

**PROGRAM SCHEDULE**  
**92<sup>nd</sup> Annual Meeting Central Association**  
**of Obstetricians and Gynecologists**  
**Caesars Palace**  
**October 15 – 18, 2025**

**WEDNESDAY, OCTOBER 15, 2025**

- 10 a.m. - 2 p.m. CAOG Officers and Trustees  
Annual Meeting  
Senate Boardroom
- 1:00 - 9:00 p.m. General Registration (Roman Ballroom)
- 6:00 - 9:00 p.m. Welcome Reception (Roman Ballroom)
- 6:00 - 9:00 p.m. Industry Exhibits Open (Roman Ballroom)

**THURSDAY, OCTOBER 16, 2025**

- 6:00 a.m. General Registration (Roman Ballroom)
- 6 a.m. - 12 noon **INDUSTRY EXHIBITS OPEN**
- 6 a.m. - 12 noon **SCIENTIFIC POSTER SESSION OPEN**
- 6:00 - 6:30 a.m. Breakfast (Roman Ballroom)
- 6:30 - 7:30 a.m. **Sunrise Lecture** (Roman Ballroom)  
“Ultrasound & Ovarian Cancer: IOTA  
and the Chicken—Are We There Yet?”  
**Jacques S. Abramowicz, M.D.**  
University of Chicago  
Chicago, Illinois

**FIRST SCIENTIFIC SESSION**  
(Roman Ballroom)

**Moderators:**

- Jean R. Goodman, M.D. – CAOG President**  
**Emily A. DeFranco, D.O. – CAOG President Elect II**

- 7:30 a.m. Opening Remarks

- 7:30 - 8:30 a.m.     **Hot Topic #1**  
 “Marijuana Use and Risks in Pregnancy”  
**Barbara V. Parilla, M.D.**  
 Univ. of Kentucky College of Medicine  
 Lexington, Kentucky
- 8:30 - 9:00 a.m.     **Paper #1**                     **Community Hospital  
 Award**  
 “Proteinuria in Pregnancy: A Key Factor  
 in Chronic Hypertension Management”  
**Symone E. McClain, M.D.**  
 Henry Ford Hospital  
 Detroit, Michigan
- Discussant: David F. Lewis, M.D.  
 Shreveport, Louisiana
- 9:00 - 9:30 a.m.     **Paper #2**                     **Dr. Bryan D. Cowan FAR  
 Research Network Award**  
 “Postpartum Depression Following a  
 Substance-Exposed Pregnancy: The Roles  
 of Age, Race/Ethnicity, and Mental  
 Health History”  
**Miranda C. Manzo, B.S.**  
 University of Michigan  
 Central Michigan Univ. College of Med.  
 Ann Arbor, Michigan
- Discussant: Maryann C. Chimanda, M.D.  
 Noblesville, Indiana
- 9:30 - 10:00 a.m.     **Paper #3**                     **Central Prize Award**  
 “Addition of Misoprostol to  
 Double-Balloon Catheter for  
 Cervical Ripening Associated  
 with Improved Obstetric Outcomes”  
**Allison Li, B.S.**  
 Indiana University School of Medicine  
 Indianapolis, Indiana
- Discussant: Tiffany R. Tonismae, M.D.  
 Crestwood, Kentucky
- 10:00 - 10:45 a.m.     **Break/Refreshments/Exhibits/Posters**  
 (Roman Ballroom)

**SECOND SCIENTIFIC SESSION**  
(Roman Ballroom)

**Moderators:**

**Dani G. Zoorob, M.D. – CAOG Secretary/Treasurer**  
**David A. Billings, M.D. – CAOG Trustee**

10:45 - 11:30 a.m. **Hot Topic #2**

“The Spectrum of Perimenopause”

**Carrie L. Wieneke, M.D.**

Kansas University Medical Center  
Kansas City, Kansas

11:30 - 12:00

**Paper #4**

**Dr. Jack A. Pritchard**  
**Memorial Paper Award**

“Infant Feeding Practices and Maternal  
Sleep Outcomes in Early Postpartum”

**Jasmine T. Rios, M.P.H.**

University of Chicago  
Pritzker School of Medicine  
Chicago, Illinois

Discussant: Sharon T. Phelan, M.D.  
Helena, Alabama

12:00 - 12:30 p.m.

**Paper #5**

**President's Certificate of**  
**Merit Award**

“Evaluating Serial Serum Levels  
of Endocan and Syndecan in Infants  
Born to Women with Hypertensive  
Disorders of Pregnancy”

**Ria Ravi, B.S.**

Loyola University of Chicago  
Stritch School of Medicine  
Maywood, Illinois

Discussant: James W. Van Hook, M.D.  
Toledo, Ohio

12:30 - 1:30 p.m.

**Hot Topic #3**

“Litigation Use and Misuse of  
Cord Blood Gases”

**Jonathan K. Muraskas, M.D.**

Loyola University Medical Center  
Maywood, Illinois

2:00 - 3:30 p.m.    **“Strategies for Successful Interviewing Matching into Ob-Gyn Residency: Tips From Program Directors” (No CME)**

**Dani G. Zoorob, M.D. – Moderator**  
Chair  
LSU Health Sciences Center  
Shreveport, Louisiana

**Michael R. Boldt, M.D. – Panelist**  
Program Director  
University of Cincinnati  
Cincinnati, Ohio

**Caitlin B. Busada, M.D. – Panelist**  
Program Director  
LSU Health Sciences Center  
Shreveport, Louisiana

**Mistie R. Mills, M.D. – Panelist**  
Program Director  
University of Missouri  
Columbia, Missouri

Intended Audience: 4<sup>th</sup> year medical students applying for Ob-Gyn Residency Match (3<sup>rd</sup> years are also welcome)

## FRIDAY, OCTOBER 17, 2025

6:00 a.m. General Registration (Roman Ballroom)

6:00 - 10:30 a.m. **INDUSTRY EXHIBITS OPEN**

6:00 - 10:30 a.m. **SCIENTIFIC POSTER SESSION OPEN**

6:00 - 6:30 a.m. Breakfast (Roman Ballroom)

6:30 - 7:30 a.m. **Sunrise Lecture** (Roman Ballroom)  
“Vulvar Disorders:  
Should Not Be Taboo”  
**Kathryn C. Welch, M.D.**  
University of Michigan  
Ann Arbor, Michigan

### **THIRD SCIENTIFIC SESSION** (Roman Ballroom)

#### **Moderators:**

**Robert J. Wester, M.D. – CAOG Vice President**  
**Deborah C. Sherman, M.D. – CAOG Trustee**

7:30 a.m. Announcements

7:30 - 8:00 a.m. **Paper #6** **Young Investigator Award**  
“Evaluation of the Accuracy of Fetal Weight Prediction Technology in Predicting Fetal Macrosomia”  
**Margaret T. Manning, M.D.**  
University of Louisville  
Louisville, Kentucky

Discussant: Sarah Morgan Carpenter, M.D.  
Carmel, Indiana

8:00 - 8:30 a.m. **Paper #7**  
“Nutritional Barriers in Maternal Health: The Impact of Food Insecurity on Gestational Diabetes and Polyhydramnios”  
**Morgan E. Uebinger, B.S.F.C.S.**  
Louisiana State University Health Sciences Center  
Shreveport, Louisiana

Discussant: Catherine L. Van Hook, M.D.  
Toledo, Ohio

- 8:30 - 9:00 a.m.     **Paper #8**             **Dr. George W. Morley  
Memorial Paper Award**  
“An Alternative Approach to Vaginal  
Expansion-Utilizing Estrogen Coated  
3-D Printed Vaginal Expansion Sleeves”  
**Ashlyn G. Gotberg, B.S.**  
Louisiana State University Health  
Sciences Center  
Shreveport, Louisiana
- Discussant: Angelina K. Gangestad, M.D.  
Cleveland, Ohio
- 9:00 - 9:45 a.m.     **Hot Topic #4**  
“Culturally Humble, Clinically Bold:  
Motivational Interviewing to Bridge the  
Gap in Perinatal Care”  
**Traci N. Johnson, M.D.**  
University of Missouri  
Kansas City, Missouri
- 9:45 - 10:30 a.m.     **Break/Refreshments/Exhibits/Posters**  
(Roman Ballroom)

#### **FOURTH SCIENTIFIC SESSION** (Roman Ballroom)

**Moderators:**

**David M. Haas, M.D. – CAOG Past President**  
**Shilpa Babbar, M.D. – CAOG Trustee**

- 10:30 - 11:00 a.m.     **Paper #9**  
“Impact of the Dobbs Decision on  
Depression & Anxiety Rates During  
Pregnancy: An Epic Cosmos Analysis”  
**Ameek K. Bindra, B.A.**  
Carle Illinois College of Medicine  
Urbana, Illinois
- Discussant: Erica E. Nelson, M.D.  
Springfield, Illinois

- 11:00 - 11:30 a.m. **Paper #10**  
 “Contraceptive Counseling and Management for Teenagers in Various Outpatient Settings: Is There A Difference?”  
**Shruti Vaidyanathan, M.D.**  
 Louisiana State University  
 Health Sciences Center  
 Shreveport, Louisiana
- Discussant: Margaret E. Long, M.D.  
 Rochester, Minnesota
- 11:30 - 12:15 **Keynote Address**  
 “Maternal Mortality and the Need for Cardio-Obstetrics”  
**Karen L. Florio, D.O., M.P.H.**  
 University of Missouri-Columbia  
 Columbia, Missouri
- 12:15 - 1:00 p.m. **Presidential Address**  
 “Authentic Leadership: Living With Balance, Leading With Purpose” With  
**Jean R. Goodman, M.D., M.B.A.**  
 University of Missouri-Columbia  
 Columbia, Missouri
- 1:00 p.m. **Installation of New President**
- 1:00 - 1:30 p.m. **Annual Business Meeting CAOG**
- 6:00 - 9:00 p.m. **Annual Gala  
 Reception/Dinner/Awards**  
 (Roman Ballroom)

<b>SATURDAY, OCTOBER 18, 2025</b>
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- 6:00 a.m. General Registration (Roman Ballroom)
- 6:00 - 6:30 a.m. Breakfast (Roman Ballroom)
- 6:30 - 7:30 a.m. **Sunrise Lecture** (Roman Ballroom)  
 “Modern Management of Urinary Incontinence”  
**Sylvia M. Botros-Brey, M.D.**  
 UT Health San Antonio  
 San Antonio, Texas

**FIFTH SCIENTIFIC SESSION**  
(Roman Ballroom)

**Moderators:**

**Thomas F. Arnold, M.D. – CAOG President Elect I**

**Catherine L. Van Hook, M.D. – CAOG Trustee**

- 7:30 a.m.                      Announcements
- 7:30 - 7:45 a.m.            **Paper #11**  
“A Structured Incorporation of ACOG's  
Surgical Curriculum in Obstetrics and  
Gynecology into Didactic Learning at a  
University-Based Ob/Gyn Residency  
Program”  
**Stephanie I. Allred, M.D.**  
University of Missouri  
Columbia, Missouri
- 7:45 - 8:00 a.m.            **Paper #12**  
“Obesity and Preeclampsia: Early  
Pregnancy BMI as a Key Predictor  
in the Hoosier Moms Cohort”  
**Chris E. Philip, M.D.**  
Indiana University  
Indianapolis, Indiana
- 8:00 - 8:15 a.m.            **Paper #13**  
“Progesterone in Oil: A Retrospective  
Study of the Prevalence of Progesterone  
Hypersensitivity in Medicated Frozen  
Embryo Transfer Cycles and Its Impact  
on Reproductive Outcomes”  
**Francesca R. Mancuso, M.D.**  
Indiana University  
Indianapolis, Indiana
- 8:15 - 8:30 a.m.            **Paper #14**  
“Burnout and Resilience Among Faculty  
Members at Academic Medical Centers:  
Does Gender or Race Matter?”  
**Mila D. Shah-Bruce, M.D., Ph.D.**  
Louisiana State University  
Health Sciences Center  
Shreveport, Louisiana

8:30 - 8:45 a.m. **Paper #15**  
“The Effect of Calcium Carbonate on  
Labor Induction: A Pilot Study”  
**Marie M. Forgie, D.O.**  
Aurora Sinai Medical Center  
Milwaukee, Wisconsin

8:45 - 9:00 a.m. **Paper #16**  
“Elucidating Risk Factors for  
Craniosynostosis”  
**Maya A. Demirchian, B.A.**  
University of Missouri  
Columbia, Missouri

9:00 - 9:30 a.m. **Break/Refreshments**  
(Roman Ballroom)

### **SIXTH SCIENTIFIC SESSION** (Roman Ballroom)

#### **Moderators:**

**Michael R. Handler, M.D. – CAOG Trustee**  
**Theresa L. Robinson, M.D. – CAOG Trustee**

9:30 - 10:30 a.m. **Hot Topic #5**  
“Pandemonium in Publishing: A  
Clinician’s Guide to the Changing  
Landscape of Medical Publications”  
**Roger P. Smith, M.D.**  
Virginia Tech  
Carilion School of Medicine  
Roanoke, Virginia

10:30 - 10:45 a.m. **Paper #17**  
“Gestational Diabetes and Neonatal  
Hypoglycemia Risk Post-Betamethasone  
in the Late Preterm Population: A  
Secondary Analysis of the ALPS Trial”  
**McKenzie M. Sundall Gaspar, D.O.**  
UnityPoint Lutheran  
Des Moines, Iowa

10:45 - 11:00 a.m. **Paper #18**  
“Maternal Perceptions Regarding the  
Respiratory Syncytial Virus (RSV)  
Vaccine Following FDA Approval of  
Abrysvo®”  
**Allison M. Sweeney, M.D.**  
Southern Illinois  
University School of Medicine  
Springfield, Illinois

- 11:00 - 11:15 a.m. **Paper #19**  
“Enhancing Resident Competency  
in Laparoscopic Vascular Injury  
Management: Bridging the Knowledge  
and Preparedness Gap Through an  
Innovative Multi-Institutional  
Curriculum”  
**Michael A. Mahoney, II, M.D.**  
Louisiana State University  
Health Sciences Center  
Shreveport, Louisiana
- 11:15 - 11:30 a.m. **Paper #20**      **Dr. Kermit E. Krantz**  
**Memorial Paper Award**  
“Trimesters of Change: Pelvic Floor  
and Sexual Health in Community  
Hospital Pregnancy Care”  
**Robin E. May, M.D.**  
Louisiana State University  
Health Sciences Center  
Shreveport, Louisiana
- 11:30 - 11:45 a.m. **Paper #21**  
“Worsening Maternal Laboratory  
Abnormalities in Preeclampsia as  
Predictors of Adverse Neonatal  
Outcomes”  
**Shea E. Randall, B.A.**  
Loyola University of Chicago  
Stritch School of Medicine  
Chicago, Illinois
- 11:45 - 12:00 noon **Paper #22**  
“Evaluating the Impact of Robotic-  
Assisted Laparoscopic Surgery on Health-  
Related Quality of Life (HRQoL) in  
Endometriosis Patients Using the  
Endometriosis Health Profile (EHP-30)”  
**Teresa Tam, M.D.**  
Prime Healthcare - St. Francis Hospital  
All for Women Healthcare  
Chicago, Illinois

## **ADJOURN**

**A Qualtrics link will be sent by e-mail for the pre-test, post-tests and evaluations.**

**The pre-test will be sent prior to the conference.**

**The post-tests will be sent with the evaluation each day.**

**Please complete all to track attendance and receive educational credits.**

**We try to RECYCLE name badges so please turn them in to the CAOG Registration Desk before departing.**

**Thank You  
For Attending!**

# SCIENTIFIC PRESENTATIONS

**THURSDAY, OCTOBER 16, 2025**

- 6 a.m. - 12 noon    **INDUSTRY EXHIBITS OPEN**
- 6 a.m. - 12 noon    **SCIENTIFIC POSTER SESSION OPEN**
- 6:00 - 6:30 a.m.    Breakfast (Roman Ballroom)
- 6:30 - 7:30 a.m.    **Sunrise Lecture** (Roman Ballroom)  
“Ultrasound & Ovarian Cancer: IOTA  
and the Chicken—Are We There Yet?”  
**Jacques S. Abramowicz, M.D.**  
University of Chicago  
Chicago, Illinois

## **Learning Objectives:**

- Review the significant aspects of ovarian cancer across a woman’s life span.
- Develop a plan for reducing ovarian cancer risks across a women’s life span.

