

*The 38th Annual*

EVMS  
OBSTETRICS AND GYNECOLOGY  
RESIDENT RESEARCH DAY

THURSDAY, JUNE 8, 2023  
8 A.M. — 1:30 P.M.

VIRTUALLY BROADCAST  
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## 2023 Mason C. Andrews, MD, Resident Research Day Schedule

- 8:00 – 8:10 a.m. Opening Remarks by  
George Saade, MD  
*Chairman, Obstetrics and Gynecology*  
*Eastern Virginia Medical School*
- 8:10 – 9:00 a.m. Sue Kelly Sayegh, MD, Memorial Lecture by  
**Uma M. Reddy, MD, MPH**  
*Vice Chair of Research*  
*Professor, Department of Women's Health*  
*Principal Investigator for the Maternal-Fetal Medicine Units Network*  
*Columbia University*
- The Mason C. Andrews Endowed Lecture:  
**Optimal Preventing and Managing Stillbirth:  
Significant Progress and Current Research Priorities**
- 9:00 – 9:20 a.m. Tawany Almeida, MD, PGY-3  
Mentor: Tetsuya Kawakita, MD  
***Trial of Labor or Repeat Caesarean Delivery in Women with  
Morbid Obesity After Previous Cesarean***
- 9:20 – 9:35 a.m. Emily Peters, MD, PGY-1  
Mentor: Stacy Slat, MD  
***Case Report: Reversible Cerebral Vasoconstriction Syndrome  
in a Postpartum Patient***
- 9:35 – 9:55 a.m. Lois Davis, MD, PGY-3  
Mentor: Jerri Waller, MD  
***Residents as Teachers 2***
- 9:55 – 10:15 a.m. Anam Jafri, MD, PGY-3  
Mentor: Tetsuya Kawakita, MD  
***Prediction of Postoperative Hemoglobin after Cesarean Delivery***
- 10:15 – 10:35 a.m. Natasha Jost-Haynes, MD, PGY-3  
Mentor: Tetsuya Kawakita, MD  
***High Dose Oxytocin in the Third Stage of Labor  
after Induction in the Second Trimester***
- 10:35 – 10:55 a.m. Break

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- 10:55 – 11:15 a.m. Bijan Morshedi, MD, PGY-3  
Mentors: Annie Thurman, MD  
Stacy Slat, MD  
*Effect of Sterile vs Clean Gloves for Cervical Checks in Labor on Maternal Infection at Term: A Randomized Trial*
- 11:15 - 11:30 a.m. Stephanie Beck, MD, PGY-1  
Mentor: Juliana Martins, MD  
*Case Report: A Case of Group A Strep Postpartum Endometritis Leading to Toxic Shock Syndrome*
- 11:30 – 11:45 a.m. Megan Brown, MD, PGY-1  
Mentor: Jeffrey Woo, MD  
*Case Report: Stumped by a STUMP (Smooth Muscle Tumor of Uncertain Malignant Potential)*
- 11:45 – 12:00 noon Mackenzi McHugh, MD, PGY-1  
Mentor: Jerri Waller, MD  
*Case Report: Anti-NMDA receptor encephalitis in a 27-year-old female with new onset seizures and a cystic ovarian teratoma*
- 12:00 - 12:15 p.m. Elizabeth Roy, MD, PGY-1  
Mentor: Tetsuya Kawakita, MD  
*Case Report: Severe Postpartum Thrombocytopenia: The Search for a Unifying Diagnosis*
- 12:15 – 12:35 p.m. Jessie Jones, MD, PGY-4  
Mentor: Tetsuya Kawakita, MD  
*Gendered Authorship Across Four OB/GYN Journals*
- 12:35 p.m. Closing Remarks & Adjournment

## Grand Rounds Presentation The Mason C. Andrews Endowed Lecture



Uma M. Reddy, MD, MPH

Uma Reddy, MD, MPH is the Vice Chair of Research and a Professor of Obstetrics and Gynecology in the Department of Obstetrics and Gynecology at Columbia University Irving Medical Center. She is the Principal Investigator for the Maternal-Fetal Medicine Units Network (MFMU) at Columbia University.

