CENTRAL ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS (FOUNDED 1929)

2019 ANNUAL MEETING

OCTOBER 16 – 19, 2019

PYRAMID AT THE GRAND OASIS
CANCUN, MEXICO

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Andrew F. Wagner, M.D.
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MEETING OBJECTIVES

The Central Association of Obstetricians and Gynecologists is one of the oldest and most prestigious specialty organizations in the United States. Since its founding in 1929, the CAOG has actively encouraged and promoted the study of obstetrics and gynecology and women’s health care. In support of its mission, the national program this year is designed to address important advances in clinical care and practice management, as well as fundamental research. The program is integrated to promote open discussion between attendees, who are leaders in obstetrics, gynecology, genetics, reproductive endocrinology, gynecologic oncology and women’s health care. The program format of hot topics, a keynote speaker and scientific research presentations will promote a better understanding of each subject by filling gaps in knowledge.

Specific learning objectives for each presentation are listed on the speaker evaluation forms.

DISCLOSURE OF FACULTY AND INDUSTRY RELATIONSHIPS

In accordance with ACCME policy, all faculty members have signed a conflict of interest statement in which they have disclosed any relevant financial interests or other relationships with industry relative to topics they will discuss at this program. At the beginning of the program, faculty members are expected to disclose any such information to participants. Such disclosure allows you to evaluate better the objectivity of the information presented in lectures. Please report on your evaluation form any undisclosed conflict of interest you perceive.

MEETING EVALUATION FORMS

Speaker evaluation forms for each session will be distributed to all attendees. Please complete these promptly. A signed, completed evaluation is required by our CME provider in order to receive credit. This also assists with CAOG’s future needs assessment.
ACCME ACCREDITATION STATEMENT
This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the University of North Dakota School of Medicine and Health Sciences and the Central Association of Obstetricians and Gynecologists. The University of North Dakota School of Medicine and Health Sciences is accredited by the ACCME to provide continuing medical education for physicians.

AMA/PRA CREDIT DESIGNATION
STATEMENT FOR CATEGORY 1
The University of North Dakota School of Medicine and Health Sciences designates this Live activity for a maximum of 18.75 AMA PRA Category 1 Credit(s)™. Physicians should only claim the credit commensurate with the extent of their participation in the activity.

CATEGORY 1 CREDIT CERTIFICATES
Award Certificates will be mailed to each attendee after the meeting and will include only those credits for presentations which you have attended and for which a completed and signed evaluation form has been returned.

ACOG COGNATES
The American College of Obstetricians and Gynecologists has assigned up to 19 cognate credits to this program.

SIGN-IN PROTOCOL
The only recognized “official record” of member attendance is your signature on the green card arranged alphabetically in the historic membership books. These have all been updated to begin with 2015, but show meeting attendance since 2005. Consecutive attendance records come from the green card signatures only.

Daily signature sheets are also required for credit documentation. Your attention to this is appreciated.
GENERAL INFORMATION

REGISTRATION (Oasis Arena)
Registration for all attendees will take place during the following hours:

- **Tuesday, October 15**: 11:00 a.m. – 5:00 p.m.
- **Wednesday, October 16**: 7:00 a.m. – 6:00 p.m.
- **Thursday, October 17**: 7:00 a.m. – 1:00 p.m.
- **Friday, October 18**: 7:00 a.m. – 1:00 p.m.
- **Saturday, October 19**: 7:00 a.m. – 12 noon

NAME BADGES (two different colors)
Please wear your name badge to all CAOG events. This is your identification for admission to CAOG activities. Attendees registered for educational credits will receive a white badge. Spouses and guests will receive a tan badge. All badges will be in CAOG “green” holders with adjustable neck cords. Ribbons denote state and other information (officers, speakers, new members).

WELCOME RECEPTION (Wednesday, October 16)
The traditional CAOG Welcome Reception will be held poolside on Wednesday, October 16 from 6:00 p.m. – 7:00 p.m. **Admission is by name badge** so please register on arrival.

SPOUSES/GUESTS PROGRAM (Thursday, October 17)
The traditional spouse/guest program will start at 8:30 a.m. This program will be hosted by the CAOG President’s adult daughter and son, Elisabeth Foran and Ben Foran. They will focus on yoga, strength building and fitness tips. In keeping with the fitness theme, smoothies will be served.