<p><b>FIRST SCIENTIFIC SESSION</b> (Roman Ballroom)</p>
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## **Moderators:**

**Jean R. Goodman, M.D. – CAOG President**  
**Emily A DeFranco, D.O. – CAOG President Elect II**

7:30 - 8:30 a.m.    **Hot Topic #1**  
“Marijuana Use and Risks in Pregnancy”  
**Barbara V. Parilla, M.D.**  
Univ. of Kentucky College of Medicine  
Lexington, Kentucky

**Learning Objectives:**

- Explain the positives and negatives of marijuana use in pregnancy.
- Present a strategy for educating patients about the negatives of marijuana use in pregnancy.



**Results:** Among the 3815 patients with chronic hypertension included in the study, 890 exhibited a normal baseline urine protein-to-creatinine ratio. During pregnancy, 248 (27.9%) developed new-onset proteinuria, while 642 remained without proteinuria. The incidence of new-onset proteinuria was significantly higher among Black patients. Those who developed new-onset proteinuria were more likely to experience adverse maternal and neonatal outcomes, including a significantly higher likelihood of developing preeclampsia with severe features (11.3% vs. 4.0%,  $p<0.001$ ), preterm delivery (51.6% vs. 22.3%,  $p<0.001$ ), and neonatal ICU admission (49.5% vs. 17.1%,  $p<0.001$ ). However, no significant association was found between new-onset proteinuria and preeclampsia without severe features (3.2% vs. 2.0%,  $p=0.33$ ) or fetal growth restriction (15.7% vs. 18.1%,  $p=0.41$ ).

In both unadjusted and adjusted models, new-onset proteinuria remained significantly associated with increased risks of preeclampsia with severe features (RR 2.80, 95% CI 1.68–4.68;  $p<0.001$ ), preterm delivery (RR 2.17, 95% CI 1.80–2.63;  $p<0.001$ ), and neonatal ICU admission (RR 1.99, 95% CI 1.59–2.49;  $p<0.001$ ). Additionally, new-onset proteinuria was associated with a reduction in gestational age at delivery by 1.78 weeks (mean difference -1.78 weeks, 95% CI -2.25 to -1.30;  $p<0.001$ ).

**Conclusion:** New-onset proteinuria in pregnancies complicated by chronic hypertension is significantly associated with an increased risk of superimposed preeclampsia with severe features, preterm delivery, and neonatal ICU admission. However, it is not associated with an increased risk of preeclampsia without severe features or fetal growth restriction. Additionally, new-onset proteinuria was linked to a reduction in gestational age at delivery. These findings underscore the clinical significance of proteinuria as a marker for severe maternal and neonatal outcomes in chronic hypertension. Further research is needed to better understand its role in informing management and risk stratification in this population.

**Discussant:** David F. Lewis, M.D.  
Shreveport, Louisiana

9:00 - 9:30 a.m.

**Paper #2**

**Dr. Bryan D. Cowan**

**FAR Research Network Award**

**Postpartum Depression Following a Substance-Exposed Pregnancy: The Roles of Age, Race/Ethnicity, and Mental Health History**

Natalie Aguilar, BS<sup>1</sup>, Miranda C Manzo, BS<sup>2</sup>, Patrick Fakhoury, BS, MS<sup>3</sup>, Jacob Surma, BS<sup>4</sup>, Beth Bailey, PhD<sup>5</sup>, Paul C Nehra, MD<sup>3</sup>

University of Miami, Central Michigan University College of Medicine, Miami, FL<sup>1</sup>, University of Michigan, Central Michigan University College of Medicine, Ann Arbor, MI<sup>2</sup>, Wayne State University, Central Michigan University College of Medicine, Detroit, MI<sup>3</sup>, Michigan State University, Central Michigan University College of Medicine, East Lansing, MI<sup>4</sup>, Central Michigan University College of Medicine, Mount Pleasant, MI<sup>5</sup>

**Purpose:** To explore the impact of age, race/ethnicity, and mental health history on the prevalence of postpartum depression (PPD) among individuals who are pregnant and using substances.

**Background:** Associations exist between substance use during pregnancy and PPD, however it remains unclear how this varies among different age groups, racial/ethnic groups, or how mental health history influences these outcomes. PPD is one of the most prevalent morbidities related to pregnancy, affecting 13% to 19% of women who give birth. There is significant research highlighting the risks associated with PPD emphasizing the prevalence and negative outcomes for both the mother and child

**Methods:** This study involved a retrospective review of electronic medical charts from two academic pediatric practices in the Midwestern U.S. The study included a racially, culturally, and geographically diverse sample of patients, designed to oversample those who used tobacco, marijuana, and/or opioids during pregnancy. Participants were limited to maternal-child dyads involving children born since July 2016 with pediatric medical records available through age 3, and with linked maternal prenatal and delivery records also available.

All data collection for this study was performed via manual review of medical records for an extensive set of study variables for the parent study including maternal medical and background factors, and child outcomes. Patient dyads were included in the parent study if prenatal records were available

for the mother, delivery records were available for both the mother and the child, and fewer than three well check appointments were missing up to one year of life for the child. For the current study, only women who used substances during pregnancy were included.

The primary outcome was the development of postpartum depression in the mother. Postpartum depression was determined by maternal responses on the Edinburgh Postpartum Depression Scale (EPDS), which was administered to mothers at all pediatric well child checks up to 12 months of age at our participating practices, as well as maternal report of an outside diagnosis or treatment for PPD. A mother was considered positive for PPD if at least one EPDS score was 10 or greater, or if she reported she had been diagnosed or treated for PPD elsewhere.

Primary predictors were maternal race/ethnicity, age, and mental health history, all of which were extracted from the medical records. Additional demographic and medical information were extracted for the purposes of describing the study sample and exploring additional predictors of PPD. Descriptive analyses were utilized to describe the sample, and chi-square and t-test analysis was used to examine bivariate relationships between PPD and the other study variables. To determine which variables were most predictive of PPD, logistic regression analyses was used with dichotomous PPD as the outcome, and simultaneous entry of potential predictors including maternal age, race/ethnicity, marital status, medical insurance status (income dependent vs private, a marker of SES), adequacy of prenatal care utilization, self-report and biochemically confirmed pregnancy substance use (tobacco, marijuana, and opioids), and having been diagnosed with a mental health condition prior to pregnancy.

**Results:** The study sample contained all cases that were part of the larger Maternal-Child EMR project that involved substance use during pregnancy. Of those 185 cases, 173 had complete data on the primary predictor and outcome variables and were retained for the current report. One quarter of this sample (25.2%) was positive for PPD. In bivariate analyses, compared to those who did not experience PPD, those who did were significantly more likely to have private insurance. Overall, logistic regression analysis showed the predictors explained nearly a third of the variance in the experience of PPD ( $R^2 = .30$ ,  $p = .036$ ). Two factors specifically were significant independent predictors of PPD, with those who had private medical insurance more than four times more likely than those with income dependent insurance to develop PPD, and those who used marijuana in pregnancy nearly three times more likely to develop PPD than those who did. After accounting for marijuana use and type of insurance and the

other factors in the model, while having a prior mental health issue more than doubled the likelihood of developing PPD, this relationship was not statistically significant.

**Conclusions:** This study underscores the multifaceted nature of postpartum depression (PPD) among pregnant individuals who use substances, revealing that marijuana use and private insurance status are significant independent predictors of PPD risk. In contrast, while age, race/ethnicity, and preexisting mental health conditions were associated with higher PPD rates, these factors did not reach statistical significance in the final model, reflecting complex interrelationships among income, mental health history, and substance use. The unexpectedly higher PPD incidence among women with private insurance may highlight potential barriers to diagnosis or treatment for low-income women in underserved areas, warranting further investigation.

**Discussant:** Maryann C. Chimanda, M.D.  
Noblesville, Indiana

9:30 - 10:00 a.m.

**Paper #3**

**Central Prize Award**

**Addition of Misoprostol to Double-Balloon Catheter for Cervical Ripening Associated with Improved Obstetric Outcomes**

Allison Li, BS<sup>1</sup>, Kevin L Moss, BS<sup>3</sup>, Sarah Morgan Carpenter, MD<sup>2</sup>

Indiana University School of Medicine, Indianapolis, IN<sup>1</sup>, Indiana University School of Medicine, Department of Obstetrics and Gynecology; Indianapolis, IN<sup>2</sup>, Indiana University School of Medicine, Department of Biostatistics and Health Data Science, Indianapolis, IN<sup>3</sup>

**Introduction:** Induction of labor (IOL) may be recommended in the setting of pregnancy complications, gestational age, maternal comorbidities, or electively after 39 weeks gestational age. If IOL is indicated but the cervix is determined to be unfavorable, cervical ripening agents like mechanical dilators and synthetic prostaglandin E1 medications can be used to promote cervical dilation, softening, and thinning to mimic the physiologic processes of spontaneous labor. The objective of this study was to compare labor outcomes of women who underwent cervical ripening with a double-balloon catheter alone or with the addition of concurrent misoprostol. We hypothesized that concomitant use of misoprostol and cervical ripening balloon (CRB) was associated with increased vaginal delivery rates compared to CRB use alone.

**Methods:** This study was a retrospective cohort analysis. The Epic medical record system was used to identify all patients who underwent IOL at Eskenazi Hospital during the study period (January 1, 2021- December 31, 2023). Patients were included if they underwent induction that included the use of a balloon catheter for cervical ripening, with or without additional medications. Exclusion criteria included placenta previa, history of prior cesarean delivery, gestational age less than 34 weeks, or contraindications to vaginal delivery. Data was extracted from the electronic medical record by study investigators and entered into the password-protected REDCap data collection system. Broadly, data collected included patient demographics (e.g., AMA, gestational age, ethnicity, nulliparity, indication for IOL), labor characteristics (e.g., cervical exam at time of balloon placement and removal, fetal presentation at admission, medication use in relation to balloon placement and removal), and maternal and fetal outcomes (e.g., terbutaline use, delivery mode, estimated blood loss, 5-minute Apgar score, NICU admission).

Descriptive statistics were calculated using Chi-Square for categorical variables and t-test for continuous variables. Unadjusted and adjusted logistic regression models were used to calculate odds ratios with 95% confidence intervals. All statistics were performed using SAS V9.4 (SAS Institute, Cary, NC).

**Results:** Of 1714 patients identified during the study period, 327 charts were reviewed with 323 meeting criteria for analysis. All 323 patients underwent IOL with a double-balloon catheter; 204 (63.2%) received concurrent misoprostol, while 119 (36.8%) received no additional pharmacologic agents. Baseline characteristics including mean maternal age, number of patients of advanced maternal age (AMA), ethnicity, and indication for induction were similar between groups. Individuals who received misoprostol in addition to the double-balloon catheter tended to have a greater mean gestational age ( $38.4 \pm 1.56$  vs.  $37.9 \pm 1.86$  weeks;  $p = 0.009$ ) and were less likely to be nulliparous (43.6 vs. 59.7%;  $p = 0.005$ ) compared to those without additional pharmacologic intervention.

Patients who received concurrent misoprostol were significantly more likely to achieve vaginal delivery compared to those who received balloon catheter alone (84.3% vs. 60.5%,  $p < 0.0001$ ). An unadjusted logistic regression demonstrated that treatment with balloon catheter and concurrent misoprostol was associated with reduced odds of cesarean delivery (OR 0.29, 95% CI: 0.17–0.48). This association remained significant after adjusting for nulliparity, indication for induction, birth weight, and AMA status (adjusted OR 0.32, 95% CI: 0.18–0.56).

Patients who underwent cesarean delivery were more likely to be nulliparous (OR 3.69, 95% CI: 1.95-7.02), be AMA (OR 2.96, 95% CI: 1.37-6.40), have gestational or chronic hypertension (OR 1.99, 95% CI: 1.00-3.95), and deliver infants with higher birth weights (OR 2.22, 95% CI: 1.25-3.97). These risk factors for cesarean delivery have also been demonstrated in prior research.

When stratified by delivery mode, there were no significant differences in rates of tachysystole ( $p = 0.68$  for vaginal,  $p = 0.16$  for cesarean), maternal complications ( $p = 0.82$ ,  $p = 0.07$ ), estimated blood loss ( $p = 0.14$ ,  $p = 0.54$ ), NICU admission ( $p = 0.15$ ,  $p = 0.64$ ), or low 5-minute Apgar scores ( $p = 0.52$ ,  $p = 0.35$ ) between patients who received both misoprostol and balloon catheter and those who received a balloon catheter alone.

**Discussion:** Concurrent use of misoprostol and CRB during IOL was associated with increased vaginal delivery rate without a significant difference in NICU admission or

obstetric complication rates. Patients who underwent cesarean delivery were more likely to be nulliparous, be AMA, have infants with higher birth weights, and have gestational or chronic hypertension, regardless of ripening technique used. Potential impacts of this study include providing evidence-based recommendations on cervical ripening practices as well as informing best practices for future studies on induction of labor.

**References:** Available upon request.

**Discussant:** Tiffany R. Tonismae, M.D.  
Crestwood, Kentucky

10:00 - 10:45 a.m. **Break/Refreshments/Exhibits/Posters**

<p style="text-align: center;"><b>SECOND SCIENTIFIC SESSION</b> (Roman Ballroom)</p>
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**Moderators:**

**Dani G. Zoorob, M.D. – CAOG Secretary/Treasurer**

**David A. Billings, M.D. – CAOG Trustee**

10:45 – 11:30 a.m. **Hot Topic #2**

“The Spectrum of Perimenopause”

**Carrie L. Wieneke, M.D.**

Kansas University Medical Center

Kansas City, Kansas

**Learning Objectives:**

- Review the spectrum of perimenopause.
- Implement a model for improving patient care across the spectrum of perimenopause

11:30 a.m. - 12:00 noon

**Paper #4**

**Dr. Jack A. Pritchard  
Memorial Paper Award**

**Infant Feeding Practices and Maternal Sleep Outcomes in  
Early Postpartum**

Chuhan Wu, MSc<sup>1</sup>, Jasmine T Rios, MPH<sup>2</sup>, Maggie Butler, PhD<sup>3</sup>, Britney Smart, MPH<sup>3</sup>, Alexa Freedman, PhD<sup>4</sup>, Ann Borders, MD, MSc, MPH<sup>5</sup> Lauren Keenan-Devlin, PhD, MPH<sup>5</sup>

Endeavor Health, Evanston, IL<sup>1</sup>, University of Chicago Pritzker School of Medicine, Chicago, IL<sup>2</sup>, University of Illinois Chicago, Chicago, IL<sup>3</sup>, Northwestern University Feinberg School of Medicine, Chicago, IL<sup>4</sup>, Endeavor Health, University of Chicago Pritzker School of Medicine, Evanston, Chicago, IL<sup>5</sup>

**Background:** Postpartum sleep disturbance is nearly universal, yet little is known about how infant feeding strategies influence the quantity or quality of sleep in the early postpartum period. Our objective was to examine whether supplementing with formula—often introduced to support shared caregiving or maternal rest—was associated with improved sleep quality or quantity in the early postpartum period.