Dr. Reddy is known for her groundbreaking research in stillbirth, preterm birth, and labor management. Prior to joining the faculty at Yale School of Medicine in 2018, Dr. Reddy served as a Medical Officer for the National Institutes of Health (NIH) in the Pregnancy and Perinatology Branch of the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD). While at the NIH, she provided clinical services at several hospitals, including Walter Reed Medical Center and MedStar Washington Hospital Center, as a Professor of Obstetrics and Gynecology at the Georgetown University School of Medicine.

Dr. Reddy has been selected to serve as a Member of the American College of Obstetrics and Gynecology (ACOG) Committee on Clinical Practice Guidelines – Obstetrics; Fellow of the American Gynecological & Obstetrical Society and was selected as Fellow in Executive Leadership in Academic Medicine (ELAM) Program for Women, 2020-2021 Class. She has published 270 peer reviewed articles.

Dr. Reddy graduated from Brown University Magna cum Laude and received her medical degree from the Warren Alpert Medical School of Brown University. Dr. Reddy also earned a Master's Degree in Public Health from the Johns Hopkins Bloomberg School of Public Health. She completed her residency in Obstetrics and Gynecology at the Johns Hopkins Hospital and her Maternal-Fetal Medicine fellowship at Thomas Jefferson University.



**The following abstracts are for  
research projects being presented today**



**TITLE:** Trial of Labor or Repeat Caesarean Delivery in Women with Morbid Obesity After Previous Cesarean

**PRESENTER:** Tawany Almeida, MD, PGY-3 Research Presentation

**MENTOR:** Tetsuya Kawakita, MD

**Objective:** To compare adverse maternal and neonatal outcomes associated with trial of labor after cesarean section (TOLAC) at term in pregnancies complicated by maternal obesity.

**Methods:** This was a repeated cross-sectional analysis of individuals with singleton, cephalic, term deliveries (37-41 weeks' gestation) with a history of one or two cesarean deliveries who never had a history of vaginal delivery in the National Vital Statistics System from 2014 to 2020. Outcomes were examined according to the body mass index (BMI kg/m<sup>2</sup>) category including BMI <30, 30-39.9, 40-49.9, and 50-69.9 kg/m<sup>2</sup>. The primary outcome was a composite neonatal outcome, defined as any presence of neonatal intensive care unit (NICU) admission, assisted ventilation, surfactant therapy, or seizures. Outcomes were compared between TOLAC and elective repeat cesarean delivery. Multivariable logistic regression was performed to obtain adjusted odds ratio (aOR) with 95% confidence interval (95%CI), controlling for covariates.

**Hypothesis:** Of 1,760,686 pregnancies, 1,129,496 had BMI<30, 484,957 had BMI 30-39.9, 125,176 had BMI 40-49.9, and 21,057 had BMI 50-69.9 kg/m<sup>2</sup>. Vaginal delivery rates after TOLAC were 68.1%, 58.5%, 49.5%, and 42.2%, respectively. Compared to elective repeat cesarean delivery, TOLAC was associated with slightly increased odds of composite neonatal adverse outcomes in BMI <30 group (5.7% vs. 7.1%; aOR 1.11 [95%CI 1.10-1.12]), BMI 30-39 group (7.1% vs. 8.6%; aOR 1.33 [1.29-1.37]), and BMI 40-49 group (9.1% vs. 9.9%; aOR 1.20 [1.12-1.28]), but not in BMI 50-69.9 group (12.0% vs. 11.8%; aOR 1.07 [0.91-1.26]).

**Conclusion:** TOLAC among obese individuals could be offered in selected cases.



**TITLE:** Reversible Cerebral Vasoconstriction Syndrome in a Postpartum Patient

**PRESENTER:** Emily Peters, MD, PGY-1 Case Report

**MENTOR:** Stacy Slat, MD

**Background:** Reversible Cerebral Vasoconstriction Syndrome (RCVS) is a rare neurologic phenomenon characterized by reversible constriction of the cerebral arteries causing neurologic deficits, headache, and transient imaging findings. RCVS is more prevalent in females and likely carries an increased risk of morbidity in the postpartum period. While the symptoms and diagnostic criteria of RCVS have been described, the pathophysiologic mechanism related to pregnancy remains elusive. Here we present a case of a postpartum patient with clinical changes and imaging findings consistent with RCVS.

