maternal mortality with a cesarean delivery vs a vaginal delivery (4, 5). While cesarean deliveries are to be avoided, a cesarean delivery is not without its benefits in certain circumstances.

The American College of Obstetrics and Gynecology recommend shared decision making regarding choosing between an elective repeat cesarean delivery and trial of labor after cesarean (TOLAC) (11). An important part of this decision-making process is weighing the risks and benefits of a repeat cesarean delivery vs a TOLAC. The data regarding TOLAC vs elective repeat cesarean is overall limited (12). Further constraining the known risks vs benefits of a TOLAC vs elective repeat cesarean is the lack of data regarding induction or augmentation during a TOLAC. In terms of neonatal outcomes, there are no studies we identified in our literature review directly comparing neonatal morbidity and mortality in patients who have an TOLAC induction vs those who have an elective repeat cesarean delivery.

Thus in this study we aim to evaluate the perinatal outcomes in TOLAC induction vs elective repeat cesarean section, in order to add to the available data when counseling patients on TOLAC induction.

Methods:

This study is a retrospective cohort study of patient's who underwent an induction of labor at term for trial of labor after cesarean section vs those with an elective repeat cesarean delivery at University Hospital in Newark, NJ between 2020-2022. The electronic medical record and statistical information sheets were used to obtain patient information and data. Laboring patients were defined as those who made cervical change without augmentation or who were admitted at greater than or equal to 4 cm dilation with regular painful contractions or those who were 5 cm without painful contractions. Term gestation was defined as greater than or equal to 37 weeks gestation. Additional exclusion criteria were those with severe neonatal anomalies and those with prior classical cesarean deliveries. The primary outcome was the incidence of poor neonatal outcomes in patients undergoing a TOLAC induction vs planned repeat cesarean delivery. Poor neonatal outcome will be measured as the incidence of a composite of neonatal outcomes, specifically HIE, neonatal seizures, neonatal mortality, 5-minute APGAR score < 7, NICU admission, or respiratory distress. The secondary outcomes included management of labor with oxytocin, adverse maternal outcomes, and planned breastfeeding.

Results:

399 patients with one prior cesarean delivery were identified from the prespecified time frame, of which 248 met inclusion criteria. Of these patients, 102 underwent a planned cesarean delivery (CD) and 146 underwent a planned TOLAC induction. The demographics of these groups varied by an increased percentage of Portuguese speaking patients in the planned CD group and a higher fetal weight in the planned CD group. The planned TOLAC group had a high percentage of patients with gestational hypertension. Of the patients who had a planned TOLAC induction, 65% had a successful VBAC, including 76% of patients who were induced due to ruptured membranes at term.

In terms of the primary outcome, there was no statistically significant difference in the composite of adverse neonatal outcomes in the planned TOLAC group vs scheduled CD group. However, neonatal sepsis, HIE and a neonatal death were only outcomes found in the planned TOLAC group.

In terms of the secondary outcomes of adverse maternal complications, there were significantly more adverse maternal outcome composite in the planned TOLAC group, however, when uterine atony was excluded, there was no significant difference between groups.

There was a significantly higher percentage of patients in the planned CD group who attended at least one postpartum visit, but there was no difference in the breastfeeding rate or exclusive breastfeeding rate in the patients from both cohorts who attended their postpartum visit.

Conclusions:

Maternal and neonatal outcomes in TOLAC inductions vs planned CD are similar, however, there may be a higher incidence of rare severe neonatal morbidity, such as neonatal sepsis, in the planned TOLAC group. Additionally, the maternal benefit of a VBAC vs scheduled repeat cesarean delivery, may be attenuated in the case of a TOLAC induction. However, while there may not be significant maternal or neonatal benefits to the TOLAC induction vs the planned CD, there may be additional benefits to the TOLAC group in subsequent pregnancies that is not captured in this study. Further studies are needed to further characterize the maternal and neonatal risks and benefits to the TOLAC induction.

Sources:

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**Assessing the Effectiveness of a Unique Visual
Aid in Improving Women's Knowledge of the
Hysterectomy Procedure.**

Resident: Talicia Jackson, M.D.

Mentor: David Howard, M.D., Ph.D.