**Study Design and Methods:** The Postpartum Study (PPS) enrolled 317 pregnant individuals in their third trimester who completed telephone surveys on infant feeding practices and maternal sleep at one week, six weeks, and three months postpartum. Feeding was categorized as exclusive formula feeding versus breastmilk feeding (with or without formula supplementation). Additionally, participants were categorized by whether breastmilk was delivered directly at the breast exclusively or via bottle (exclusively or to supplement direct breastfeeding). Both variables were coded as binary indicators, with exclusive formula feeding and bottle feeding as reference groups. Sleep quality was measured using the Pittsburgh Sleep Quality Index (coded as good/very good vs. not good/poor), and nightly sleep hours were self-reported. Associations at each wave were estimated using logistic regression for sleep quality and linear regression for sleep quantity. Models were run unadjusted and adjusted for maternal age, race/ethnicity, parity, hypertensive disorders of pregnancy (yes/no), partnered status, and education. A secondary complete-case analysis was conducted among participants with data at all three time points. All analyses were conducted in R v4.3.1; two-sided  $p < 0.05$  denoted

statistical significance. Missing covariate data were <3% and addressed through complete-case analysis.

**Results:** A total of 272 participants who completed at least two surveys were included in the analysis: 139 at Week 1, 110 at Week 6, and 105 at Month 3. Exclusive formula feeding was reported by 7.2% at Week 1, 22.7% at Week 6, and 32.4% at Month 3. Breastmilk feeding (with or without formula supplementation) was reported by 70.5% at Week 1, 49.1% at Week 6, and 41% at Month 3. Average nightly sleep increased over time ( $5.5 \pm 1.6$  hours at Week 1,  $5.69 \pm 1.5$  hours at Week 6, and  $6.2 \pm 1.3$  hours at Month 3). At Week 1, participants who breastfed (vs. formula fed) reported 1.49 fewer hours of sleep per night (adjusted  $\beta = -1.49$  h, 95% CI -2.51 to -0.48,  $p = 0.004$ ), but sleep quality did not significantly differ (adjusted OR = 0.33, 95% CI 0.05 to 1.52,  $p = 0.20$ ). These differences attenuated at Week 6 and Month 3. Compared to feeding expressed breastmilk by bottle, direct breastfeeding was associated with lower sleep quality at Week 6 (adjusted OR = 0.35, 95% CI 0.13 to 0.91,  $p = 0.03$ ), though sleep quantity remained similar at all timepoints. 48 participants completed all three time-points for secondary analysis. The sample was racially diverse (45.8% White, 20.8% Black, 22.9% Hispanic/Latino, 68.8% multiracial/other), with a mean maternal age of  $33 \pm 4.4$  years. No significant differences in maternal sleep quality or quantity were observed at any timepoint when comparing direct breastfeeding to bottle-feeding expressed milk. Similarly, no significant differences were seen between breastmilk feeding (with or without supplementation) and exclusive formula feeding. At Month 3, breastmilk feeders slept 0.84 fewer hours per night than formula feeders (crude  $\beta = -0.84$  h, 95% CI -1.56 to -0.12,  $p = 0.02$ ), though this difference was attenuated after adjustment (adjusted  $\beta = -0.69$  h, 95% CI -1.47 to 0.09,  $p = 0.08$ ).

**Conclusions:** In this diverse postpartum cohort, infant feeding practices were not consistently associated with maternal sleep quality or quantity. While formula feeding only was linked to increase sleep duration in the first postpartum week, this difference disappeared by six weeks. Feeding expressed breastmilk in a bottle was associated with improved sleep quality at six weeks, but not at other time points. These findings suggest that early postpartum sleep disturbance is largely driven by the universal demands of infant care rather than feeding method alone. Reduced sleep quality or duration should not be viewed as a deterrent to breastfeeding, particularly given the well-established health benefits of breastfeeding for both infant and parent. Future research should explore within-person trends as parents

change infant feeding practices over the postpartum period and identify interventions that support breastmilk feeding and maternal rest during the early postpartum period.

**Discussant:** Sharon T. Phelan, M.D.  
Helena, Alabama

12:00 - 12:30 p.m.

**Paper #5**

**President's Certificate  
of Merit Award**

**Evaluating Serial Serum Levels of Endocan and Syndecan  
in Infants Born to Women with Hypertensive Disorders of  
Pregnancy**

Ria Ravi, BS<sup>1</sup>, Arianna Smith, BS<sup>1</sup>, Kailey Shine, BS, MD<sup>1</sup>,  
Haleigh Sherman, BS<sup>1</sup>, Sanchita Sen, BA, MA<sup>1</sup>, Rachel  
Hansen, BS<sup>2</sup>, Walter Jeske, PhD<sup>2</sup>, Marc G Weiss, MD<sup>2</sup>,  
Phillip J DeChristopher, MD, PhD<sup>2</sup>, Michael Stokas, MD<sup>2</sup>,  
Jonathan K Muraskas, MD<sup>2</sup>

Loyola University of Chicago Stritch School of Medicine,  
Maywood, IL<sup>1</sup>, Loyola University Medical Center, Maywood,  
IL<sup>2</sup>

This retrospective analysis of prospectively collected data investigates whether the presence and severity of hypertensive disorders of pregnancy (HDP) are associated with alterations in endocan and syndecan, endothelial biomarkers, in preterm infants during the first 6 weeks of life to explore how maternal HDP may influence neonatal endothelial remodeling.

Endocan and syndecan are both markers of endothelial dysfunction; however, syndecan has not yet been studied in the neonatal population. Data was collected from preterm infants (< 33 weeks gestation) admitted to the neonatal intensive care unit (NICU) between November 2014 and February 2024. Endocan and syndecan levels were measured from blood samples obtained within the first 48 hours of life (Week 0) and then repeatedly at postnatal Weeks 1-6. Infants with a clinical history of chorioamnionitis were excluded given its potential confounding effect on systemic inflammation and endothelial function. Maternal data included maternal age, gravida, para, gestational age at delivery, ethnicity, BMI, route of delivery, and any hypertensive disorders of pregnancy, with their respective treatment if used. The specific hypertensive disorders included gestational hypertension, preeclampsia (with and without severe features), chronic hypertension, chronic hypertension with superimposed preeclampsia (with and without severe features), and HELLP syndrome. Infant data gathered included date of birth, sex, birthweight, head circumference, length, and Apgar scores at 1 and 5 minutes. Groups were compared at each time point by 2-tailed t-tests, corrected for multiple comparisons. Differences with  $p < 0.05$  were considered significant.

Endocan and syndecan levels were analyzed across 7 postnatal time points in 269 preterm infants born to mothers

with (n=115) and without (n=154) hypertensive disorders of pregnancy (HDP). In infants born to normotensive mothers, syndecan levels exhibited a marked and consistent decline over the first 6 postnatal weeks. Specifically, syndecan levels decreased from  $194 \pm 19$  ng/mL at Week 0 to  $73 \pm 44$  ng/mL at Week 6, suggesting a steady process of neonatal endothelial remodeling. In the HDP subgroups a similarly consistent decline was observed. For example, infants of mothers with preeclampsia with severe features showed a reduction of syndecan levels from  $180 \pm 86$  ng/mL at Week 0 to  $90 \pm 32$  ng/mL at Week 6. Comparable baseline and Week 6 values for the other hypertensive subtypes were also noted, underscoring that the consistent linear decrease in syndecan was evident across the entire HDP spectrum. In contrast, endocan levels were more variable. Infants born to normotensive mothers exhibited relatively stable endocan values over time (Week 0:  $317 \pm 260$  pg/mL; Week 6:  $325 \pm 289$  pg/mL), whereas infants born to mothers with severe preeclampsia showed a more pronounced decrease (Week 0:  $266 \pm 212$  pg/mL; Week 4:  $157 \pm 151$  pg/mL). Initial comparisons suggested lower endocan levels in the preeclampsia with severe features group at weeks 4 and 5 ( $p < 0.05$ ), but this did not reach statistical significance after correction for multiple comparisons. Moreover, no significant differences in biomarker trends were observed across HDP subtypes or between ethnic groups.

In this cohort of preterm infants, both endocan and syndecan levels declined after birth regardless of maternal hypertensive status, suggesting that neonatal endothelial adaptation may occur independently of in utero hypertensive exposure. The more linear and consistent decline in syndecan suggests it may serve as a more sensitive marker of neonatal endothelial remodeling. These findings represent the first known longitudinal analysis of these endothelial biomarkers in infants born to mothers with HDP. Future studies should explore associations between endocan and syndecan levels and additional maternal and neonatal factors to better understand contributors to endothelial function. Additional directions include examining the presence of fetal growth restriction, degree of prematurity, placental pathology, as well as investigating the role of additional maternal inflammatory conditions such as COVID-19. These findings may ultimately improve biomarker-driven risk stratification and obstetric management strategies in pregnancies complicated by HDP, potentially helping optimize both maternal and neonatal outcomes.

**Discussant:** James W. Van Hook, M.D.  
Toledo, Ohio

12:30 – 1:30 p.m. **Hot Topic #3**  
“Litigation Use and Misuse of  
Cord Blood Gases”  
**Jonathan K. Muraskas, M.D.**  
Loyola University Medical Center  
Maywood, Illinois

**Learning Objectives:**

- Review the use and misuse of cord blood gases in medical litigation cases.
- Discuss the optimal way to present cord blood gases in medical litigation cases.

2:00 - 3:30 p.m.    **“Strategies for Successful Interviewing Matching into Ob-Gyn Residency: Tips From Program Directors” (No CME)**

**Dani G. Zoorob, M.D. – Moderator**  
Chair  
LSU Health Sciences Center  
Shreveport, Louisiana

**Michael R. Boldt, M.D. – Panelist**  
Program Director  
University of Cincinnati  
Cincinnati, Ohio

**Caitlin B. Busada, M.D. – Panelist**  
Program Director  
LSU Health Sciences Center  
Shreveport, Louisiana

**Mistie R. Mills, M.D. – Panelist**  
Program Director  
University of Missouri  
Columbia, Missouri

Intended Audience: 4<sup>th</sup> year medical students applying for Ob-Gyn Residency Match (3<sup>rd</sup> years are also welcome)

**Format:**                    In person.

**Learning Objectives:**

- Understand PD perspectives on the new ob-gyn match program with advice for success.
- Gain insights into successful strategies for online zoom interviewing.
- Learn keys for preparing your rank list.

**Note:**    The PDs will have a set of questions to answer which will cover the above topics. There will be time for questions from the audience, which should be focused on general advice and sets of circumstances. Registration at the CAOG Annual Scientific Meeting is required to attend this session.

## SCIENTIFIC PRESENTATIONS FRIDAY, OCTOBER 17, 2025

- 6:00 a.m. General Registration (Roman Ballroom)
- 6:00 - 10:30 a.m. **INDUSTRY EXHIBITS OPEN**
- 6:00 - 10:30 a.m. **SCIENTIFIC POSTER SESSION OPEN**
- 6:00 - 6:30 a.m. Breakfast (Roman Ballroom)
- 6:30 - 7:30 a.m. **Sunrise Lecture** (Roman Ballroom)  
“Vulvar Disorders:  
Should Not Be Taboo”  
**Kathryn C. Welch, M.D.**  
University of Michigan  
Ann Arbor, Michigan

### **Learning Objectives:**

- Describe why the discussion of vulvar disorders should not be taboo.
- Implement a program to optimally diagnosis and manage vulvar disorders.

<h3><b>THIRD SCIENTIFIC SESSION</b> (Roman Ballroom)</h3>
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### **Moderators:**

**Robert J. Wester, M.D. – CAOG Vice President**  
**Deborah C. Sherman, M.D. – CAOG Trustee**



or greater) to assess differences in the ability of ultrasound to predict fetal macrosomia with different predicted fetal weights.

**Results:** Out of 155 patients included in the study, the average maternal age was 32.1 years ( $\pm$  5.3 years). 35% of patients carried a diagnosis of diabetes, and average maternal BMI was 35.6 ( $\pm$  7.1). The average gestational age at delivery was 38.1 weeks ( $\pm$  1.3 weeks). Average latency between ultrasound date and delivery date was 22.8 days ( $\pm$  13.5 days). 63% of patients in the entire cohort had Cesarean deliveries, with repeat Cesareans accounting for 35% of the cohort. 37% of the cohort had vaginal deliveries. The rate of shoulder dystocia among patients who had a vaginal delivery was 4%. The rate of OASIS injury among patients who had a vaginal delivery was 2%. The rate of PPH was 15%.

Out of the full cohort of patients, the average predicted EFW at 39 weeks was 4.35 kg ( $\pm$  0.32 kg). The average actual birth weight was 3.79 kg ( $\pm$  0.48 kg). The average over-prediction error for the full cohort was therefore 562g ( $\pm$  421g). 32% of babies in the full cohort were born at or above 4000g.

When examining only patients who delivered between 38+0 and 40+0 (within one week of 39 weeks), out of 76 patients, the over-prediction error was smaller at 379g ( $\pm$  331g). The average predicted birth weight at 39 weeks in this subgroup was 4.29kg ( $\pm$  0.25kg) and the average actual birth weight in this subgroup was 3.91kg ( $\pm$  0.37kg). 36% of babies in this sub-group were born macrosomic. When stratifying this subgroup further into predicted weights at 39 weeks of 4000-4499, 4500-4999, or over 5000g, the over-prediction error increased as the predicted weight category increased. The over-prediction error was 346g ( $\pm$  317g) in the 4000-4499g subgroup; 465g ( $\pm$  318g) in the 4500-4999g subgroup, and 1223g in the 5000+g subgroup, with a p-value of 0.021.

No significant differences in over-prediction error were seen when stratifying by maternal BMI, maternal age, or latency between ultrasound date and delivery date.

**Conclusion:** Among the entire cohort of patients, only 32% of babies that had a predicted EFW at 39 weeks above 4000g were born macrosomic. Among the subgroup who delivered within one week of 39 weeks, 36% of babies were born macrosomic. This is consistent with findings from another study examining third trimester ultrasounds showing EFW > 90th percentile which demonstrated a positive predictive value of 41% for the presence of fetal macrosomia at birth. This indicates that fetal birth weight prediction technology may be of similar accuracy to third trimester growth

ultrasounds, and therefore that predictions from earlier ultrasounds may be used to guide counseling.

There was a statistically significant increase in the over-prediction error as the predicted birth weight at 39 weeks increased. There was no significant difference in over-prediction error seen when stratifying for maternal BMI, maternal age, or latency between ultrasound date and delivery date.

**Discussant:** Sarah Morgan Carpenter, M.D.  
Carmel, Indiana

8:00 - 8:30 a.m.

**Paper #7**

**Nutritional Barriers in Maternal Health: The Impact of Food Insecurity on Gestational Diabetes and Polyhydramnios**

Morgan E Uebinger, BSFCS, Megan Gremillion, BS, Marie Vazquez Morgan, BS, MS, PhD, Dani G Zoorob, MD, MHA, MBA, MHI, EdM, Ammar Husan, MD, MBA

Louisiana State University Health Sciences Center, Shreveport, LA

**Purpose:** To explore associations between food insecurity (FI), gestational diabetes mellitus (GDM), and polyhydramnios in North Louisiana (LA) mothers, specifically in racially diverse and economically disadvantaged populations.

**Methods:** A cross-sectional study was conducted from 2018 to 2023 among pregnant women receiving care at multiple obstetric units in a large, academic tertiary care health system providing services to patients across North LA. The study included patients from both urban and rural regions, permitting for the sample to be generalizable to North LA. Data was extracted from the electronic medical records (Epic) and categorized based on diagnoses of interest as determined by ICD-10 codes and FI status, as determined by the validated, two-question Hunger Vital Sign questionnaire. Diagnoses of interest included GDM (ICD-O24) and polyhydramnios (ICD-O40). Analyses were performed in jamovi using Chi-squared (X<sup>2</sup>) tests and Odds Ratios (ORs) within a 95% confidence interval (CI) for maternal FI and diagnoses, with additional stratification by race and age. Age categories were defined as optimal reproductive age (18-34), advanced maternal age (AMA, 35-39), very AMA (40-44), and extreme AMA (45-50).