**Case:** A 38-year-old gravida 1, para 0 at 24wk5d underwent classical cesarean due to non-reassuring fetal heart tracing. On postpartum day 5, she developed acute-onset weakness, dysarthria, and aphasia prompting a stroke alert, neurology consultation, and immediate head imaging. Due to concern for ischemia, thrombolytic therapy was given. She was transferred to the Neuro ICU where she had waxing and waning neurologic deficits, headache, and further imaging showing narrowing involving the left anterior and middle cerebral arteries territories. She was treated with aspirin as well as a calcium channel blocker (CCB) for suspected RCVS. Her neurologic status gradually improved and returned to baseline. Aspirin and CCB were discontinued prior to discharge with no evidence of recurrence or further neurologic intervention to date.

**Conclusion:** The correlation between RCVS and pregnancy and precipitating factors in the postpartum period are poorly understood. While most cases of postpartum RCVS are benign, it is important to understand the potential for serious sequelae and morbidity including ischemic and hemorrhagic stroke.





**TITLE:** Residents as Teachers 2

**PRESENTER:** Lois Davis, MD, PGY-3 Research Presentation

**MENTORS:** Jerri Waller, MD  
Gloria Too, MD

**Objective:** To determine the barriers that medical students perceive as preventing effective education from residents.

**Methods:** The study was collected using an online survey of 8 questions. The survey was sent to EVMS third year medical (MS3) students at the conclusion of their OBGYN clerkship. Exclusion criteria included non-third year or non-EVMS medical students. Participation was voluntary and not incorporated into student evaluation/grading. The survey was analyzed using descriptive statistics of categorical variables.

**Results:** Over the 2022-2023 clinical clerkship year, (n=65) MS3 medical students filled out the online survey. 78% of students had either a “somewhat of a pleasant” or “great experience” on their OBGYN rotation. 67% felt residents were interested in teaching. 58% worked with residents on a daily basis, with 47% spending 1-2 hours teaching in a 12-hour work period. A majority of students preferred a blended learning style (47%) followed by a coaching learning style (31%). 64% felt that the teaching received by residents was either “effective” or “very effective” although 60% responded there is room for improvement in resident teaching. The largest 3 identified barriers were time (95%), clinical responsibilities (91%), and lack of interest in teaching (81%).

**Conclusion:** While the majority of students enjoyed their experience on the OBGYN clerkship there remains a gap in allotment of time to resident-medical student teaching. Major barriers include time, clinical responsibilities, and perceived lack of interest in teaching medical students.



**TITLE:** Prediction of Postoperative Hemoglobin After Cesarean Delivery

**PRESENTER:** Anam Jafri, DO, PGY-3 Research Presentation

**MENTOR:** Tetsuya Kawakita, MD

**Objective:** To externally validate a prediction model that detects severe post-cesarean anemia.

**Methods:** This was a retrospective cohort study of all individuals undergoing cesarean delivery at Sentara Norfolk General Hospital in 2020. Previously published postoperative hemoglobin level calculator included preoperative hemoglobin level, preoperative platelet level, quantitative blood loss, height, weight, magnesium administration, labor, and general anesthesia. These variables were used in the established model to predict severe post-cesarean anemia (post-cesarean day 1 hemoglobin <7.0g/dL). Individuals who had missing data or those who had transfusions before and during cesarean delivery were excluded. A receiver operating characteristic (ROC) curve with the area under a curve (AUC) was created. We calculated the sensitivity and specificity of the model.

**Results:** Of 1222 individuals, 26 (2.1%) had post-cesarean severe anemia. The prediction model had an AUC of 0.90 (95% confidence interval 0.82-0.97). Using the best cutoff hemoglobin of 8.57g/dL, 221 (18.1%) were identified as high-risk for severe post-cesarean anemia. The sensitivity and specificity of the prediction model were 80.8% and 83.3%, respectively. The model had positive and negative predictive values of 9.5% and 99.5%, respectively.

**Conclusion:** The previously published prediction model was externally validated within our cohort and identified individuals who were at high risk for severe post-cesarean anemia. Using this model, we could avoid unnecessary postoperative laboratory tests, allowing more judicious use of healthcare resources and decreased spending.