CHILD CARE
The CAOG will not provide child care at this meeting. The Pyramid at the Grand Oasis can provide recommendations for child care. Please contact the hotel if interested in assistance arranging child care.
SCIENTIFIC SESSIONS

All general scientific sessions will be held in the Oasis Arena. The sessions will begin at 7:30 a.m. on Wednesday, Thursday, Friday and Saturday. Hot topic lectures will be part of each general session.

HOT TOPIC LECTURES AND KEYNOTE ADDRESS

Ten “hot topic” lectures will be presented, with four on Wednesday, three on Thursday, one on Friday and two on Saturday. Each emphasizes the most up-to-date information on: 1) reducing complexity on labor and delivery, 2) mycoplasma genitalium and STI’s, 3) counseling and management of pregnancies at risk of periviable birth, 4) trauma-informed care, 5) impact of consumerism/social media, 6) fetal monitoring performance improvement, 7) physician burnout, 8) Mexican women’s health care overview, 9) financial wellness, 10) myth vs. reality of healthy living.

The Keynote Address will be delivered on Friday, October 18th by Dr. John J. Sciarra, M.D., Ph.D. who has long been preeminent as an advocate for global women’s health care. The intriguing title of his talk is “Global Women’s Health Challenges.
PRESIDENTIAL ADDRESS (Friday, October 18)

CAOG President Vanessa M. Barnabei from Buffalo, New York will be escorted to the podium by the Past Presidents of CAOG who are in attendance. She will deliver her Presidential Address at 12:30 p.m. on Friday in the Oasis Arena. All registrants and guests are invited to attend her thought provoking presentation titled “Why I’m Still a Feminist: From Misogyny to Maternal Mortality.”

The 86th incoming CAOG President, Suneet P. Chauhan, M.D. will be installed in a brief ceremony immediately following the Presidential Address.

ANNUAL BUSINESS MEETING (Friday, October 18)

The CAOG Annual Business Meeting will be held following the Presidential Address at 1:15 p.m. on Friday, October 18, in the Oasis Arena. New members elected in 2018 will be introduced at this time and membership certificates will be presented.

RECEPTION/DINNER/AWARDS (Fri., October 19)

The traditional Friday Evening CAOG Banquet is always the highlight of the Annual Meeting. This year is no exception. The reception will begin at 6:00 p.m. on the beach (weather permitting) with dinner to follow at 7:00 p.m. In the event of inclement weather we will move to the terrace. Awards for the best papers and posters will be presented along with other special acknowledgements by President Dr. Vanessa Barnabei.

Business casual attire is acceptable for this evening, as well as for the meeting events throughout the week. Otherwise tasteful resort and beach wear should be worn appropriately.
INDUSTRY EXHIBITS
The Industry Exhibits will be located in the Oasis Arena. The Scientific Posters will also be displayed in the same area. Hours are:

Exhibit Set-Up
Tuesday, October 15 1:00 p.m. – 5:00 p.m.

Exhibit Hall Hours
Wednesday, October 16 7:00 a.m. – 12 noon
Thursday, October 17 7:00 a.m. – 12 noon
Friday, October 18 7:00 a.m. – 10:45 a.m.

Exhibit Dismantle
Friday, October 18 10:45 a.m.

SCIENTIFIC POSTER DISPLAYS
The Scientific Poster session will be located in the Oasis Arena with the Exhibit Hall.

Poster Set-Up
Wednesday, October 16 2:00 p.m. – 5:00 p.m.

Poster Hours
Thursday, October 17 7:00 a.m. – 12 noon
Friday, October 18 7:00 a.m. – 10:45 a.m.

Poster Judging:
Thursday, October 17 10:00 – 10:45 a.m.
Friday, October 18 10:00 – 10:45 a.m.

Poster Dismantle
Friday, October 18 10:45 a.m.

CAOG ANNUAL MEETING POLICY
Absolutely no refunds after
5:00 pm (CDT) Friday, September 13, 2019
**PROGRAM SCHEDULE**
86th Annual Meeting Central Association of Obstetricians and Gynecologists
Pyramid at the Grand Oasis
October 16 – 19, 2019

**TUESDAY, OCTOBER 15, 2019**

11 a.m. – 3 p.m.  CAOG Officers and Trustees
Annual Meeting
Puebla Room

**WEDNESDAY, OCTOBER 16, 2019**

7:00 a.m.  General Registration (Oasis Arena)
7 a.m. – 12 noon  **Industry Exhibits Open**
2 p.m. – 5 p.m.  **Scientific Poster Set Up**