Background:

The female reproductive system is complex. This can lead to challenges for gynecological patients in both understanding of diagnoses as well as in the decision-making process regarding their care. Hysterectomy, the surgical removal of the uterus, is one of the most performed surgical procedures in the United States and is the treatment for many disorders and conditions of the female reproductive system. To make informed healthcare decisions, gynecological patients considering hysterectomy must understand the procedure and the types of hysterectomies available to them. The aim of this study is to assess the effectiveness of a visual aid in improving women's knowledge of the hysterectomy procedure.

Methods:

All patients participating in the study were recruited from the Department of Obstetrics, Gynecology and Reproductive Health at the Ambulatory Care Center at University Hospital in Newark, NJ. Participants were either English or Spanish speaking women being considered for a hysterectomy or who had undergone a hysterectomy. The participants were consented in their preferred language. All participant information was de-identified. Participants completed a validated 28-question pre-test with questions pertaining to female reproductive anatomy and the indications for hysterectomies as well as the risk and benefits of the procedure. Participants were then asked to watch the 13-minute video visual aid in either English or Spanish and complete the post-test containing identical questions to the pre-test. All parts of the study were performed electronically.

Results:

To date, 37 participants have completed the study, 24 English speaking and 13 Spanish speaking. For all study participants, the mean pre-test score was 53.0%, the mean post-test score was 73.3%, with a mean difference of 20.3% (95% CI 13.5- 27.1). For English-speaking participants, the mean pre-test score was 58.3% and the mean post-test score was 77.2% with a mean difference of 18.9% (95% CI 9.6-28.2). For Spanish-speaking participants, the mean pre-test score was 43.9% and the mean post-test score was 64.3%. There was a mean difference of 22.7% (95% CI 11.8-33.6).

For the 28-question knowledge test, there were 13 questions in the English version and 19 questions in the Spanish version where the percent of respondents who answered correctly after watching the educational video improved by 20 percentage points or greater compared to the pre-test responses.

Conclusions:

Our preliminary data provides evidence that the visual aid created for this study does appear to make a meaningful and clinically significant difference in the knowledge of the hysterectomy procedure in both English and Spanish speaking participants as measured by a validated questionnaire. A larger number of participants is still needed to make definitive conclusions.

**Describing Changes to Abortion Clinical Practices in
Response to the Covid-19 Pandemic: A Regional-Based
Analysis.**

Resident: Madeline Lang, M.D.

Mentor: Lauren Naliboff, D.O.

Introduction:

During the pandemic, every state was at liberty to determine if abortion services were an essential or non-essential service. This furthered disparities in resource availability based on location. Our study analyzes changes in abortion care practices as a response to COVID-19 on a regional basis.

Methods:

The Society of Family Planning conducted surveys between April and December 2020, asking clinics to describe their initial practices and changes that occurred due to the pandemic. The primary variable of interest was abortion care and practice changes resulting from the pandemic. We conducted a regional analysis of practice changes. 4 regions were studied, Northeast, Midwest, South, and West.

Results:

Of 74 clinics surveyed, 58 clinics provided abortion services. Clinic locations were divided into four regions: Northeast (34.5%, Midwest (17.2%, South (20.7%, West (27.6%, mainly in urban environments (96.6%. During the pandemic, the maximum and minimum gestation averages remained the same across three trimesters. Clinics in the west started or expanded telemedicine for informed consent more than any other region ($p=0.007$). Compared to the South, the other regions were successful in implementing telemedicine for medication abortion, particularly at the end of 2020 ($p=0.011$). Practices in the Midwest reported reduced numbers of in-person first-trimester abortions and D&E abortions.

Conclusions:

Sites throughout the country responded differently during the pandemic. Some regions, such as the West, were able to adapt more quickly without compromising access to resources. Studying these changes and analyzing success of implementation will allow for increased access to abortion services in rural or underserved areas.

**Occult uterine malignancy at the time of surgery for
benign uterine disease: a systematic review.**

Resident: Liana Langdon-Embry, M.D.

Mentor: David Howard M.D., Ph.D.

Objective:

To conduct a systematic review and meta-analysis to estimate the prevalence of occult uterine malignancy at the time of surgery for benign uterine conditions.