**TITLE:** High Dose Oxytocin in the Third Stage of Labor after Induction in the Second Trimester

**PRESENTER:** Tasha Jost-Haynes, MD, PGY-3 Research Presentation

**MENTOR:** Tetsuya Kawakita, MD

**Objective:** To compare the length of the third stage of labor after induction in the second trimester between high-dose oxytocin and misoprostol.

**Methods:** This was a retrospective cohort study at Sentara Norfolk General of individuals who underwent induction of labor in the second trimester (stillbirth and medically indicated). The primary outcome was the length of the third stage of labor. Secondary outcomes include rates of surgical intervention, hemorrhage, and infection. Outcomes were compared between individuals who received high-dose oxytocin and those who received misoprostol in the third stage of labor. Student-t test or Mann-Whitney U test was used for continuous variables and the Fisher's exact test was used for categorical variables.

**Results:** Of 56 people, 30 received high-dose oxytocin and 26 received misoprostol. Compared to misoprostol, high-dose oxytocin was not associated with greater length of the third stage (89 minutes vs. 79 minutes;  $P = 0.24$ ). Similarly, there were no differences in surgical intervention (26.9% vs. 21.4%;  $P = 0.75$ ), estimated blood loss (200 mL vs. 400 mL;  $P = 0.19$ ), transfusion (0% vs. 6.7%;  $P = 0.5$ ), and postpartum endometritis (0% vs. 3.6%;  $P = 1.00$ ).

**Conclusion:** Following induction of labor in the second trimester, it is reasonable to proceed with medical management of the third stage of labor using high-dose oxytocin or misoprostol protocol.



**TITLE:** Effect of sterile vs clean gloves for cervical checks in labor on maternal infection at term: a randomized trial

**PRESENTER:** Bijan Morshedi, MD, PGY-3 Research Presentation

**MENTORS:** Annie Thurman, MD  
Stacy Slat, MD

**Objective:** This study aimed to evaluate if the glove type (sterile vs. clean) used for cervical examinations during labor affects the rates of intrapartum and postpartum infection.

**Methods:** This randomized controlled trial assigned eligible and consenting participants to receive cervical examinations during labor with either sterile powder-free polyvinyl chloride examination gloves (current routine practice, control group) or clean powder-free nitrile examination gloves (nonsterile, experimental group). The primary outcome was rates of intrapartum infection (chorioamnionitis). The study was approved by the Eastern Virginia Medical School Institutional Review Board (IRB 21-09-FB-0206), and was registered at ClinicalTrials.gov (identifier NCT05603624; <https://clinicaltrials.gov/ct2/show/NCT05603624>).

**Results:** A total of 163 participants with singleton pregnancies completed the study; 74 (45%) were randomized to the sterile glove group, and 89 (55%) were randomized to the clean glove group. In the sterile glove group, 4 (5.4%) developed intrapartum infection (chorioamnionitis) and 1 (1.3%) developed postpartum infection (endometritis). In the clean glove group, 4 (4.4%) developed intrapartum infection and 2 (2.2%) developed postpartum infection. There was no significant difference in rates of intrapartum infection ( $P=1.0$ ) or postpartum infection ( $P=1.0$ ), or combined rates of infection (including both chorioamnionitis and endometritis;  $P=.99$ ) between the sterile and the clean glove group.

**Conclusion:** Using clean gloves for cervical examinations during labor is unlikely to increase risk of infection, and could reduce cost by up to 92.4% at our institution, saving over \$25,000 annually.



**TITLE:** A Case of Group A Streptococcus Postpartum Endometritis  
Leading to Toxic Shock Syndrome

**PRESENTER:** Stephanie Beck, MD, PGY-1 Case Report

**MENTOR:** Juliana Martins, MD

**Background:** Pregnancy-related group A Streptococcus (GAS) endometritis is an uncommon, yet life-threatening diagnosis with various complications including streptococcal toxic shock syndrome (STSS) which is GAS infection with sudden onset of shock, organ failure, and potentially death. Screening for GAS endometritis in asymptomatic patients is not currently recommended; however, there should be a low threshold to consider GAS endometritis and STSS in patients with signs of endometritis, purulent discharge, and/or viral symptoms, especially if clinically unstable.