**FIRST SCIENTIFIC SESSION**
(Oasis Arena)

**Moderators:**
Vanessa M. Barnabei, M.D., Ph.D. – CAOG President
J. Coffy Pieternelle, M.D. – CAOG President Elect II

7:30 – 8:30 a.m.  **Hot Topic #1**
“Reducing Complexity on Labor & Delivery”
Neel T. Shah, M.D., MPP
Beth Isreal Deaconess Medical Center
Boston, Massachusetts

8:30 – 9:00 a.m.  **Paper #1 Central Prize Award**
The Relationship Between Glucose Testing in an Index Pregnancy and Outcomes in a Subsequent Pregnancy: Implications for Testing Guidelines”
Emmet Hirsch, M.D.
NorthShire University HealthSystem
Evanston, Illinois

Discussant:  David M. Haas, M.D., M.S.
Indianapolis, Indiana
9:00 – 10:00 a.m. **Hot Topic #2**
Mycoplasma Genitalium & Sexually Transmitted Infections
**Thomas F. Arnold, M.D.**
St. Alexius Women’s Clinic
Dickinson, North Dakota

10:00 – 10:45 a.m. **Break/Refreshments/Exhibits/Posters**
(Oasis Arena)

**SECOND SCIENTIFIC SESSION**
(Oasis Arena)

**Moderators:**
Pamela R. Midboe-Penn, M.D. – CAOG Trustee
Andrew F. Wagner, M.D. – CAOG Secretary/Treasurer

10:45 – 11:30 a.m. **Hot Topic #3**
“Counseling and Management of Pregnancies at Risk of Periviable Birth”
**Emily A. DeFranco, D.O., M.S.**
Univ. of Cincinnati Medical School
Cincinnati, Ohio

11:30 – 12 noon **Paper #2 President’s Certificate of Merit Award**
“Increases in Albumin-Adjusted Serum Calcium Over Time Predict Ovarian Cancer”
**Gary G. Schwartz, Ph.D., MPH, Ph.D.**
UND School of Med. & Health Sciences
Grand Forks, North Dakota

Discussant: Thomas F. Arnold, M.D.
Dickinson, North Dakota

12:00 – 1:00 p.m. **Hot Topic #4**
“What is Trauma-Informed Care? Exploring the Fundamentals of Trauma-Informed Care and How it Can Benefit You and Your Patients”
**Whitney E. Mendel, MSW, Ph.D.**
Daemen College
Amherst, New York

6:00 – 7:00 p.m. Welcome Reception (Poolside)
THURSDAY, OCTOBER 17, 2019

7:00 a.m. General Registration (Oasis Arena)

7 a.m. – 12 noon Industry Exhibits Open

7 a.m. – 12 noon Scientific Poster Session Open

THIRD SCIENTIFIC SESSION
(Oasis Arena)

Moderators:
Karolina Adam, M.D. – CAOG Vice President
Emily A. DeFranco, D.O., M.S. – CAOG Trustee

7:30 a.m. Opening Remarks

7:30 – 8:30 a.m. Hot Topic #5
“Impact of Consumerism/Social Media on Clinical Practice”
Neel T. Shah, M.D., MPP
Beth Israel Deaconess Medical Center
Boston, Massachusetts

8:30 – 9:00 a.m. Paper #3 Community Hospital Award
“To Treat or Not to Treat: Effect of One Elevated Glucose Tolerance Test Value”
Leah A. Hong, M.D.
Henry Ford Health System
Detroit, Michigan

Discussant: Pamela R. Midboe-Penn, MD
Lexington, Kentucky

9:00 – 10:00 a.m. Hot Topic #6
“Improving the Performance of Fetal Monitoring”
Mark I. Evans, M.D.
Comprehensive Genetics
New York, New York

10:00 – 10:45 a.m. Break/Refreshments/Exhibits/Posters
(Oasis Arena)
FOURTH SCIENTIFIC SESSION  
(Oasis Arena)

Moderators:
Lee P. Shulman, M.D. – CAOG Past President
James W. Van Hook, M.D. – CAOG Trustee

10:45 – 11:15 a.m. **Paper #4 Young Investigator Award**
“The Influence of Insufficient Prenatal Care on Severe Maternal Morbidity.”  
**Emily A. DeFranco, D.O., M.S.**  
University of Cincinnati Medical School  
Cincinnati, Ohio