Methods:

PRISMA guidelines were used to standardize reporting. MEDLINE was used to access existing literature. The terms used were “occult malignancy” or “occult uterine pathology” paired with “hysterectomy” or “myomectomy” or “morcellation.” The cutoff date for articles was March 25, 2019. Articles were further narrowed down based on whether they included data on occult malignancy at the time of surgery.

Results:

The search yielded a total of 233 journal articles, of which 53 met the criteria for full-text review. 26 studies provided specific data on occult uterine malignancy among women undergoing surgery for benign uterine conditions. Among the 26 studies examined, the total number of patients combined was 339,418 and there were 2,479 total occult uterine malignancies. There were 20 retrospective case series, 3 population-based studies, and 3 retrospective cohort studies included. The pooled prevalence of occult uterine malignancy at the time of surgery for benign uterine conditions was 0.24% (95% confidence interval, 0.08% - 0.46%). There was heterogeneity observed across the 26 studies [$I^2 = 97.38\%$, $Q \chi^2 (25) = 952.86$, $p < 0.001$].

Conclusions:

The pooled prevalence of occult uterine malignancy of any subtype at the time of surgery for benign uterine conditions is 0.24%, however this may not be an appropriate estimate secondary to significant study heterogeneity.

Chlamydia and Gonorrhea screening during pregnancy: a quality improvement study.

Resident: Lisa Levine, M.D.

Mentor: Damali Campbell, M.D.

Background: Chlamydial infection in pregnancy is associated with premature rupture of membranes, preterm birth, low birth weight, growth restriction leading to small for gestational age infants, and neonatal death. Though there are limitations to screening efforts, antenatal screening and routine prenatal care offers an opportunity to diagnose, treat and rescreen to avoid the adverse pregnancy and neonatal outcomes. The 2021 CDC guidelines for STD screening in pregnancy reiterated recommendation for screening all patients at the establishment of prenatal care. It also reiterated the recommendation for third trimester screening of patients <25 years of age and patients >25 years of age with a new sex partner, more than one sex partner, a sex partner with concurrent partners, or a sex partner with an STI.

Intervention: Introduction of 2021 CDC guidelines for STD screening in pregnancy - introduced July 2021.

Objective: To compare third trimester Gonorrhea and Chlamydia screening rates before and after the intervention above, and to think of strategies to improve the uptake of the Centers for Disease Control guidelines among obstetrical providers to reduce morbidity associated with chlamydia for infants and their parents.

Methods: All of the charts of the women delivering at University Hospital between January 1-March 31, 2021, and January 1-March 31, 2022, were reviewed to determine whether patients were screened according to 2021 CDC screening criteria. A total number of 247 and 273 charts were reviewed from 2021 and 2022 respectively. Charts of patients who initiated care at UH after 27 weeks and 6 days gestation were excluded. Patients who started care but were lost to follow-up before 28 weeks gestation were excluded. Patients who did not receive prenatal care at University Hospital clinics but delivered at University Hospital were also excluded. Patients who delivered before the third trimester were excluded. After exclusions, each cohort consisted of 197 charts (N=384). This study is part of a quality assurance/improvement effort, and therefore does not necessitate IRB review.

Results: The results of this study demonstrated a non-significant increase in screening rate between 2021 and 2022. Screening in the third trimester was 37 and 44% for the entire study population ($p=0.15$), and <60% in patients under 25 years of age. Screening for sexual practices was inconsistent, with <25% of patients screened by their OB provider. Patients under 25 years of age were over 6 times more likely to screen positive for GC/CT in pregnancy (95% CI=2.5-17.5).

Conclusions: intervention can be facilitated to improve our screening efforts at University Hospital's prenatal patients at risk for GC/CT infection to prevent potential adverse pregnancy and neonatal outcomes.

Our findings suggest that there were no significant changes to screening practices before and after publication of the 2021 CDC guidelines. They also suggest that there is room for improving compliance in screening for patients under the age of 25. There is also a role for either improved screening of patients for risky sexual practices, or for screening all prenatal patients for gonorrhea and chlamydia in the third trimester. Wide dissemination of information to providers, note templates, and inclusion of screening as part of a third trimester order set are all potential interventions that may increase compliance with CDC guidelines and reduce adverse pregnancy and neonatal outcomes.

**Maternal and neonatal outcomes in patients
with pre-eclampsia with severe features less at
less than 34 weeks gestation.**

Resident: Estee Robin, M.D.