**Case:** A 31-year-old female presented after an uncomplicated vaginal birth after cesarean for GAS endometritis and STSS. She was found to have worsening tachypnea, flank pain, and ultimately diagnosed with GAS bacteremia with cardiovascular shock and acute hypoxic respiratory failure. She subsequently underwent a supracervical hysterectomy and salpingo-oophorectomy which was notable for green fluid in abdomen and a necrotic right ovary. On postpartum day three, she was transferred to the ICU for cardiogenic and septic shock with an ejection fraction of 15% requiring ECMO, Impella placement, and broad-spectrum antibiotics. Over the following weeks, patient developed acute renal failure, DIC, pulmonary embolism, limb ischemia, compartment syndrome with fasciotomy, and left-sided above the knee amputation. On hospital day twenty-one, she was stable and discharged to the inpatient rehabilitation facility.

**Conclusion:** While uncommon, group A Streptococcus endometritis can have devastating complications such as STSS with high morbidity and mortality. Early diagnosis of GAS endometritis in the postpartum period and an urgent, multi-disciplinary approach to the complications that arise are imperative for improving patient outcomes.



**TITLE:** Stumped by a STUMP (Smooth Muscle Tumor of Uncertain Malignant Potential)

**PRESENTER:** Megan Brown, MD, PGY-1 Case Report

**MENTOR:** Jeffrey Woo, MD

**Background:** Uterine smooth muscle tumors of uncertain malignant potential (STUMP) are a class of smooth muscle tumors with histologic characteristics that exclude them from currently defined tumor classes and leave questions as to their future outcomes. The recurrence rate is estimated at 8.7-11% as either STUMP or leiomyosarcoma. There is inconsistent and limited data on markers that predict recurrence, specifically malignant recurrence. As a result, there are no current guidelines for surveillance or treatment, with some recommending hysterectomy as the gold standard for treatment, others no surveillance at all.

**Case:** A 32 year old female patient with abnormal uterine bleeding and infertility was seen in clinic for removal of a known fibroid. The transvaginal ultrasound showed a 5x5cm posterior fibroid impinging the endometrial canal. She underwent robotic assisted myomectomy with chromopertubation of the fallopian tubes. The pathology showed a STUMP with scattered mild cytologic atypia, elevated mitotic activity, smooth muscle actin and desmin positive, retained fumarate hydratase staining and no coagulative tumor cell necrosis. The patient was then referred to GYN oncology.

**Conclusion:** There continues to be a lack of consensus on the surveillance of STUMP tumors due to significant gaps in the literature and inconsistent diagnostic criteria. Recurrence rates, although low, are not insignificant with some tumors displaying an aggressive clinical course. It is important that GYN providers continue to collaborate with pathologists and GYN oncologists to develop further understanding of STUMPs to inform shared decision making with patients for best next steps after diagnosis.



**TITLE:** Diagnosis and Management of Cervical Ectopic Pregnancy

**PRESENTER:** Mackenzi McHugh, MD, PGY-1 Case Report

**MENTOR:** Jerri Waller, MD

**Background:** Cervical ectopic pregnancies (CEP) are rare, comprising of less than 1% of all ectopic pregnancies. Here we describe a case of a CEP along with management.

**Case:** A 38 year old Gravida 7, para 0 presented to the ED at 6 weeks and 4 days gestation based on IVF embryo with a complaint of vaginal bleeding and cramping. The transvaginal ultrasound showed an intrauterine pregnancy with a low position in the uterus and no cardiac activity, concerning for early pregnancy loss. The patient was discharged with instructions to follow-up with her OB/GYN. The patient then presented to clinic for a dating and viability scan at 8 weeks and 0 days gestation. A gestational sac with fetal pole and cardiac activity was found within the endocervical canal, consistent with a cervical ectopic pregnancy. Initially, the patient desired conservative management, however ultimately elected definitive management. The patient was treated surgically with fetal intracardiac KCl injection and intragestational sac methotrexate injection, as well as intramuscular methotrexate at 9w5d.