**Results:** The patient population (n=2,642) consisted of 58% African American (AA) women and 42% other, non-Black women. 72% of patients were of optimal reproductive age, 19% of AMA, 7% of very AMA, and 2% of extreme AMA. Analysis revealed statistically significant associations in food-insecure mothers experiencing both GDM and polyhydramnios concurrently (OR=3.47, 95% CI, 1.46–8.21, p=0.003), with a diagnosis of polyhydramnios without GDM (OR=1.75, 95% CI, 1.05–2.90, p=0.027), and with a diagnosis of GDM without polyhydramnios (OR=1.29, 95% CI, 1.05–1.83, p=0.020). Stratifying by race and age, significant associations for food-insecure Black women with concurrent

GDM and polyhydramnios were observed in those of optimal reproductive age (OR=4.39, 95% CI, 1.09–17.6,  $p=0.023$ ). This association was not statistically significant in other races. No significant associations for GDM and polyhydramnios concurrently were observed in any race of AMA, very AMA, or extreme AMA. There were no cases of GDM and polyhydramnios in non-Black, extreme AMA women; thus, associations in this group could not be evaluated.

Statistically significant associations were observed in food-insecure Black women with a diagnosis of polyhydramnios without concurrent GDM in those of optimal reproductive age (OR=0.377, 95% CI, 0.163–0.869,  $p=0.017$ ); this association was not significant in other races. No significant associations were observed in Black women with polyhydramnios alone in those of AMA, very AMA, or extreme AMA. A significant association was observed in non-Black women of AMA with polyhydramnios alone (OR=6.38, 95% CI, 1.71–23.9,  $p=0.002$ ), but not in non-Black, very AMA women. There were no cases in non-Black, extreme AMA women; as such, associations could not be evaluated.

Statistically significant associations were observed in food-insecure Black women with GDM without concurrent polyhydramnios in those of optimal reproductive age (OR=0.469, 95% CI, 0.309–0.710,  $p<0.001$ ); this association was not significant in other races. Similarly, no statistically significant associations were observed in Black women with GDM alone in those of AMA, very AMA, or extreme AMA. However, significant associations were observed in non-Black women with GDM alone in those of AMA (OR=13.8, 95% CI, 4.75–40.2,  $p<0.001$ ) and very AMA (OR=9.27, 95% CI, 1.15–74.5,  $p=0.011$ ). No significant association was observed in non-Black, extreme AMA women.

**Conclusion:** Associations between FI, GDM, and polyhydramnios highlight a complex interplay influenced by race and age. The statistically significant association between FI and both GDM and polyhydramnios is reasonable, as GDM is a known risk factor for polyhydramnios. However, this association was only significant in Black women of optimal reproductive age, underscoring a need for further investigation. Findings of GDM and FI without concurrent polyhydramnios, stratified by race and age, further aligned with literature, as food-insecure Black women of optimal reproductive age were less likely to experience GDM alone, and food-insecure non-Black women of AMA or very AMA were more likely to experience GDM alone. The data also suggests that maternal FI could be a risk factor for polyhydramnios independent of GDM, with ORs implying that mothers experiencing FI are more likely to be diagnosed with polyhydramnios alone than GDM alone, independent of

race and age. Considering race and age, significant associations persisted between FI and polyhydramnios without concurrent GDM in only Black women of optimal reproductive age and non-Black women of AMA. This suggests food-insecure Black women of optimal reproductive age are less likely to develop polyhydramnios alone, while food-insecure non-Black women of AMA are more likely. Differences in prevalence of GDM and polyhydramnios by race and age emphasize the importance of screening in appropriate patient populations and pique interest regarding topics for future study.

**Discussant:** Catherine L. Van Hook, M.D.  
Toledo, Ohio

8:30 - 9:00 a.m.

**Paper #8**

**Dr. George W. Morley  
Memorial Paper Award**

**An Alternative Approach to Vaginal Expansion-Utilizing  
Estrogen Coated 3-D Printed Vaginal Expansion Sleeves**

Ashlyn G Gotberg, BS, Joshua C Colvin, BS, Hannah Meyer, MD, Rachel Cline, MS, MD, Giovanni Solitro, PhD, Jonathan Steven Alexander, PhD, Donald Sorrells, MD, Mila D Shah-Bruce, MD, PhD

Louisiana State University Health Sciences Center,  
Shreveport, LA

**Background:** Vaginal atresia is characterized by an underdeveloped or absent vaginal canal from genetic disorders such as Mayer-Rokitansky-Kuster-Hauser. Current treatment methods utilize mechanical dilation, requiring patient compliance or reconstructive surgery, which is more invasive than mechanical dilation. Previous proof of concept studies in our lab suggested the use of a novel minimally-invasive vaginal expansion sleeve (VES) successfully lengthened the vaginal canal in Sprague Dawley rats. However, histological analysis demonstrated the thinning of the vaginal wall characterized by compression of the soft tissue and stretching of muscle fibers. A follow-up study utilizing treatment with adjunct GLP-2 showed successful lengthening with a decreased but still present mild to moderate inflammation. Estrogen is associated with antiinflammation through several pathways, including the generation of nitric oxide and the inhibition of tumor necrosis factor- $\alpha$ .

**Purpose:** In this project, we aim to investigate the effects of estrogen coating on the VES sleeve functionality. We hypothesize that estrogen contributes to expansion and thickening of the vaginal wall with decreased inflammation.

**Methods:** This study was conducted using an IACUC-approved protocol. The VES sleeve is a woven polyethylene terephthalate cylindrical sleeve with a 3D-printed biocompatible resin cap featuring suture holes for anchorage to the vaginal canal. Six Sprague Dawley rats were anesthetized with isoflurane. To ensure proper sedation, a toe pinch was used. Vaginal lengths were measured with a pediatric anal dilator using lubricating jelly. A VES was then cut to measure 30% larger than the of the measured rat vaginal canal. A dose of 0.005 mg of topical Premarin estrogen (0.625 mg/g) was inserted into the vagina using a Luer Lock syringe before VES implantation. The plunger of

the syringe was removed, lubricating jelly was added, and the mixture was reinserted into the vagina to ensure all estrogen was applied. The VES was inserted with the resin cap positioned externally. Two non-absorbable silk sutures anchored to a surgical pledget were used to secure the device in place on each lateral side of the vaginal canal, ensuring a placement inferolateral to the urethra to avoid impaction of urinogenital tract. After surgery, the rats were left to expand the tissue for a week. Rats were observed daily for signs of infection, pain, and/or damage to the VES. If the VES was removed by the rat during the week, surgery was performed again to reinsert the device. No signs of infection were present during the study period; however, the protocol indicates that antibiotic ointment should be placed on external sutures if signs of infection are present. Sleeves were serially replaced weekly and progressively increased in size of 30% of the vaginal canal to facilitate tissue expansion.

Following three consecutive sleeve replacements, the VES was removed for two weeks to allow for post-surgical contraction. Vaginal lengths were longitudinally measured through the five-week trial. Following completion of the expansion trial, vaginal tissues were harvested for histological analysis. Vaginal tissue of five control rats was obtained. Each of the vaginal canals were transected down the midline. The tissue was affixed around a wooden stick into a “Swiss-roll” conformation, ensuring the cervical side was internal. A pin was inserted through the tissue to hold its proper shape. Tissue was fixed in 3.7% formaldehyde for at least 24 hours before processing. Samples were embedded in paraffin before sectioning onto glass slides. Slides were stained using hematoxylin and eosin (H&E) and Masson’s trichrome.

**Results:** Weekly estrogen-coated VES yielded an overall mean retained rat vaginal wall length of:  $31.5 \pm 01.0$  mm (week 1),  $34.7 \pm 0.21$  mm (week 2),  $36.3 \pm 3.8$  mm (week 3),  $34.5 \pm 2.0$  mm (week 4), and  $34.8 \pm 0.8$  mm (week 5). The average control vaginal wall length was  $29.3 \pm 1.2$  mm. An overall increase of 19.0% compared to controls was demonstrated ( $p < 0.001$ ). Previous studies demonstrated an overall increase of 20.4% when used with no adjunct therapy and 35.0% when used with adjunct GLP-2. Despite similar expansion to VES-use only, estrogen-coated VES yielded significantly less expansion than GLP-2-coated VES. However, both previous studies noted moderate inflammation, thinning of the vaginal wall, and eosinophil infiltration.

Preliminary histological analysis appears to show that estrogen adjunct therapy increased the overall thickness of the vaginal wall, including the epithelial, elastic, and muscular layers. Particularly, the cellularity of the epithelial layer is

increased demonstrating notable multicellular layers. Morphometric analysis is ongoing.

**Conclusion:** VES expansion with adjunct estrogen successfully lengthens vaginal canals, confirming that the estrogen coating did not affect the functionality of the device. Compared to previous VES studies which noted thinning of the vaginal canal, the addition of estrogen increased the thickness of the vaginal wall in the acquired post-mortem specimens. Further histological analysis will focus on the inflammatory response.

**Discussant:** Angelia K. Gangestad, M.D.  
Cleveland, Ohio

9:00 - 9:45 a.m.    **Hot Topic #4**  
“Culturally Humble, Clinically Bold:  
Motivational Interviewing to Bridge the  
Gap in Perinatal Care”  
**Traci N. Johnson, M.D.**  
University of Missouri  
Kansas City, Missouri

**Learning Objectives:**

- Describe motivational interviewing compared to conventional interviewing.
- Develop a plan for incorporating motivational interviewing in your prenatal practice.

9:45 - 10:30 a.m.    **Break/Refreshments/Exhibits/Posters**

## FOURTH SCIENTIFIC SESSION (Roman Ballroom)

### **Moderators:**

**David M. Haas, M.D. – CAOG Past President**  
**Shilpa Babbar, M.D. – CAOG Trustee**

10:30 - 11:00 a.m.

### **Paper #9**

### **Impact of the Dobbs Decision on Depression & Anxiety Rates During Pregnancy: An Epic Cosmos Analysis**

Ameek K. Bindra, BA<sup>1</sup>, Nama Naseem, BS<sup>1</sup>, Gloria Pan, BS<sup>1</sup>, Eshani Dixit, MD<sup>2</sup>, Catherine Y. Keller, MD<sup>2</sup>, Megan L. Hutchcraft, MD<sup>3</sup>

Carle Illinois College of Medicine, University of Illinois, Urbana-Champaign, Urbana-Champaign, IL<sup>1</sup>, Carle Foundation Hospital, Urbana, IL<sup>2</sup>, Carle Cancer Institute, Urbana, IL<sup>3</sup>

**Objective:** This study analyzes the impact of the 2022 Dobbs decision on the mental health of pregnant individuals across the United States (US), focusing on rates of depression and anxiety diagnoses before and after the ruling

**Study Design:** A retrospective analysis was conducted using the Epic Cosmos database. Over 8.5 million pregnant patients accessing pregnancy care between 2018 to 2024 were included. As a control population, legal sex males aged 18–45 across the US during the same time periods were assessed. Rates of anxiety and depression were compared between two time periods: pre-Dobbs (January 2018 - February 2020) and post-Dobbs (September 2022 - July 2024), excluding the COVID-19 period (March 2020 - August 2022). The rates of depression and anxiety diagnoses were identified in the Cosmos database, using specific International Classification of Diseases-10 (ICD-10) diagnosis codes for depression and anxiety, as shown in the billing code and problem list. For depression, the codes included were F32.A (Depression, unspecified), F32.\* (Major Depression), and F53.0 (Postpartum Depression). For anxiety, the codes utilized were F41.9 (Anxiety disorder, unspecified), F41.\* (Generalized anxiety disorder and other anxiety-related conditions), and F43.22 (Adjustment disorder with anxiety). States were categorized based on their abortion policies using Guttmacher Institute criteria: restrictive, protective/restrictive (states with both protective and restrictive policies), or protective.

**Results:** Among 8,881,574 pregnant patients, significant increases in depression and anxiety rates were observed post-Dobbs. Depression diagnoses increased from 8.0% to 11.3% in restrictive states ( $p<0.001$ ), from 8.2% to 10.8% in protective/restrictive-policy states ( $p<0.001$ ), and from 8.6% to 11.1% in protective states ( $p<0.001$ ). Anxiety rates rose from 8.7% to 14.2% in restrictive states ( $p<0.001$ ), from 10.0% to 13.89% in protective/restrictive-policy states ( $p<0.001$ ), and from 9.6% to 14.2% in protective states ( $p<0.001$ ). Comparatively, for males aged 18-45, overall depression rates increased from 5.0% to 5.7% and overall anxiety rates increased from 7.2% to 8.7% ( $p<0.001$ ).

Restrictive states demonstrated the largest increased rates of both conditions. Restrictive states Kentucky and Ohio showed the most pronounced rise in depression rates (Kentucky: 8.1% to 13.9%,  $p<0.001$ ; Ohio: 11.3% to 16.6%,  $p<0.001$ ). Similarly, anxiety rates increased sharply in restrictive state West Virginia (12.1% to 20.7%,  $p<0.001$ ). Protective states exhibited more modest changes. For example, Rhode Island showed a non-significant decrease in anxiety diagnoses (9.2% to 8.2%,  $p=0.137$ ).

**Conclusions:** Following the Dobbs decision, depression and anxiety rates among pregnant individuals significantly increased, with the largest impact observed in states with restrictive abortion policies. These findings highlight the differential impact of state-level abortion policies on mental health outcomes during pregnancy.

**Discussant:** Erica E. Nelson, M.D.  
Springfield, Illinois

11:00 - 11:30 a.m.

**Paper #10**

**Contraceptive Counseling and Management for Teenagers in Various Outpatient Settings: Is There A Difference?**

Shruti Vaidyanathan, BS, MD, Hannah Usie, BS, Madelyn Rodrigue, BS, Ameera Kattash, BS, MS, Anushka Singh, BS, Mila D Shah-Bruce, MD, PhD

Louisiana State University Health Sciences Center, Shreveport, LA

**Purpose:** According to the CDC, in 2024 the birth rate for teenagers aged 15-19 decreased by 3% to now 12.7 births per 1,000 women. One could hypothesize this decrease could be attributed to the increasing rates of contraceptive use amongst teenage girls in the US. This study aimed to identify if there was a difference in the counseling of contraceptive options in teenage girls, aged 12-17, in various outpatient clinic settings to help standardize contraceptive counseling management. Specifically, we aimed to identify if there was a difference in whether long-acting reversible contraceptives (LARCs) were offered and the quantitative rate of follow-up from initial counseling to placement or referral.

**Methods:** This study was a retrospective chart review study identifying 3055 teenage females seen in the year 2024 at four different clinic settings. The clinic settings included OBGYN (n = 376), pediatric (n = 1001), PCP (n = 376), and the ED/UC (n = 1303) clinics. Inclusion criteria included females aged 12-17, seen between January 1-December 31, 2024, seen in the above-mentioned clinics. Exclusion criteria included being pregnant at any point in 2024, being younger than 12 or older than 17, and having no set appointment during 2024. The average age of study participants was 14.49 years. The patients were categorized based on the department setting they were seen in, age, race, type of insurance, whether they were offered contraception, type of contraception, and whether emergency contraception was offered. Race was defined as Black (66.9%), White (26.3%), Asian (.8%), Native American/Pacific Islander (.3%), Hispanic/Latino (4.2%), other (1.5%). Insurance status was defined as commercial (18.2%), government (74.8%), and none (7%). A chi-squared test was used to examine whether there was a significant association between department and contraceptive prescribing practices. If contraception was prescribed or inserted, a one-way analysis between-groups analysis of variance was conducted to explore the relationship between department type and days to prescribing or insertion of contraception.