Preceptor: Shauna Williams, M.D.

Objective:

The purpose of this study was to review maternal and neonatal outcomes in patients with pre-eclampsia with severe features at less than 34 weeks gestation who were either managed with immediate delivery or expectant management. Our hypothesis is that the composite maternal morbidity is lower in the delivered group without significant difference in composite neonatal morbidity between the delivered group and expectantly managed group.

Methods:

This is a retrospective cohort study of patients diagnosed with pre-eclampsia with severe features from 23 weeks 0 days through 33 weeks 6 days and delivered at University Hospital from 1/1/2012-12/31/2021. Patients were identified upon review of departmental statistics and medical records were reviewed for maternal demographics, obstetric outcomes, and maternal and neonatal adverse events. Patients were excluded if they had multifetal gestation, fetal demise present on admission, diagnosis made postpartum, extramural delivery, or if medical records were not available. Patients were grouped according to whether they were candidates for expectant management and their subsequent timing of delivery (Group 1=not candidates for expectant management, Group 2= candidate for expectant management and delivered after course of steroids, group 3= continued expectant management). The primary outcome was a composite maternal outcome (HELLP syndrome, abnormal LFTs, acute renal injury, eclampsia, pulmonary edema, admission to ICU, stroke, cerebral complications, and placental abruption) and composite neonatal outcome (fetal demise during hospital course, RDS, NEC, IVH, sepsis, retinopathy of prematurity, and neonatal death). The composite outcomes and individual adverse maternal and neonatal outcomes were compared between the groups using Fisher's exact test.

Results:

194 patients were identified upon review of department statistics during the study time period of which 132 patients met inclusion criteria. 59 patients were not candidates for expectant management (Group 1). Of the 73 patients who were candidates, 49 made up Group 2 and 24 were in Group 3. Composite maternal morbidity was highest in group 1 (42%) as expected, but was not statistically different when comparing group 2 and 3 (20% and 21%, respectively). Composite neonatal morbidity occurred in 59% of Group 1 and was not statistically different between group 2 and 3 (69% and 71%, respectively). There was no difference in individual maternal morbidities when comparing group 2 with group 3. One fetal demise occurred during the hospitalization, and this occurred in group 3. There were 4 cases of necrotizing enterocolitis (NEC) and 5 cases of intraventricular hemorrhage (IVH) in group 2 and only 1 case of IVH in group 3, although this was not statistically different. Infant NICU stay and maternal postpartum stay also did not differ between the two groups.

Conclusions:

Maternal and neonatal outcomes did not differ by management strategy for patients with preterm pre-eclampsia with severe features. Given the low frequency of adverse outcomes, continued study is recommended. Gestational age and other pregnancy complications should be considered when managing this group of patients.

**Residency Program Scholarly Activity
2022 - 2023 YTD**

Publication

Pinho, G, Ross G, Krishnamoorthy K, Kresge C, Shih LY, Apuzzio JJ, Williams SF. Ornithine transcarbamylase deficiency and pregnancy: A case series and review of recommendations, *Case Reports in Women's Health*. 2022. 34(e00390).

Lacue AE, Powell KA, Brandi K. Contraception in Medically Complex Patients. *Topics in Obstetrics & Gynecology*. 42(3):1-6. February 28, 2022.

Vessa, B., Perlman, B., McGovern, P.G., Morelli, S.S. Endocrine disruptors and female fertility: a review of pesticide and plasticizer effects. *Fertility and Sterility Reports* 2022, 3, 86-90.

Minis, E., Pinero, L., Bhatt, S., **O'Besso, V.,** Douglas, N.C., Morelli, S.S. Primary ovarian insufficiency: time to diagnosis and a review of current literature. *Clinical and Experimental Obstetrics and Gynecology* 2022, 49, 129-135.

Kalakota, N.R., **George, L.C.,** Morelli, S.S., Douglas, N.C., Babwah, A.V. Towards an improved understanding of the effects of elevated progesterone levels on human endometrial receptivity and oocyte/embryo quality during assisted reproductive technologies. *Cells* 2022, 11, 1405-1431.