**Conclusion:** Although cervical ectopic pregnancies are exceedingly rare, they are considered an obstetric emergency. In the past, cervical ectopic pregnancies were treated aggressively with hysterectomy due to concern for maternal hemorrhage. However, advancements in medicine allow for fertility-sparing management of CEPs, including medical or surgical management. Management using fetal intracardiac KCl is reserved for hemodynamically stable patients with evidence of fetal cardiac activity. Moreover, clinical expertise with this technique is required contributing to its rare use in management of cervical ectopic pregnancies.



**TITLE:** Severe Postpartum Thrombocytopenia: The Search for a Unifying Diagnosis

**PRESENTER:** Elizabeth Roy, MD, PGY-1 Case Report

**MENTOR:** Tetsuya Kawakita, MD

**Background:** The differential diagnosis for intrapartum and postpartum thrombocytopenia is broad, including preeclampsia with severe features, HELLP syndrome, autoimmune conditions such as TTP and ITP, infection, and malignancy.

**Case:** We present a 27-year-old G1P1001 female with gestational hypertension who developed acute severe thrombocytopenia following a primary low transverse cesarean delivery at 38.0 weeks due to a failed induction of labor complicated by intra-amniotic infection. She experienced an acute decline in her platelet count despite transfusions, with platelets as low as 7,000/ $\mu$ L on post-operative day four, along with blurred vision bilaterally. Ophthalmology was consulted and their exam was notable for multiple circular serous retinal detachments bilaterally. ADAMTS-13 levels were ordered due to concern for TTP and hematology recommended starting daily plasmapheresis. She completed six days of plasma exchange therapy with resolution of her thrombocytopenia and blurry vision. Her ADAMTS-13 antibody resulted elevated at 13 and her ADAMTS-13 activity was undetectable, confirming the diagnosis of TTP.

**Conclusion:** Pregnancy is a known risk factor for triggering acute TTP, and it is estimated that 12-25% of TTP cases occur during pregnancy or in the postpartum period. Therefore, it is important for obstetricians to be familiar with the diagnosis and treatment of TTP, as it can have life-threatening sequelae. This case also highlights the importance of maintaining a broad differential diagnosis and illustrates how a multidisciplinary approach amongst various specialties is optimal for both expedited diagnosis and exceptional patient care.





**TITLE:** Representation in Major Obstetrics and Gynecology Journals

**PRESENTER:** Jessie Jones, MD, PGY-4 Research Presentation

**MENTOR:** Tetsuya Kawakita, MD

**Objective:** To examine the number of women as first and senior authors in four journals in obstetrics and gynecology over two decades.

**Methods:** This bibliometric analysis included all original research articles published in 1999, 2009, and 2019 in four obstetrics and gynecology journals—Gynecologic Oncology (Gynecol Oncol), Obstetrics and Gynecology (Obstet Gynecol), Journal of Minimally Invasive Gynecologic Surgery (JMIGS), and Fertility and Sterility (Fertil Steril). Other types of publications including case reports, reviews, and editorials were excluded. The gender of the author was determined by a Google-based webtool. For inconclusive results, a Google search of the authors was attempted to identify gender. If we were not able to identify the gender of the authors, they were excluded from the analysis. Proportions of female first and senior authors were assessed yearly. Interrupted time-series analysis was performed using an autoregressive integrated moving average.

**Results:** A total of 2,781 articles were analyzed, with a total of 5,562 authors. 518 authors (9.3%) were excluded. Over two decades, the proportions of female first and senior authors nearly doubled in all four journals. For example, in 1999, the proportions of the female first author were 24.7%, 37.4%, 14.6%, and 27.1% in Gynecol Oncol, Obstet Gynecol, JMIGS, and Fertil Steril, respectively. In 2019, the proportions of the female first author were 60.4%, 68.7%, 44.9%, and 57.9% in Gynecol Oncol, Obstet Gynecol, JMIGS, and Fertil Steril, respectively. This increase in proportions was statistically significant (all  $P < 0.001$ ).