**Results:** The results of this study indicate that the department type significantly impacts contraceptive prescribing practices ( $X^2(3) = 1138.65, \rho = .001, V = .562$ ). The practitioners within the OBGYN department are significantly more likely to prescribe contraception ( $AR = 30.9$ ) than those in the ED/UC ( $AR = -22.9$ ), pediatrics ( $AR = 2.2$ ), and PCP ( $AR = .5$ ) departments. LARCs were more likely to be offered by OBYGN ( $X^2(3) = 438.10, \rho = .001, V = .379, AR = 15.1$ ) than pediatrics ( $AR = 7.5$ ), ED/UC ( $AR = -16.9$ ), and PCP ( $AR = -.3$ ) clinics. Despite LARCs being offered most by OBGYNs, only 34.6% of OBGYNs offered LARCs; however, 76.9% of OBGYNs offered other forms of contraception, such as oral contraceptive pills, patch, and injections, not including barrier methods or abstinence. Pediatricians were most likely to offer abstinence ( $X^2(3) = 725.26, \rho = .001, V = <.487, AR = 21.2$ ), followed by OBGYN ( $AR = 5.6$ ), PCPs ( $AR = 3.3$ ), while ED/UC ( $AR = -26.0$ ) did not offer abstinence. OBGYNs were more likely to prescribe (51.6%) or insert contraception (10.9%) the same day and .3% referred for LARC insertion. Pediatric department prescribed contraception same day 13.7% of cases, inserted 0%, and referred 2.3% of cases. PCP department prescribed contraception same day in 25.5% of cases, inserted 1.3%, and referred 2.1% of cases. The ED/UC prescribed 0%, inserted 0%, and referred 0.1% of cases for contraception. A one-way between-groups analysis of variance was conducted to explore the impact of department type on days from initial consultation to prescribing or insertion of contraception. There was no statistical significance between the departments of those who prescribed or inserted contraception to the number of days the contraceptive was prescribed or inserted ( $\rho = .394$ ). If a patient desired a LARC, the average time from initial consultation to insertion was 30.83 days, with the shortest time being same-day insertion and the longest 198 days. If a patient was referred for a LARC insertion, the average time from referral to insertion was 72.60 days, with the shortest time being same-day insertion and the longest being 212 days. None of the departments routinely prescribed or discussed emergency contraception.

A secondary analysis was performed on insurance type and prescribing practices. A chi-square analysis indicates a significant difference ( $X^2(4) = 60.05, \rho = .001, V = .140$ ) between prescribing practices and commercial insurance type. Those with commercial insurance were more likely to be offered contraception ( $AR = 6.1$ ) than government ( $AR = -4.4$ ) and those without insurance ( $AR = -1.7$ ).

**Conclusion:** While our null hypothesis proved correct that OBGYNs placed the greatest number of LARCs, our

objective data demonstrates that the department type is the biggest indicator to whether contraception will be prescribed. This study can hopefully initiate a standardization for contraception counseling and management to continue to decrease the rate of births to teenage mothers in the US.

**Discussant:** Margaret E. Long, M.D.  
Rochester, Minnesota

11:30 - 12:15      **Keynote Address**  
“Maternal Mortality and the  
Need for Cardio-Obstetrics”  
**Karen L. Florio, D.O., MPH**  
University of Missouri-Columbia  
Columbia, Missouri

**Learning Objectives:**

- Discuss cardiac cause of maternal mortality around the globe.
- Predict how cardio-obstetric practices can reduce maternal mortality rates.

12:15 - 1:00 p.m.      **Presidential Address**  
“Authentic Leadership: Living With  
Balance, Leading With Purpose”  
**Jean R. Goodman, M.D., M.B.A.**  
University of Missouri-Columbia  
Columbia, Missouri

**Learning Objectives:**

- Describe the roles of mentorship and sponsorship in ob-gyn training programs.
- Develop a personal leadership plan for living with balance and leading with purpose.

1:00 p.m.              **Installation of New President**

1:00 - 1:30 p.m.      **Annual Business Meeting CAOG**

6:00 – 9:00 p.m.      **Annual Gala  
Reception/Dinner/Awards**  
(Roman Ballroom)

# SCIENTIFIC PRESENTATIONS

**SATURDAY, OCTOBER 18, 2025**

6:00 a.m.                    General Registration (Roman Ballroom)

6:00 - 6:30 a.m.        Breakfast (Roman Ballroom)

6:30 - 7:30 a.m.        **Sunrise Lecture** (Roman Ballroom)  
“Modern Management of  
Urinary Incontinence”  
**Sylvia M. Botros-Brey, M.D.**  
UT Health San Antonio  
San Antonio, Texas

## **Learning Objectives:**

- Explain current options for management of urinary incontinence.
- Outline a plan that improves the management of urinary incontinence.

<p style="text-align: center;"><b>FIFTH SCIENTIFIC SESSION</b> (Roman Ballroom)</p>
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## **Moderators:**

**Thomas F. Arnold, M.D. – CAOG President Elect I**  
**Catherine L. Van Hook, M.D. – CAOG Trustee**

7:30 - 7:45 a.m.

**Paper #11**

**A Structured Incorporation of ACOG's Surgical Curriculum in Obstetrics and Gynecology into Didactic Learning at a University-Based Ob/Gyn Residency Program**

Stephanie Allred, MD, Paola Rivera, BS, Mistie R Mills, MD, Megan Johnson, MD, PhD

University of Missouri School of Medicine, Columbia, MO

**Introduction:** Simulation is an essential and proven training tool in medical education. The simulation environment provides opportunities for trainees to gain technical competency in a safe environment. Simulation in medical education spans a broad spectrum—from low-fidelity, unmonitored skills training to high-fidelity, technically advanced multidisciplinary drills—adapting to the resources and objectives of each setting. In the field of Ob/Gyn, residency programs are built around the core objective of cultivating surgical competence through comprehensive training. Although the versatility of simulation is one of its greatest strengths, this variability underscores the critical need for objective evaluation of its effectiveness and a systematic approach to training core skills in Ob/Gyn residency. The CREOG Surgical Skills Task Force created a standardized surgical skills curriculum, Surgical Curriculum in Obstetrics and Gynecology (SCOG), with 27 units targeting key surgical techniques.

**Methods:** Our Ob/Gyn residency—a mid-size, university-based training program—implemented a structured, two-year simulation curriculum under the direct supervision of a Simulation Director. We provided two hours of simulation training each month, comprising 20% of protected resident didactic learning time. The simulation curriculum incorporates both the SCOG units and modules originating within the program. We aimed to target both procedural and team-based communication skills. We collected data regarding resident knowledge with pre- and post-simulation testing from the SCOG units. Test scores were identified by residency training year to track differences in pre- and post-test scores according to level of training. We had access to space and resources of our university's multidisciplinary simulation center to support our curriculum.

**Results:** Over two years, our simulation curriculum trained residents using 15 out of 27 of the SCOG units and ten simulations created within our department or utilizing other

educational materials. Our simulation curriculum contained 9 obstetric topics, 13 gynecology topics, and 3 non-technical skills topics. The Ob/Gyn residents consistently improved between pre-simulation and post-simulation tests. For each of the 15 SCOG units completed, 100% of residents participating had a post-simulation passing score of 80% or greater. For the SCOG units completed, pre-simulation test scores ranged from 56% to 97%, with a mean score of 72.6%  $\pm$  12.2%. Post-simulation test scores ranged from 88% to 100%, with a mean post-simulation test score of 94.2%  $\pm$  4.3%. Scores were divided by class to show differences in degree of improvement at different training levels.

**Discussion:** The differences in pre- and post-simulation test scores show improvement in clinical knowledge after implementation of the SCOG units. Our simulation program serves as a model for integrating a standardized simulation curriculum into resident training with objective measures of efficacy. In addition, topics not covered by the SCOG units can be incorporated into the simulation curriculum, using the same principles of effective simulation and assessment. Strengths of our program include a dedicated Simulation Director, a systematic approach to curriculum design, and use of low cost, low fidelity models. Moving forward, our program aims to incorporate objective evaluation of learner skills in addition to the measures of clinical knowledge. Future goals also include measuring resident feedback of the simulations to demonstrate learner satisfaction and identify areas for improvement.

7:45 - 8:00 a.m.

**Paper #12**

**Obesity and Preeclampsia: Early Pregnancy BMI as a Key Predictor in the Hoosier Moms Cohort**

Chris E Philip, MD, Isabel Ortiz, BS, Kevin L Moss, BS, Haley Schmidt, BS, Aric Kotarski, BS, David M Haas, MD, MS

Indiana University School of Medicine, Indianapolis, IN

**Objective:** To evaluate the association between early pregnancy body mass index (BMI) and the development of preeclampsia.

**Methods:** This was a secondary analysis of data from the Hoosier Moms Cohort (HMC), a prospective observational study designed to evaluate predictors of adverse maternal and neonatal outcomes across Indiana. Participants were recruited prior to 20 weeks gestation and followed longitudinally through pregnancy and postpartum. For this analysis, we included individuals without pre-existing hypertension who had complete data on BMI, blood pressure, pregnancy outcomes, and relevant covariates.

Pregnancy outcomes were categorized into normotensive (n=259), preeclampsia (n=53), and gestational hypertension (GH) (n=74). BMI was calculated using measured height and weight obtained at the first prenatal visit (Visit 1, 8+0 to 19+6 weeks' gestation) and was categorized as obese (BMI  $\geq 30$  kg/m<sup>2</sup>) or non-obese.

Covariates included maternal age, self-identified race/ethnicity, educational attainment, parity, diastolic blood pressure at enrolment, and recent smoking status. Perceived stress was assessed using the Perceived Stress Scale (PSS) and included in the multivariable model to adjust for potential physiological stress effects.

Group differences were assessed using chi-square tests and one-way ANOVA. A generalized logit model was constructed with normotensive pregnancies as the reference group to estimate adjusted odds ratios (aORs) and 95% confidence intervals (CIs) for preeclampsia and GH. Model variables were selected based on clinical relevance and univariate significance (p<0.10).

**Results:** Among the 386 participants, the mean BMI was significantly higher in the preeclampsia group compared to normotensive pregnancies (30.4 vs. 26.5 kg/m<sup>2</sup>, p<0.0001). Nearly half of those who developed preeclampsia were classified as obese (47.2%), compared to 19.7% in the normotensive group. Obesity was also more prevalent in

participants with GH (38.9%,  $p < 0.0001$ ). African American and nulliparous individuals were disproportionately represented in the preeclampsia group (35.9% vs. 11.2% in normotensive pregnancies,  $p = 0.0002$ , 60.4% vs. 39.1%,  $p = 0.008$ , respectively).

In the multivariable model, adjusting for parity, race, education, diastolic blood pressure, maternal age, and perceived stress, obesity remained independently associated with increased odds of preeclampsia (aOR 2.60; 95% CI, 1.26–5.37) and GH (aOR 2.47; 95% CI, 1.30–4.73). Nulliparity (aOR 4.17; 95% CI, 1.94–8.98), African American race (aOR 3.10; 95% CI, 1.32–7.28), lower education (high school or less: aOR 2.90; 95% CI, 1.09–7.68), and higher diastolic blood pressure (aOR per mmHg: 1.11; 95% CI, 1.06–1.16) were also significant preeclampsia predictors. Perceived stress showed a modest association with preeclampsia (aOR 1.06 per one-point increase; 95% CI, 1.00–1.11), but did not substantively change the association between obesity and preeclampsia.

**Conclusion:** Obesity in early pregnancy was a strong and independent predictor of preeclampsia in this prospective cohort, conferring more than double the risk even after adjusting for clinical and demographic variables. These findings reinforce the critical importance of early BMI assessment during prenatal care and highlight obesity as a modifiable risk factor for preeclampsia. Addressing maternal weight before and during pregnancy may be a key strategy in reducing the burden of hypertensive disorders and improving maternal outcomes.

8:00 - 8:15 a.m.

**Paper #13**

**Progesterone in Oil: A Retrospective Study of the Prevalence of Progesterone Hypersensitivity in Medicated Frozen Embryo Transfer Cycles and Its Impact on Reproductive Outcomes**

Francesca R Mancuso, MD<sup>1</sup>, Matthew Will, MD<sup>2</sup>, Natalie Savage, MSc<sup>3</sup>, Sam Fugate, MD<sup>1</sup>, Zachary Walker, MD<sup>4</sup>, Hunter Mullins, MD<sup>1</sup>, David M Haas, MD, MS<sup>1</sup>, Alexandra LaShell, MD<sup>1</sup>

Indiana University, Indianapolis, IN<sup>1</sup>, Midwest Fertility Specialists, Carmel, IN<sup>2</sup>, Ovation Fertility, Carmel, IN<sup>3</sup>, Brigham and Women's Hospital, Boston, MA<sup>4</sup>

**Background:** In medicated frozen embryo transfer (FET) cycles, exogenous progesterone is essential during the luteal phase to support implantation and early pregnancy due to the absence of the corpus luteum. Among the variable forms of exogenous progesterone, intramuscular (IM) progesterone in oil (P-in-oil) is generally considered the most effective. However, some patients experience hypersensitivity reactions, raising concerns about their potential impact on implantation success and early pregnancy development. Progesterone plays a central role in the dynamic immune balance necessary to establish and maintain a successful pregnancy. Progesterone hypersensitivity reaction could disrupt this delicate balance, potentially leading to adverse reproductive outcomes and affecting future fertility care. Although hypersensitivity reactions to P-in-oil are rare, they warrant attention due to their potential implications for clinical management and patient outcomes. Notably, data on reproductive outcomes in patients experiencing hypersensitivity to exogenous progesterone, particularly P-in-oil, remains limited.

**Objectives:** This study aims to evaluate the prevalence of progesterone hypersensitivity in women undergoing medicated FET cycles utilizing P-in-oil and to investigate the clinical implications of such reactions on reproductive outcomes.

**Methods:** A retrospective cohort study was conducted including 814 medicated FET cycles at a private assisted reproductive technology program between April 2022 to August 2023. All patients received exogenous IM P-in-oil for luteal phase support. We excluded cycles involving donor oocytes or embryos, as well as those using gestational carriers, to ensure a homogeneous study population. Cycles that involved alternative or combined progesterone regimens

were also excluded to isolate the effects of IM P-in-oil. Statistical analysis included Chi-squared tests for categorical variables and T-tests for continuous variables. Relative risks (RR) and 95% confidence intervals (CI) were calculated using multivariate logistic regression to adjust for potential confounders. A p-value of  $< 0.05$  was considered statistically significant throughout the analysis. This study was approved by the Institutional Review Board of Indiana University.

**Results:** A total of 673 patients who underwent medicated FET cycles were analyzed within the cohort. Approximately 10.3% (n=69) of patients using P-in-oil supplementation reported experiencing a reaction during one of their treatment cycles, resulting in an overall reaction rate per cycle of 8.5%. Symptoms of progesterone hypersensitivity (PH) varied widely and included dermatitis, urticaria, edema, fever, nausea, and dyspnea. Dermatologic manifestations were the most frequently reported symptoms, occurring in 95.5% of patients who experienced adverse reactions. In contrast, systemic adverse reactions were uncommon, reported in less than 5% of cases. The live birth rate was significantly higher in patients who experienced a reaction (68.1%, n=47) compared to those without a reaction (47.7%, n=355) ( $p = 0.001$ ; RR 2.19, CI 1.35-3.56). No significant difference was found in the miscarriage rate between patients with and without reported reactions (8.7%, n=6 vs. 8.7%, n=65, respectively) ( $p = 0.99$ ; RR 1.00, CI 0.45 – 2.22).