George, L., Chemerinski, A., Morelli, S., Douglas, N.C., Babwah, A.V. RNA-Seq Analysis Suggests Endometrial Opioid Signaling is Increased in Ovarian Stimulated Cycles During the Window of Implantation. Presented Society for Reproductive Investigation 69th Annual Meeting, 2022. Program Abstract #F-189. [*Reproductive Sciences* 29 (Suppl 1):266A, 2022].

Abedin, Y., **Madan, U.,** Graham, D., Hellmann, M.C. Recurrent Granulosa Cell Tumor of the Retroperitoneum During the COVID-19 Pandemic. *Gynecologic Oncology Reports*. April 2022. <https://doi.org/10.1016/j.gore.2022.100961>. PMID: 35313464

Abstracts

Pandher, M., Malhotra, R., Alpert, E.R., **Casey, S.,** Abedin, Y. The Effect of Metabolic Syndrome on Postoperative Morbidity and Mortality of Patients with Endometrial Cancer, An ACS-NSQIP Study. Annual Meeting on Women's Cancers for the Society of Gynecologic Oncology, Phoenix, Arizona; March 2022. Poster.

Malhotra, R., **Hodge, S.,** Patel, R., Brandi, K.M., Abedin, Y. Analysis of Operative Outcomes for Hysterectomy as Treatment for Endometrial Cancer when Performed by Surgical Trainees: an ACS-NSQIP Study. Annual Meeting on Women's Cancers for the Society of Gynecologic Oncology, Phoenix, Arizona; March 2022. Poster.

Pandher, M., Malhotra, R., Alpert, E.R., **Casey, S.,** Abedin, Y. The Effect of Metabolic Syndrome on Postoperative Morbidity and Mortality of Patients with Endometrial Cancer, An ACS-NSQIP Study. New Jersey Obstetrical and Gynecologic Society 70th Annual Meeting/Atlantic City, NJ, USA. May 2022. Poster

Malhotra, R., **Hodge, S.,** Patel, R., Brandi, K.M., Abedin, Y. Analysis of Operative Outcomes for Hysterectomy as Treatment for Endometrial Cancer when Performed by Surgical Trainees: an ACS-

NSQIP Study. New Jersey Obstetrical and Gynecologic Society 70th Annual Meeting/Atlantic City, NJ, USA. May 2022. Poster

George, L., Chemerinski, A., Morelli, S., Douglas, N.C., Babwah, A.V. RNA-Seq Analysis Suggests Endometrial Opioid Signaling is Increased in Ovarian Stimulated Cycles During the Window of Implantation. Presented Society for Reproductive Investigation 69th Annual Meeting, 2022. Program Abstract #F-189. [Reproductive Sciences 29 (Suppl 1):266A, 2022].

Bilek M., Barrett T., **Casey S.**, Heller D. Pitfalls in Pathology – Nodular Hyperplasia of Bartholin’s Gland, International Journal of Surgical Pathology, Vol.30(2) 167-160, 2022.

PRESENTATIONS:

Scientific:

One Result, Many Eyes: Creating A Results Safety Net in a University Hospital-Based Reproductive Endocrinology & Infertility Clinic. **Vessa, B.**, Chemerinski, A, Maholtra, R, Howard,D, Morelli, S. ASRM 2022 Scientific Congress (October 22-26, 2022, Anaheim, CA)

A novel low-cost sutureless method for open salpingectomy **Gao, T.**, Howard, D, Barrett, Video presentation at 2022 ACOG Annual Clinical and Scientific Meeting (May 6-8, 2022, San Diego, CA).

“Were pregnant patients more likely to consider home birth after the pandemic compared to before?” Zimmerman, Ishaq, Howard, Campbell. Poster presentation at the 42nd Annual Pregnancy Meeting of the Society of Maternal Fetal Medicine (Jan 31 to Feb 5, 2022, online).

Bold = resident student first author; co-author

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Becky Gendelman, M.D.

PGY 3 RESIDENTS – 2023



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Lauren Gottshall, M.D.

PGY 3 RESIDENTS – 2023



Talicia Jackson, M.D.



Madeline Lang, M.D.

PGY 3 RESIDENTS - 2023



Liana Langdon-Embry, M.D.



Lisa Levine, M.D.

PGY 3 RESIDENTS - 2023



Estee Robin, M.D.



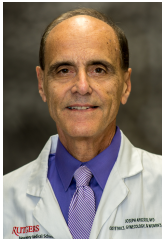
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