**Conclusion:** Proportions of female first and senior authors nearly doubled over two decades.



**The following research projects  
were presented December 15, 2022.**



**TITLE:** Ergonomics for the Obstetrician

**PRESENTER:** Abigail Barger, MD, PGY-2 Research Proposal

**MENTORS:** Stephen Davis, MD  
Tetsuya Kawakita, MD

**Objective:** To identify an ergonomic assessment of obstetricians in the operating room to better improve physician health outcomes and avoid work-related injuries

**Methods:** All consenting EVMS OBGYN physicians who participate in cesarean sections will be photographed while operating. The photographs will be analyzed using the ergonomic tools, REBA and RULA. An occupational health and safety specialist will assist with analysis of the photographs. To decrease potential for bias, the physicians will not be notified when they will be photographed. The physician demographics and a pain questionnaire will be collected after completion of the photographs. Details about the cesarean section case will be collected retrospectively, including length of case, start time, patient BMI. The ergonomic scores will be compared among physicians, case details, and overall. The demographics and pain questionnaires will be compared to collected ergonomic evaluation results. ANOVA and T-test calculations will be done to compare data.

**Hypothesis:** We hypothesize that more senior physicians will score higher on the pain questionnaire, and that all Obstetricians will score high enough to require improvement with ergonomics during cesarean sections.



**TITLE:** Effectiveness of patient financial penalties on appointment non-adherence in academic obstetrics and gynecology clinics

**PRESENTER:** Lauren Forbes, MD, MPH, PGY-2 Research Proposal

**MENTOR:** Peter Takacs, MD, PhD, MBA, CPE

**Background:** Academic outpatient clinics have appointment non-adherence rates between 8-20%. Among Eastern Virginia Medical School (EVMS) Department of Obstetrics and Gynecology (OBGYN) outpatient clinics, the appointment non-adherence rate is about 11% with a range of 8-27% depending on specialty clinic. As unfilled appointments represent a financial loss of the system, patient-directed financial penalties emerged as a strategy to offset departmental losses.

**Objective:** The aim of this study is to evaluate the effectiveness of patient financial penalties on appointment non-adherence within each of the EVMS OBGYN outpatient clinics. Secondary aims are to 1) determine the percent of patients who fulfill the financial penalty, 2) calculate the total amount of financial penalties received by the Department, and 3) determine patient or clinic-level characteristics associated with receiving or paying the financial penalty.

**Methods:** This is a retrospective policy effectiveness-implementation hybrid design of all patients with appointments at each of the EVMS OBGYN outpatient clinics from May 1, 2018 to April 30, 2022. As a department-wide patient financial penalty policy for appointment non-adherence was implemented on May 1, 2020, two years of administrative data will be analyzed prior to and following implementation.

**Hypothesis:** We hypothesize that implementing a department-wide patient financial penalty policy for appointment non-adherence will decrease the EVMS OBGYN appointment non-adherence rate by 30% over two years.



**TITLE:** Rate of deterioration of umbilical artery Doppler indices in fetuses with severe early-onset fetal growth restriction

**PRESENTER:** Lindsay Gould, MD, PGY-2 Research Proposal

**MENTOR:** Juliana Gevaerd Martins, MD

**Objective:** Fetal growth restriction (FGR), or failure of the fetus to achieve weight within population-based norms, is a common problem affecting 10% of all pregnancies. Though there is not currently an international consensus agreement on the ideal management strategy for FGR, current evidence strongly supports the use of UA Doppler for fetal surveillance. Although studies have demonstrated varied sensitivity and specificity between the 3 UA Doppler indices, it is unknown which index predicts more advanced stages of placental deterioration, such as A/REDV. This study aims to examine risk factors for development of A/REDV in fetuses with early-onset severe FGR and to determine time intervals of deterioration from decreased UA end-diastolic velocity to A/REDV using PI, RI, or S/D ratio.

**Methods:** This retrospective cohort study includes all singleton pregnancies diagnosed with severe (EFW or AC <3%) and early onset (diagnosed between 20 0/7 – 31 6/7 week of gestation) fetal growth restriction among MFM patients at EVMS from 2005-2020. A query was built through the Viewpoint ultrasound database to search for all pregnancies meeting the criteria, and charts were reviewed longitudinally from diagnosis to delivery. EFW and UA Doppler PI, RI and S/D ratio were obtained on each ultrasound examination. Inpatient records were reviewed to obtain pregnancy outcomes.