**Conclusions:** Hypersensitivity to P-in-oil presents a unique and underrecognized challenge in management of patients undergoing medicated FET cycles. This is the largest cohort analyzing progesterone hypersensitivity in patients using P-in-oil. Our data suggests that this rare occurrence has a minimal negative impact on reproductive outcomes. Notably, patients who experienced hypersensitivity reactions during P-in-oil use were more than twice as likely to achieve a live birth compared to those without reactions. Patients who experience hypersensitivity reactions while using P-in-oil can be reassured that their medication regimen is unlikely to negatively impact their success rates. However, given the complex immune-hormonal interactions involved in early pregnancy, larger prospective studies are warranted to validate these findings and better understand their clinical implications.

8:15 - 8:30 a.m.

**Paper #14**

**Burnout and Resilience Among Faculty Members at Academic Medical Centers: Does Gender or Race Matter?**

Mila D Shah-Bruce, MD/PhD<sup>1</sup>, Peggy Gesing, MEd/PhD<sup>2</sup>

Louisiana State University Health Sciences Center, Shreveport, LA<sup>1</sup>, Old Dominion University-Macon & Joan Brock Virginia Health Sciences, Norfolk, VA<sup>2</sup>

**Introduction:** US medical school faculty attrition rates have increased since the 1980's, with higher rates found in individuals who suffer from burnout. The level of burnout was exacerbated by the COVID-19 pandemic. While the number of female faculty has increased from 39.6% in 2015 to 45% in 2024, male faculty numbers have continued to decrease with an increase in male faculty attrition. Similarly, underrepresented in medicine (URiM) faculty have been increasing since 1980s, however, at a much slower rate, and recently have had minimal to no increase in some URiM races. In addition, there is limited data on 3rd gender/nonbinary faculty recruitment and attrition rates.

These attrition rates may contribute to the growing crisis in healthcare and among those training healthcare providers. This study examined how the intersection of burnout and resilience has impacted academic medical center faculty since the COVID-19 pandemic and has identified differences based on demographic characteristics. Findings from this study can lead to a better understanding of where and why medical school faculty attrition occurs.

**Methods:** This study used convenience sampling to recruit faculty who self-identified as primarily clinician educators (CE) (clinicians with  $\geq 20\%$  educational effort), clinicians ( $< 20\%$  education effort), or undergraduate medical educators (UME) (basic science educators) at academic medical centers or those affiliated with academic medical centers to achieve a sample size of 2590 participants. Participants were recruited from within the United States and U.S. territories encompassing five regions defined by the US Census Bureau as Midwest (23%), Northeast (22.7%), Pacific (16.8%), South (21.3%), and West (4.3%), and other (1.9%). The participants completed an online survey incorporating the Maslach Burnout Inventory and Resilience-14 instruments and demographic questions. Demographic questions regarding gender asked faculty how they identified, including the options of female (38.1%), male (57%), nonbinary/3rd gender (1.8%), prefer not to say (1.7%), and prefer to self-describe (1.4%). Demographic questions regarding race included

faculty self-identifying as Native American or Hawaiian/Pacific Islander (6.6%), Asian (4.1%), Black/African American (7.2%), Hispanic (3.5%), White/Caucasian (71.2%), other (.2%), prefer not to say (.4%), or more than one race (6.8%). A generalized linear model was used to examine the factors that impact burnout and resilience of academic faculty.

The Maslach Burnout Inventory consists of 22 Likert-style questions to assess three individual scores encompassing burnout: emotional exhaustion (EE), depersonalization, and personal accomplishment (PA). EE is the most closely linked facet of the three, indicating burnout, and can often be used solely to indicate burnout. This study had Cronbach's alpha score similar to that of other large studies with EE ( cited:  $\alpha = .89$ , study:  $\alpha = .82$ ), depersonalization ( cited:  $\alpha = .77$ , study:  $\alpha = .75$ ), and PA ( cited:  $\alpha = .74$ , study:  $\alpha = .85$ ), indicating sufficient reliability. Similarly, the RS-14 ( $\alpha = .89$ ) used in this study had sufficient reliability as in previously cited studies ( $\alpha = .91-.94$ ).

**Results:** The results of this study indicated burnout was significantly higher in academic faculty after the COVID-19 pandemic than before, with 75% of academic faculty suffering from EE. The type of academic faculty role was a significant predictor of burnout ( $p = .002$ ). UMEs had the highest level of burnout ( $M = 34.72$ ) when compared to clinicians ( $M = 32.93$ ) and CEs ( $M = 32.34$ ). However, gender did not significantly predict EE scores ( $p = .814$ ). Resiliency levels, considered protective against burnout, were found to be lowest for UMEs compared to clinicians and CEs. Gender was a significant predictor of resilience ( $p = <.001$ ), with those who prefer to self-describe ( $M = 56.57$ ), prefer not to say ( $M = 59.57$ ), and non-binary/3rd gender ( $M = 61.66$ ) having the lowest resilience scores. However, there was no significant difference in EE scores between gender and each faculty group ( $p = <.309$ ).

Race was shown to be a strong predictor of EE scores ( $p = <.001$ ), with participants who identified as Native American/Hawaiian/Pacific Islander being more likely to have higher EE scores ( $M = 38.68$ ) than all other participants. However, EE scores were not significantly different between races within each faculty group ( $p = .130$ ). Race was also a significant predictor of resilience scores ( $p = .002$ ), in which Hispanic faculty had the highest resilience scores ( $M = 65.83$ ), followed closely by Native American/Hawaiian/Pacific Islander faculty ( $M = 64.97$ ). Those identifying as more than one race had the lowest resilience scores ( $M = 58.88$ ), followed by Black/African American faculty ( $M = 58.97$ ). There was no significant difference in resiliency scores when comparing race and faculty group ( $p = .125$ ).

These results indicate that demographic factors, along with faculty roles, impact the levels of burnout and resilience that can lead to medical school faculty attrition. Understanding who is at risk of attrition can help academic health center leaders develop tactics for addressing the needs of their faculty.

8:30 - 8:45 a.m.

**Paper #15**

**The Effect of Calcium Carbonate on Labor Induction: A Pilot Study**

Marie M Forgie, DO<sup>1</sup>, James O Adefisoye, PhD<sup>1</sup>, Jessica J F Kram, MPH<sup>1</sup>, Emily Malloy, PhD, CNM<sup>1</sup>, Diana Kleber, BSN, RN<sup>2</sup>, Jarquechia White, MD<sup>1</sup>, Dawn Wankowski, MS<sup>1</sup>

Aurora Sinai Medical Center, Milwaukee, WI<sup>1</sup>, Advocate Aurora Research Institute, Milwaukee, WI<sup>2</sup>

**Purpose:** Since 1976, cesarean deliveries in the United States have increased approximately 30%. While sometimes lifesaving, cesarean deliveries are associated with greater maternal risks than vaginal deliveries. The most common indication for cesarean delivery is labor dystocia. Calcium carbonate (CaCO<sub>3</sub>), brand name TUMS, has gained popularity for off-label use to prevent labor dystocia based only on anecdotal evidence, as no human trials have been conducted. Pharmacologically, calcium may improve uterine muscle contractility, and carbonate may decrease lactic acid buildup. This led us to investigate the potential for CaCO<sub>3</sub> to prevent labor dystocia caused by poor uterine contractility during labor inductions and decrease cesarean delivery rates. We conducted a pilot study to explore the use of CaCO<sub>3</sub> to augment labor induction by assessing (1) induction duration with oxytocin administration, (2) rate of labor dystocia, (3) rate of cesarean delivery, (4) maternal/neonatal outcomes, and (5) GI side effects.

**Methods:** We conducted a quasi-experimental pilot study, inclusive of a prospective treatment group and a retrospective control group, among English and Spanish-speaking pregnant adults who presented for labor induction at an urban, teaching hospital in southeastern Wisconsin. The prospective treatment group (CaCO<sub>3</sub> group, n=50) was consented between June 2024 and September 2024. After cervical ripening, the prospective treatment group received CaCO<sub>3</sub> per standard treatment protocol (500mg orally every 4 hours), along with standard-dose oxytocin. After birth, participants completed a validated gastrointestinal (GI) effect survey. A randomly selected retrospective control group (control group, n=200) who presented for induction and received standard-dose oxytocin without CaCO<sub>3</sub> between 2020-2022 was also identified. The primary outcomes assessed were (1) induction duration with oxytocin administration, excluding cervical ripening, and (2) rate of labor dystocia. Secondary outcomes assessed were the rate of cesarean delivery, amount of oxytocin used, blood loss, postpartum hemorrhage rate,

neonatal outcomes, and GI side effects. All data were collected from the electronic medical record or GI side effects survey (scale 1-5 [no problem-very severe problem]) and were stored in REDCap. Means, medians, or percentages were reported as appropriate. Given that the goal of this pilot study was to inform sample size and explore any side effects or protocol concerns for a future randomized control trial, sample size estimates were not completed. Differences between groups were assessed using Pearson chi-squared test of independence, Fisher's exact test, or Wilcoxon's rank sum test, as appropriate. Multivariable Gamma and logistic regression models were used to carry out adjusted analysis. Two tailed  $p < 0.05$  was considered statistically significant.

**Results:** Baseline characteristics, including maternal age, body mass index, gestational age, parity, and starting Bishop score, were similar between groups. However, the groups were significantly different on race (e.g., African Americans were 38% in CaCO<sub>3</sub> group vs. 62.5% in control group,  $p < 0.01$ ). After adjusting for this difference, mean induction duration with oxytocin was longer but not significantly between groups (879.3 minutes CaCO<sub>3</sub> vs. 759.5 minutes control group,  $\beta = 0.142$ , 95% CI: -0.05 to 0.33,  $p = 0.14$ ). Despite this, there was a non-statistically significant but clinically relevant decrease in the rate of labor dystocia in CaCO<sub>3</sub> group (4% vs. 11%,  $p = 0.12$ ). For our secondary outcomes, there was a clinically relevant, but non-statistically significant lower cesarean delivery rate in the CaCO<sub>3</sub> group (14% vs. 22%,  $p = 0.34$ ). In a subgroup analysis of those who had cesarean delivery ( $n = 50$ ), dystocia as an indication was less likely, although not statistically significant, in the CaCO<sub>3</sub> group (14% vs 44%,  $p = 0.21$ ). Use of CaCO<sub>3</sub>, when compared to the control group, did not lead to a significant difference in the total amount of oxytocin used (median 4799mU vs. 3707mU,  $p = 0.76$ ), blood loss (150 mL vs. 200mL,  $p = 0.69$ ), or postpartum hemorrhage  $\geq 1000$ mL (4% vs. 5.5%,  $p = 0.91$ ). Favorably, there were no identifiable differences in neonatal outcomes such as 5-minute Apgar (median 9 vs. 9 control group,  $p = 0.36$ ), respiratory support (4% vs. 14% control group,  $p = 0.19$ ), and Neonatal Intensive Care Unit admission (6% vs. 7.5% control group,  $p = 0.61$ ). The GI side effects survey revealed that most patients reported few negative GI symptoms, reporting "no" for: burping/belching (84%), heartburn (72%), bloating (96%), passing gas (70%), sour taste (96%), nausea (56%), bad breath (98%), diarrhea (100%), constipation (96%), and vomiting (82%).

**Conclusion:** Although there was a non-statistically significant longer induction time within the CaCO<sub>3</sub> group, there were potentially clinically relevant decreases in labor dystocia and

cesarean delivery rate. We did not identify differences in maternal and neonatal adverse outcomes, and our GI survey revealed overall maternal tolerability. As this was a pilot, we were not powered to detect statistically significant differences. However, our study will be useful for estimating sample size for future studies, as further information is needed to detect meaningful differences regarding CaCO<sub>3</sub> use in labor inductions.

8:45 - 9:00 a.m.

**Paper #16**

**Elucidating Risk Factors for Craniosynostosis**

Maya Demirchian, BA, Morgan Winger, BS, Akshaya Vachharajani, MD, Thomas Willson, MD, Carolyn Quinsey, MD, Kevin Klifto, DO, PharmD, Jean R Goodman, MD, MBA

University of Missouri, Columbia, MO

**Introduction:** Cranial sutures are fibrous joints between skull bones that remain flexible during infancy, allowing for further brain growth and development. Craniosynostosis, a congenital abnormality involving premature closure of cranial sutures, leads to abnormal skull shape and may result in developmental delays, sensory deficits, and neurological or respiratory dysfunction if left untreated. The prevalence of craniosynostosis is 1 in 2000 to 2500 live births and is trending upwards, although its exact cause is unknown. This study aims to elucidate risk factors associated with craniosynostosis to better understand the disorder and identify potential preventative measures.

**Methods:** A case-control study was designed to identify potential predisposing risk factors for developing craniosynostosis. An electronic medical records review was conducted at our University of Missouri Medical Center, a Level 1 Trauma and Regional Perinatal Center located in central Missouri, on those who received prenatal care and delivered at our facility between 6/1/22-11/1/24. Extracted data included maternal demographics, pregnancy and delivery course, perinatal ultrasound number and findings, neonatal demographics, type of craniosynostosis and course post-delivery. A 2:1 case to control methodology was utilized, with controls matched by date of birth. One male and one female infant delivered as close to the delivery time of the craniosynostosis case, with the same data extracted from our EMR, served as controls. Data were maintained in a de-identified secure RedCap databank. Comparisons between groups were made using Chi-square, Fisher's exact testing, and Mann-Whitney U testing as appropriate. Results are presented as percent, or mean +/- standard deviation as appropriate, with odds ratios and 95% confidence intervals. A  $P < 0.05$  was considered statistically significant. Statistical analysis was completed using VassarStats and SPSS. IRB approval was received prior to initiation of this study.

**Results:** Forty-two patients were identified with non-syndromic craniosynostosis, indicating isolated cranial suture

involvement. 38.1% involved the sagittal suture, 33.3% metopic suture, 31.0% coronal suture, and 4.8% lambdoid suture. Compared to controls, patients with craniosynostosis were more likely to be born preterm (OR 2.58, 95% CI = 1.09, 6.09), and to non-white mothers (OR 6.29, 95% CI = 2.20, 17.97). Twinning was also associated with a higher risk for craniosynostosis in one of the twins although the 95% CI was very wide (OR 15.09, 95% CI = 1.75, 130.22).

There were no differences between groups with respect to patient race (cases = 65.85% white versus controls = 79.76%;  $P = 0.14$ ), patient ethnicity (cases = 7.50% Hispanic or Latino versus controls = 3.61%;  $P = 0.39$ ), infant sex (cases = 64.29% males versus controls = 50%;  $P = 0.18$ ), primigravida versus multigravida (cases = 20.83% born to primigravida mothers versus controls = 43.37%;  $P = 0.08$ ), cesarean versus vaginal delivery (cases = 55% delivered via cesarean section versus controls = 37.35%;  $P = 0.10$ ), BMI greater than or equal to 30 (cases = 75% versus controls = 31.65%;  $P = 0.76$ ), and/or maternal age greater than or equal to 35 years (cases = 14.29% versus controls = 14.29%;  $P = 1.00$ ). Additionally, there were no differences between groups when comparing pregnancy complications including preeclampsia (cases = 21.43% versus controls = 14.29%;  $P = 0.45$ ), hypertension (cases = 16.67% versus controls = 9.52%;  $P = 0.38$ ), diabetes (cases = 11.90% versus controls = 13.10%;  $P = 0.92$ ), thyroid disease (cases = 4.76% versus controls = 10.71%;  $P = 0.33$ ), polyhydramnios (cases = 7.14% versus controls = 7.14%;  $P = 1.00$ ), oligohydramnios (cases = 4.76% versus controls = 1.19%;  $P = 0.55$ ), tobacco use (cases = 7.14% versus controls = 10.71%;  $P = 0.75$ ), and/or substance use (cases = 20.59% versus controls = 8.11% of cases;  $P = 0.13$ ).

No differences were identified between groups when comparing average maternal BMI (cases = 37.27 (9.98) versus controls = 34.40 (6.95);  $P = 0.15$ ), maternal age (cases = 27.32 (5.64) versus controls = 28.60 (5.98);  $P = 0.36$ ), birth weight in kilograms (cases = 2.75 (1.03) versus controls = 3.16 (0.64);  $P = 0.15$ ), and/or birth head circumference in centimeters (cases = 31.62 (4.95) versus controls = 33.81 (1.98);  $P = 0.08$ ).

**Conclusion:** The study results indicate that craniosynostosis patients were more likely to be born from non-white mothers, have a preterm delivery, and be a member of a multiple gestation. These findings contribute to a better understanding of the risk factors associated with craniosynostosis, which may be used to assist with early diagnosis and effective intervention for affected patients. Due to the rarity of craniosynostosis, further studies with larger sample sizes are needed to more fully elucidate the risk factors for this condition and potential interventions for prevention.

9:00 - 9:30 a.m. **Break/Refreshments**

<p style="text-align: center;"><b>SIXTH SCIENTIFIC SESSION</b> (Roman Ballroom)</p>
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**Moderators:**

**Michael R. Handler, M.D. – CAOG Trustee**

**Theresa L. Robinson, M.D. – CAOG Trustee**

9:30 - 10:30 a.m. **Hot Topic #5**

“Pandemonium in Publishing: A  
Clinician’s Guide to the Changing  
Landscape of Medical Publications”

**Roger P. Smith, M.D.**

Virginia Tech

Carilion School of Medicine

Roanoke, Virginia

**Learning Objectives:**

- Describe the reasons behind pandemonium in publishing today.
- Outline the changing landscape of current medical publications.

10:30 - 10:45 a.m.

**Paper #17**

**Gestational Diabetes and Neonatal Hypoglycemia Risk Post-Betamethasone in the Late Preterm Population: A Secondary Analysis of the ALPS Trial**

McKenzie M Sundall Gaspar, DO<sup>1</sup>, Chunfa Jie, PhD<sup>2</sup>, James F Smith, MD<sup>3</sup>, Oscar A Viteri, MD<sup>1</sup>

UnityPoint Health, Des Moines, IA<sup>1</sup>, Des Moines University, West Des Moines, IA<sup>2</sup>, Creighton University, Omaha, NE<sup>3</sup>

**Background:** Neonatal hypoglycemia is a significant clinical concern, particularly in infants born to mothers with gestational diabetes mellitus (GDM). Betamethasone, administered antenatally to enhance fetal lung maturity in late preterm pregnancies, induces transient maternal hyperglycemia, potentially exacerbating the neonatal insulin response and subsequent risk of hypoglycemia. Corticosteroids increase maternal blood glucose levels by increasing hepatic gluconeogenesis, inhibiting glucose uptake in adipose tissue, and antagonizing insulin synthesis (Schäcke et al., *Pharmacology & Therapeutics* 2002). Elevated maternal blood glucose stimulates fetal pancreatic insulin secretion, predisposing neonates to hypoglycemia after birth (Arimitsu et al., *Endocrine Journal* 2023). The original Antenatal Late Preterm Steroids (ALPS) Trial reported reduced neonatal respiratory morbidity but noted increased neonatal hypoglycemia incidence with antenatal betamethasone administration. However, whether gestational diabetes specifically modifies this hypoglycemia risk after betamethasone exposure remains uncertain.

**Objective:** To determine whether gestational diabetes is associated with increased incidence of neonatal hypoglycemia following antenatal betamethasone administration during the late preterm period.

**Methods:** This is a secondary analysis of the ALPS Trial, a randomized, multicenter study examining neonatal outcomes following antenatal betamethasone administration between 34 weeks 0 days and 36 weeks 5 days' gestation. Inclusion criteria were limited to participants from the active treatment arm randomized to receive two betamethasone doses, 24 hours apart (initial N = 1,428). Participants lacking essential data, including prepregnancy weight (n = 36), neonatal hypoglycemia status (n = 2), maternal ethnicity (n = 3), and second dose administration status (n = 1), were excluded, leaving a final analyzed cohort of N = 1,386.

The primary outcome was neonatal hypoglycemia, defined as blood glucose levels below 40 mg/dL at any time after birth. Information about GDM diagnostic criteria or treatment was not available. Notably, patients with GDM were originally excluded from the ALPS Trial due to concerns about the potential for unblinding with corticosteroids. Eligibility criteria were later amended to enroll patients with gestational diabetes after the trial was underway. Pre-gestational diabetes was an original exclusion criterion of the trial and remained so for the duration.

Baseline clinical and maternal characteristics were compared using chi-square tests for categorical variables. Logistic regression was performed to account for confounding factors on univariate analysis: mode of delivery, race or ethnicity, primary source of medical payment for prenatal care, and indication for trial entry. The interval between randomization and delivery was analyzed to determine if subgroup analyses for betamethasone doses were warranted. Analyses for both the ALPS Trial and this secondary analysis followed intention-to-treat principles. Subgroup analysis of participants who received 1 or 2 doses of betamethasone was performed as-treated. Relative risks (RRs) with 95% confidence intervals (CIs) were calculated for unadjusted group comparisons. Adjusted odds ratios (aORs), accounting for statistically significant baseline differences ( $p < 0.05$ ), are reported for outcomes of interest.

**Results:** Hypoglycemia occurred in 28.7% of neonates born to mothers with GDM and 23.4% of those born to mothers without GDM ( $p = 0.1422$ ). Compared to euglycemic patients, those with GDM were more likely to have prepregnancy obesity, be Hispanic or Asian, be aged 35 or older, and have late preterm delivery due to rupture of membranes, preeclampsia or gestational hypertension, or other indications. Notably, in the parent trial, only 60.5% ( $n = 839$ ) of participants received the prespecified two doses of betamethasone. Unadjusted subgroup analysis revealed nearly equal odds of hypoglycemia among neonates born to mothers with GDM who received two doses. However, women with GDM receiving only one dose of betamethasone had 82% increased odds of having a hypoglycemic neonate (OR 1.82; 95% CI: 1.06–3.14;  $p = 0.0303$ ). This significant result may relate to timing, with 43% delivering the same day as randomization and 96% delivering within one day, corresponding closely with peak maternal hyperglycemia post-betamethasone (Itoh et al. *Endocrine Journal* 2016).

Multiple logistic regression analyses showed the adjusted odds ratio (aOR) for neonatal hypoglycemia among infants born to mothers with GDM randomized to two doses was 1.132 (95% CI: 0.75–1.68). Among infants whose mothers

received a single dose, the aOR was 1.540 but was not statistically significant (95% CI: 0.83–2.79). A larger trial may be needed to detect a true effect. Conversely, mothers who received both doses had similar odds for neonatal hypoglycemia (aOR 0.8658; 95% CI: 0.48–1.50).

**Conclusion:** Among women receiving antenatal corticosteroids in the late preterm period, maternal GDM was not associated with an increased risk for neonatal hypoglycemia compared with euglycemic patients. These results support the practice of administering antenatal steroids in late preterm pregnancies complicated by GDM. A large randomized clinical trial is warranted to determine whether GDM patients receiving antenatal late preterm steroids are at increased risk for neonatal hypoglycemia.

10:45 - 11:00 a.m.

**Paper #18**

**Maternal Perceptions Regarding the Respiratory Syncytial Virus (RSV) Vaccine Following FDA Approval of Abrysvo®**

Allison M Sweeney, MD, Jill Beckham, BS, Emily Williams, BS, Teresa Wilson, BA, Anna Carter, BS, Kathleen Groesch, BS, MS, Kristin Delfino, PhD, Paula L Diaz-Sylvester, PhD, Jongjin (Anne) Martin, MD

Southern Illinois University School of Medicine, Springfield, IL

**Background:** Respiratory syncytial virus (RSV) is the leading cause of hospitalization in the US for infants. Pfizer's Abrysvo® RSV vaccine was approved in August 2023 for pregnant patients reaching 32-36 weeks gestational age (GA) between September and January to prevent RSV-related infant morbidity. The American College of Obstetrics and Gynecology (ACOG) published a practice advisory recommending seasonal Abrysvo® vaccination for all pregnant patients. Data on 2023 vaccination rates are available, but there is no information on how/why patients decide to obtain or refuse the Abrysvo® vaccine. Provider recommendation is a known major contributor to improve vaccine uptake in pregnant patients. However, CDC surveys assessing other vaccine acceptability rates indicate the presence of additional factors influence patient's decisions for vaccine adherence including: perceived safety or the need for the vaccine, socioeconomic status and education level. Still, these factors are unpredictably related, as vaccines differ in the way they are perceived, and we anticipate that Abrysvo® will have a unique acceptability profile. The ACOG practice advisory briefly mentions the need for personalized considerations to ensure each patient has access to Abrysvo® and includes suggested counseling techniques to fully inform patients of the importance of this vaccine. However, there are no specific guidelines to assist providers.

**Study Purpose:** We aimed to fill a knowledge gap that exists in the early stages of Abrysvo® implementation. These data will inform providers how to counsel patients and improve patient education regarding Abrysvo® more effectively.

**Methods:** This study was approved by the local Institutional Review Board (# 24-612). To assess our patient's perception of Abrysvo®, a pre-education survey was administered at prenatal visits between 28w0d to 31w6d GA. At subsequent prenatal visits, each provider counseled patients and answered

questions regarding Abrysvo®. All patient discussions about Abrysvo® and vaccination status were documented in the electronic medical record (EMR). Once vaccination season ended, a follow-up postpartum survey was administered to assess potential changes in perception after education and barriers to obtaining the vaccine.

**Results:** A total of 49 patients completed the pre-education survey. The majority of patients were 21-25 years old (38%), followed by ages 26-30 (30%), 31-35 (16%), ≤ 20 (10%) and 6% were between 36-40 years of age. The racial distribution of our patient population was 71.4% White, 20.4% Black, 4.1% mixed race/other and 4.1% declined to answer. Only 2.1% of patients reported Hispanic ethnicity. Most of these patients have a low socioeconomic status, indicated by a high percentage (81.6%) of Medicaid-insured patients and a low level of education, with most patients completing high school or less (40%) followed by some college courses (26%), college graduates (20%), trade school (10%) and master/doctorate (2%). Specific to RSV, 80% of the surveyed patients indicated they were previously aware of RSV, and 72% knew of the existence of the RSV vaccine for pregnant women. The majority reported hearing about Abrysvo® from healthcare providers (83.3%), with some reporting they learned about it through social media and/or the news (33.3%). When asked if they would receive Abrysvo® in pregnancy upon provider recommendation, 60% indicated they would receive the vaccine, with 22% not willing to get Abrysvo® and 18% unsure. Most patients indicated that the most important factors to consider in their decision to receive Abrysvo® were potential RSV-related health consequences to their infant (91.3%) and/or to themselves (45.7%). Those not planning to receive Abrysvo® were primarily concerned about possible side effects/safety (31.8%) and/or indicated a lack of information provided (15.9%). Patient's preferred educational method to learn more about Abrysvo® was direct provider discussion (40.4%) and/or information with links to reputable websites (25.5%), with a lower number preferring self-education (12.8%), brochures (4.3%) or videos (4.3%). In particular, 12.8% indicated they did not think that any further education would help them. At the end of the season, only 19% of the surveilled patients were documented as having received Abrysvo®. The follow-up survey identified the inconvenience of obtaining the vaccine in a timely manner as the primary barrier to Abrysvo® vaccination. Interestingly, there was a discrepancy between the vaccination status reported in the survey vs. that documented in the EMR. Indeed, 54% of the patients who reported having received Abrysvo® had no documented evidence of receiving it, suggesting this patient population has a low level of health

literacy and involvement in their own health status and treatments received.

**Conclusions:** While 60% of the surveyed patients indicated a willingness to receive Abrysvo® upon provider recommendation and ~20% were unsure, overall, only 19% received Abrysvo® by the end of the season, suggesting the existence of additional barriers (other than low acceptability) affecting vaccination rates. Our results also indicate that the standard education delivered to these patients fell short in raising awareness regarding RSV prevention and highlight the need for personalized education strategies tailored to our vulnerable population.

11:00 - 11:15 a.m.

**Paper #19**

**Enhancing Resident Competency in Laparoscopic Vascular Injury Management: Bridging the Knowledge and Preparedness Gap Through an Innovative Multi-Institutional Curriculum**

Michael A Mahoney, II, MD<sup>5</sup>, Christina Saad, MD<sup>1</sup>, Lisa Berkowitz, MD<sup>2</sup>, Nicole Kerner, MD<sup>3</sup>, Michelle Larlezere, MD<sup>4</sup>, Kate Stampler, MD<sup>2</sup>, Dani Zoorob, MD, MHA, MBA, MHI, EdM<sup>5</sup>

Harbor-UCLA Medical Center, Torrance, CA<sup>1</sup>, Jefferson Einstein Philadelphia Hospital, Philadelphia, PA<sup>2</sup>, Duke University, Durham, NC<sup>3</sup>, University of Florida, Gainesville, FL<sup>4</sup>, Louisiana State University Health Sciences Center, Shreveport, LA<sup>5</sup>

**Introduction:** Laparoscopic major vascular injury is a rare but potentially catastrophic complication that can occur during gynecologic surgery. Preparedness to acutely manage this complication can be challenging to achieve during residency, given its infrequency, which creates an opportunity for training and simulation to bridge the exposure gap.

**Study Objective:** The purpose of this study was to develop a curriculum aimed at enhancing resident preparedness in managing laparoscopic major vascular injuries.

**Methods:** This was a quasi-experimental, multi-institutional, longitudinal educational intervention study designed to assess the impact of education and low-fidelity laparoscopic vascular injury training on Ob/Gyn resident preparedness. The study aimed to develop and test a curriculum that integrated a lecture, the use of a low-fidelity simulation model, and pre- and post-intervention assessments. The curriculum and its components were developed based on a comprehensive review of the literature. The simulation focused on the approach and management of residents in a laparoscopic major vascular injury scenario. The simulation model was designed to be reproducible and accessible to any residency program. It was cost-effective, integrating seamlessly into current FLS task trainers, and encompassed both laparoscopic and laparotomy structures critical to safety, while focusing on resident knowledge and training. The assessments used in the study were developed using the Delphi method, with consensus among four academic, board-certified obstetrics and gynecology (Ob/Gyn) faculty members and a resident. Participants were asked to complete a pre-test, immediate post-test, and 3-month delayed post-test to evaluate their

retention, confidence, and overall preparedness. The curriculum was conducted at five ACGME-accredited Ob/Gyn programs. Assessment scores were compared using an unpaired student t-test.

**Results:** Residents from five ACGME-accredited Ob/Gyn residencies participated in this intervention between July to December 2024. A total of 76 residents completed the pre-test and the curriculum. 64 (84.2%) residents completed the immediate post-test and only 13 (17.1%) residents completed the delayed post-test.

At baseline, only 2 (2.6%) residents had ever seen a laparoscopic major vascular injury and 9 (11.8%) had ever had didactics on this subject. 65 (83%) residents reported being not at all confident or slightly confident in managing a laparoscopic vascular injury on the pre-test, compared to 25 (39%) on the immediate post-test and 5 (38%) on the delayed post-test ( $p = 0.0001$ ). Subjects were asked to identify and provide free-text descriptions of critical steps in managing vascular injury. This free-response score increased from 2.72 on the pre-test to 5.05 on the immediate post-test ( $p < 0.0001$ ) and 3.77 on the delayed post-test ( $p = 0.0403$ ). The average multiple-choice knowledge assessment score increased from 63% on the pre-test, to 79% on the immediate post-test ( $p=0.0001$ ), and decreased back to 63% on the delayed post-test ( $p=1.0$ ). Upon conclusion of the simulation and the lecture, 81% (52) residents reported the curriculum as being either 'very' or 'extremely' helpful, and 87.5% (56) found it either 'very' or 'extremely' relevant to their training.