**Hypothesis:** We hypothesize that decreased end-diastolic velocity by S/D ratio is more prevalent in early-onset severe FGR than the other Doppler indices. Additionally, we hypothesize the time interval from abnormal S/D ratio to A/REDV is longer than the time intervals from abnormal PI or RI to A/REDV.



**TITLE:** Timing of fetal growth ultrasound in morbid obese patients for the detection of fetal growth abnormalities

**PRESENTER:** Elizabeth Miller, MD, PGY-2 Research Proposal

**MENTORS:** Juliana Martins, MD  
Tetsuya Kawakita, MD

**Objective:** Limited data exist with regards to the assessment of fetal growth in patients with class III obesity. Clinical assessment of fetal size by abdominal palpation and accurate measurement of fundal height is more challenging in patients with obesity and therefore, expert opinion recommends a growth ultrasound every four to six weeks in the third trimester. However, guidelines for fetal growth assessment are currently lacking. The main objective of this study is to evaluate the rate of fetal growth abnormalities, including large for gestational age (LGA) and fetal growth restriction (FGR) based on third trimester ultrasounds performed in patients with class III obesity.

**Methods:** A total of 200 patients with class III obesity and no other co-morbidities (including hypertension, diabetes etc) who had a third trimester fetal growth ultrasound between 28 to 40 weeks of gestation will be identified from our database and reviewed retrospectively. A control group will be selected from a center population by matching each case of fetus with maternal obesity with two fetuses in a control group (400 controls) with similar crown-rump length ( $\pm 5$ mm) in the first trimester and similar biometry in the second trimester and date of study ( $\pm 2$  months).

**Hypothesis:** The rate of fetal growth abnormalities is overall low in morbid obese patient without other comorbidities such as hypertension or diabetes and that a gestational age of 32 weeks and above is associated with a higher prevalence of growth abnormalities.



**TITLE:** Rates of chorioamnionitis in patients undergoing cervical ripening with OFFB for premature rupture of membranes

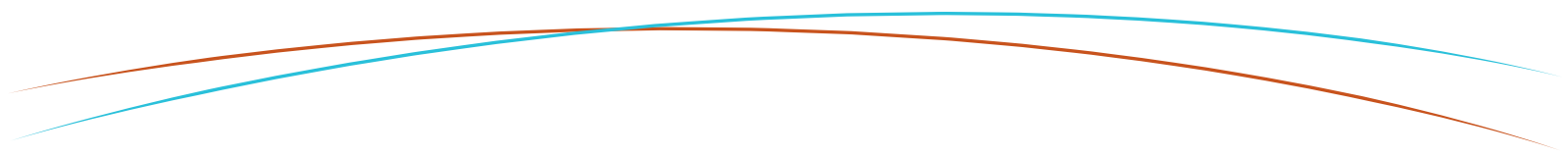
**PRESENTER:** Madison Seward, MD, PGY-2 Research Proposal

**MENTOR:** Alissa Thieke, MD

**Objectives:** To compare the rate of chorioamnionitis between patients with premature rupture of membranes undergoing cervical ripening with an old-fashioned foley bulb and patients with premature rupture of membranes who received misoprostol for cervical ripening.

**Methods:** We propose a retrospective cohort study using data collected from the CSL database. We will include women with singleton gestation, at >34 weeks (as this is the gestational age at which induction of labor is recommended for PROM), with rupture of membranes, and cervical dilation of less than three centimeters. Within this group we will compare rates of chorioamnionitis in those who underwent mechanical cervical dilation with an old fashioned foley bulb and those who underwent cervical ripening with misoprostol. The primary outcome is chorioamnionitis. Secondary outcomes will include time to delivery, mode of delivery, NICU admissions, and postpartum endometritis. Chi-square test will be used to analyze categorical variables. Student t-test or Mann-Whitney u-test will be used for continuous variables. Multivariable logistic regression will be used to calculate adjusted odds ratios with 95% confidence intervals.

**Hypothesis:** We hypothesize there will be no increased rates of chorioamnionitis in women with premature rupture of membranes undergoing cervical ripening with OFFB in comparison to those who received misoprostol.



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