**Conclusion:** Our curriculum increased preparedness for managing laparoscopic vascular injuries by increasing both knowledge and confidence. However, the durability of this effect could not be fully assessed due to the poor delayed post-test response rate. This curriculum was successfully implemented at five institutions across the United States. Our low-fidelity, cost-effective simulation model, designed to fit in an FLS task trainer, is accessible to both gynecology residency programs and other surgical subspecialties, and can be easily adopted in low-resource settings. Additionally, this curriculum can be used for multidisciplinary surgical crisis simulations to improve communication among all members of a surgical team.

11:15 - 11:30 a.m.

**Paper #20**

**Dr. Kermit E. Krantz  
Memorial Paper Award**

**Trimesters of Change: Pelvic Floor and Sexual Health in  
Community Hospital Pregnancy Care**

Maira I Qayyum, MD, MSHS<sup>1</sup>, Meeli Gandhi, MD<sup>1</sup>, Jordyn Courville, MD<sup>2</sup>, Mohammad Alfrad Nobel Bhuiyan, MD, MS<sup>2</sup>, Robin E May, MD<sup>2</sup>, Dani Zoorob, MD, MHA, MBA, MHI, EdM<sup>2</sup>

Ochsner LSU Health Monroe Medical Center, Monroe, LA<sup>1</sup>, Louisiana State University Health Sciences Center Shreveport, LA<sup>2</sup>

**Introduction:** Pelvic floor disorders can negatively impact an individual's quality of life with disruptive signs and symptoms, such as urinary incontinence, fecal incontinence, pelvic organ prolapse, and pelvic pain. Approximately 25% of women in the United States have at least one pelvic floor disorder, which contributes to high healthcare expenditure. Pregnancy has been associated with physical changes to the pelvic floor and may contribute to the development of pelvic floor disorders. The purpose of this study was to evaluate the perception of pelvic floor and sexual function during pregnancy using validated questionnaires with a focus on how these domains relate to one another and differ across trimesters.

**Methods:** This study was a cross-sectional survey that was approved by the Institutional Review Board of an academic tertiary care center in the southern United States and followed the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines. Pregnant individuals between the ages of 18 and 45 years who presented to a community hospital for a prenatal visit were asked to complete a survey composed of demographic questions and validated questionnaires targeting pelvic floor and sexual function – the Pelvic Floor Distress Inventory-20 (PFDI-20), the Pelvic Floor Impact Questionnaire-7 (PFIQ-7), and the Female Sexual Function Index-6 (FSFI-6). Individuals who were unable to provide informed consent, incarcerated at the time of the visit, or non-English speaking were excluded. The surveys were distributed from February 25, 2025 until March 21, 2025 to achieve a target sample size of 200, which was determined a priori to provide adequate statistical power. The data were entered into the secure web application called Research Electronic Data Capture (REDCap) with no missing data noted. Statistical analysis was performed using R software version 4.3.1 and included descriptive statistics,

analysis of variance (ANOVA), Pearson correlation, and multiple linear regression. A p-value of less than 0.05 was used to define statistical significance.

**Results:** Two hundred eligible individuals completed the survey and were included in the analysis. Most participants were between 20 and 29 years old, obese [Body mass index (BMI) >30 kg/m<sup>2</sup>], in the third trimester, multigravida (pregnant previously), multiparous (delivered previously), high school graduates, unemployed, Black, unmarried, in the lowest household income category (<\$25,000), and not smokers. One-way ANOVA and Tukey post-hoc tests showed that pelvic floor function did not differ significantly across trimesters as measured by the PFDI-20 and PFIQ-7 ( $p > 0.05$ ), whereas sexual function differed significantly across trimesters as measured by the FSFI-6 [ $F(2, 197) = 4.25, p = 0.016$ ]. Furthermore, sexual function scores were significantly lower in the third trimester compared to the second (mean difference = -2.22; 95% CI: -4.38 to -0.06;  $p = 0.042$ ). Sexual function scores were also lower in the third trimester compared to the first but not significantly (mean difference = -2.98; 95% CI: -6.02 to 0.06;  $p = 0.056$ ), and there was no significant difference in sexual function scores between the first and second trimesters (mean difference = -0.76; 95% CI: -3.87 to 2.34;  $p = 0.830$ ). Pearson correlation analysis demonstrated no statistically significant association between pelvic floor function and sexual function. However, the correlation between pelvic floor quality of life as measured by the PFIQ-7 and sexual function as measured by the FSFI-6 was slightly stronger ( $r = -0.13, p = 0.06$ ) than the correlation between pelvic floor distress as measured by the PFDI-20 and sexual function as measured by the FSFI-6 ( $r = -0.08, p = 0.24$ ). Multiple linear regression models were used to determine if there were any associations between demographic and clinical information and pelvic floor and sexual function. Overall, the models were not statistically significant for pelvic floor quality of life [ $F(23, 175) = 0.95, p = 0.53$ ] and pelvic floor distress [ $F(23, 175) = 1.23, p = 0.23$ ], but the model was statistically significant for sexual function [ $F(23, 175) = 2.36, p = 0.0009$ ]. Being in the third trimester had a statistically significant association with lower FSFI-6 scores ( $\beta = -3.72, 95\% \text{ CI: } -6.16 \text{ to } -1.11, p = 0.00397$ ), whereas identifying as White had a statistically significant association with higher FSFI-6 scores ( $\beta = 2.21, 95\% \text{ CI: } 0.19 \text{ to } 4.20, p = 0.030$ ).

**Conclusion:** This study offers valuable insight on an underserved population by focusing on individuals who receive prenatal care at a resource-limited facility. Sexual function scores were lower in later pregnancy, whereas pelvic

floor function scores did not change significantly across pregnancy. Notably, identifying as White was associated with higher sexual function scores than other race/ethnicity categories. Future research should involve a longitudinal approach for a detailed understanding of pelvic floor and sexual function throughout the perinatal period and the development of prevention and management strategies.

11:30 - 11:45 a.m.

**Paper #21**

**Worsening Maternal Laboratory Abnormalities in Preeclampsia as Predictors of Adverse Neonatal Outcomes**

Shea E. Randall, BA<sup>1</sup>, Adriana Moses, BS<sup>1</sup>, Avery Smith, BS<sup>1</sup>, Lauryn Bausley, BS<sup>1</sup>, Sachin Amin, MD<sup>2</sup>, Ann K Lal, MD<sup>2</sup>

Loyola University Chicago Stritch School of Medicine, Maywood, IL<sup>1</sup>, Loyola University Medical Center, Maywood, IL<sup>2</sup>

**Purpose:** This study assesses neonatal outcomes among pregnant patients with preeclampsia by comparing groups based on severity of laboratory abnormalities.

**Methods:** A retrospective chart review was conducted on all neonates born to women with preeclampsia at a tertiary care center between 2015–2020. Preeclampsia was diagnosed according to the guidelines of the American College of Obstetricians and Gynecologists. Data from mother-infant groups were collected retrospectively from the electronic medical record (EMR) and included maternal demographics, laboratory values, delivery details, and neonatal outcomes. Maternal laboratory values assessed included liver enzymes (LE), lactate dehydrogenase (LDH), and creatinine (Cr), which were categorized based on severity: liver enzymes were classified as >2 times the upper limit of normal (>2x ULN) vs. ≤2x ULN, creatinine as >1.1 mg/dL vs. ≤1.1 mg/dL, and lactate dehydrogenase as >600 U/L vs. ≤600 U/L. Neonatal outcomes and delivery variables included gestational age (GA), birth weight, length of neonatal intensive care unit (NICU) stay, overall length of hospital stay (LOS), presence of respiratory distress syndrome (RDS), transient tachypnea of the newborn (TTN), sepsis, infant death (including stillbirths), and mode of delivery (cesarean section, vaginal, or assisted vaginal). Statistical analyses were performed to compare outcomes between groups based on maternal laboratory values, with Chi-square tests to assess differences in the incidence of RDS, TTN, sepsis, death, and mode of delivery. Independent t-tests were performed to compare GA, birth weight, and LOS between groups. These statistical analyses allowed for the evaluation of associations between maternal laboratory abnormalities and neonatal and delivery outcomes.

**Results:** A total of 630 mother-infant groups were included in the study, consisting of 581 singletons, 48 twin pregnancies, and one triplet pregnancy. Compared to patients with liver

enzyme (LE) levels  $\leq 2x$  ULN (n = 563), neonates born to mothers with LE  $> 2x$  ULN (n = 60) had significantly poorer outcomes. These neonates were born at significantly earlier gestational ages (33.9 vs. 35.8 weeks,  $p < 0.0001$ ), had lower birth weights on average (2088.2 vs. 2533.4 grams,  $p < 0.0001$ ), experienced longer neonatal intensive care unit (NICU) stays overall (24.8 vs. 16.0 days,  $p = 0.0097$ ), and had a higher incidence of RDS (43% vs. 30%,  $p = 0.038$ ). Similar trends were observed in neonates born to mothers with creatinine (Cr) levels  $> 1.1$  mg/dL (n = 58) compared to those with Cr  $\leq 1.1$  mg/dL (n = 572). These neonates were also born at earlier gestational ages than their counterparts (33.8 vs. 35.8 weeks,  $p < 0.0001$ ), had lower birth weights (2161.8 vs. 2525.7 grams,  $p = 0.0008$ ), stayed in the NICU for a longer duration (23.1 vs. 16.2 days,  $p = 0.045$ ), and had a higher incidence of RDS (45% vs. 31%,  $p = 0.022$ ). The most pronounced differences were observed in neonates born to mothers with lactate dehydrogenase (LDH) levels  $> 600$  U/L (n = 10) compared to those with LDH  $\leq 600$  U/L (n = 552). These neonates had the lowest gestational ages at birth (32.7 vs. 35.4 weeks,  $p = 0.0085$ ), the lowest birth weights (1736.4 vs. 2480.0 grams,  $p = 0.0035$ ), the longest NICU stays (40.3 vs. 16.8 days,  $p = 0.0045$ ), and the highest incidence of RDS (73% vs. 32%,  $p = 0.0039$ ).

**Conclusions:** Our study suggests that neonates born to preeclamptic mothers with worsening laboratory parameters are at increased risk of adverse neonatal outcomes, including earlier gestational age at delivery, lower birth weights, longer NICU stays, and increased incidence of RDS. Our study confirms that worsening laboratory criteria, which is a marker for preeclampsia with severe features, might be a predictor of those patients who are not candidates for expectant management, leading to worse neonatal outcomes, mostly driven by gestational age at delivery.

11:45 - 12:00 noon

**Paper #22**

**Evaluating the Impact of Robotic-Assisted Laparoscopic Surgery on Health-Related Quality of Life (HRQoL) in Endometriosis Patients Using the Endometriosis Health Profile (EHP-30)**

Teresa Tam, MD<sup>1,3</sup>, Megan Ward, DO<sup>2</sup>, Yuan Yuan Groves, MD<sup>3</sup>

Prime Healthcare-St. Francis Hospital, Evanston, IL<sup>1</sup>, Ascension St. Joseph Hospital, Chicago, IL<sup>2</sup>, All For Women Healthcare, Chicago, IL<sup>3</sup>

**Introduction:** Endometriosis is a chronic gynecological condition that significantly impacts the health-related quality of life (HRQoL) of affected individuals. Characterized by the presence of endometrial-like tissue outside the uterus, endometriosis often results in debilitating pain, infertility, and a reduced quality of life. Surgical intervention, particularly robotic-assisted laparoscopic excision, has emerged as a pivotal treatment modality aimed at alleviating symptoms and improving HRQoL. However, the extent of its impact on various dimensions of patients' lives remains to be thoroughly evaluated.

This study employs the Endometriosis Health Profile (EHP-30), a validated instrument specifically designed to assess the multifaceted effects of endometriosis on HRQoL. By examining EHP-30 scores pre-operatively, at 2 weeks, and at 12-20 weeks or more post-operatively, this research aims to clarify the short- and long-term benefits of surgical intervention.

Additionally, the study investigates differences in outcomes between patients with superficial endometriosis (SE) and those with deep infiltrating endometriosis (DIE), providing a comprehensive understanding of how these subtypes respond to surgical treatment.

**Materials and Methods:** This prospective observational study assesses the impact of robotic-assisted laparoscopic surgery on HRQoL in women with histopathologically-confirmed endometriosis. Conducted from April 27, 2023, to the present, the study involved four major hospitals known for their expertise in managing endometriosis. Women aged 18 and older with suspected pelvic endometriosis were included, contingent on histopathological confirmation post-surgery. Exclusion criteria eliminated those without confirmed endometriosis or severe systemic diseases. The study cohort consisted of 55 women with a mean age of 33.9 years and a mean BMI of 30.38. Participants were predominantly White

(67.3%), with Hispanic (18.2%) and Asian (12.7%) representation. Most were employed (80.0%), non-smokers (96.4%), and nulliparous (83.6%), with 63.6% reporting light-moderate alcohol use and 29.1% using marijuana. Chronic pelvic pain was the most common symptom (70.9%), followed by dysmenorrhea (69.1%) and dyspareunia (41.8%).

The primary outcome was the change in EHP-30 scores, which assess five domains: pain, control and powerlessness, emotional well-being, social support, and self-image. Scores were collected pre-operatively, at 2 weeks post-op, and between 12 to 20 weeks post-op. To minimize variability, a single minimally invasive gynecologic surgeon performed all surgeries, following a standardized protocol to ensure consistency in surgical technique and outcomes. Patients were classified into SE and DIE groups based on surgical findings and histopathological reports. Power analysis using G\*Power 3.1.9.6 determined a sample size of 54 for matched pairs with 95% power.

**Results:** A total of 90 patients were recruited, with 55 completing the study. Exclusions included 12 patients without endometriosis on pathology, 1 with an ovarian tumor, 3 with endosalpingiosis only, 4 due to surgery cancellations, and 3 who withdrew. The analysis included 28 SE and 27 DIE patients. The EHP-30 scores showed statistically significant reductions in total and individual scores at 2 weeks and 12-20 weeks post-operation ( $P < 0.05$  for social support dimension at 2 weeks in the DIE subgroup, all other  $P < 0.001$ ). A significant difference in pain was noted between DIE and SE subgroups at 12-20 weeks post-surgery ( $P < 0.05$ ), with DIE patients experiencing higher pain levels. No significant differences were observed between subgroups in other categories or total scores at any time point.

**Conclusion:** The findings underscore the significant role of robotic-assisted laparoscopic excision in enhancing HRQoL for endometriosis patients. The marked improvement in EHP-30 scores post-operatively highlights the effectiveness of surgical intervention in alleviating symptoms and improving overall well-being. Data reveal that patients with DIE experience substantial relief, which is particularly significant given the often-severe symptomatology associated with this subtype. This suggests that surgical excision can effectively address the more invasive manifestations of endometriosis, offering hope for those who previously faced limited options.

Robotic-assisted laparoscopic excision significantly improves HRQoL in endometriosis patients, as measured by EHP-30, regardless of whether they have DIE or SE. Sustained improvement observed in both the short- and long-term post-operative periods indicates that the benefits of

surgery are not only immediate but also persistent. This long-lasting impact is crucial, as it suggests that surgical intervention can provide a stable solution for symptom management, reducing the need for ongoing medical therapy and its associated side effects. These findings advocate for considering surgical intervention as a primary treatment option in appropriate cases, particularly for those patients who have not achieved adequate relief through medical management alone. However, pain may recur long-term, particularly in DIE patients. Continued recruitment of SE and DIE patients is necessary to further this ongoing study.

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