Discussant:  Elliot M. Levine, M.D.  
Chicago, Illinois

11:15 – 11:45 am **Paper #5 Dr. Jack A. Pritchard Memorial Paper**  
“Adverse Outcomes Among Low-Risk Pregnancies at 39 to 41 Weeks: Stratified by Fetal Growth”  
**Hector Mendez-Figueroa, M.D.**  
Baylor College of Medicine  
Houston, Texas

Discussant:  Emmet Hirsch, M.D.  
Evanston, Illinois

11:45 a.m – 12:45 **Hot Topic #7**  
“The Cost of the Work: Acknowledging the Realities of Physician Burnout and Exploring Strategies for Prevention”  
**Whitney E. Mendel, MSW, Ph.D.**  
Daemen College  
Amherst, New York
7:00 a.m. General Registration (Oasis Arena)

7:00 – 10:45 a.m. Industry Exhibits Open

7:00 – 10:45 a.m. Scientific Poster Session Open

**FIFTH SCIENTIFIC SESSION**

(Oasis Arena)

**Moderators:**
Dana M. Benden, M.D. – CAOG Trustee
Peter B. Greenspan, D.O. – CAOG Trustee

7:30 a.m. Announcements

7:30 – 8:00 a.m. **Paper #6**
“Apgar Score at 5 Minutes and Adverse Outcomes Among Low-Risk Pregnancies”
**Suneet P. Chauhan, M.D., Hon. D.Sc.**
McGovern Medical School-UTHealth
Houston, Texas

Discussant: Jonathan K. Muraskas, M.D.
Maywood, Illinois

8:00 – 8:30 a.m. **Paper #7**
“Use of Ibuprofen in Managing Cervical Shortening”
**Craig V. Towers, M.D.**
University of Tennessee Medical Center
Knoxville, Tennessee

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

8:30 – 9:30 a.m. **Hot Topic #8**
“Mexican Women’s Health Care: An Overview”
**Ernesto Castelazo Morales, M.D.**
Mexico City, Mexico
9:30 – 10:00 a.m. **Paper #8**

**Dr. Kermit E. Krantz**

**Memorial Paper**

“Increasing Selection of Preconception Expanded Carrier Screening and Its Impact on Preimplantation Genetic Diagnosis (PGT-M)”

**Lee P. Shulman, M.D.**

Feinberg School of Medicine

Chicago, Illinois

Discussant: Mark I. Evans, M.D.

New York, New York

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

(Oasis Arena)

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**SIXTH SCIENTIFIC SESSION**

(Oasis Arena)

**Moderators:**

Suneet P. Chauhan, M.D. – CAOG President Elect I

Craig V. Towers, M.D. – CAOG Trustee

10:45 – 11:15 a.m. **Paper #9**

“Preimplantation Genetic Testing for Structural Rearrangements (PGT-SR): Outcomes and Incidental Findings from 24-Chromosome Analysis”

**Savanie I. Maithripala, MSc, LCGC**

Reproductive Genetic Innovations, LLC

Northbrook, Illinois

Discussant: Steven J. Ory, M.D.

Margate, Florida

11:15 – 11:45 a.m. **Paper #10**

“Neonatal and Maternal Morbidity Among Low-Risk Pregnancies at 37 to 41 Weeks: The Influence of Time of Delivery”

**Stephen M. Wagner, M.D.**

McGovern Medical School-UTHHealth

Houston, Texas

Discussant: Karolina Adam, M.D.

Houston, Texas
11:45 – 12:30  **Keynote Address**
“Global Women’s Health Challenges”
**John J. Sciarra, M.D., Ph.D.**
Northwestern University
Chicago, Illinois

12:30 – 1:15 p.m.  **Presidential Address**
“Why I’m Still a Feminist: From Misogyny to Maternal Mortality”
**Vanessa M. Barnabei, M.D., Ph.D.**
Jacobs School of Medicine
Univ. at Buffalo-The State Univ. of NY
Buffalo, New York

1:15 p.m  **Installation of New President**

1:15 – 1:45 p.m.  **Annual Business Meeting CAOG**

6:00 – 9:30 p.m.  **Annual Gala Reception/Dinner**
(Beach)
SEVENTH SCIENTIFIC SESSION
(Oasis Arena)

Moderators:
Angelina Gangestad, M.D. – Program Committee Member
Irene A. Stafford, M.D. – CAOG Member

7:00 a.m. General Registration (Oasis Arena)

7:30 a.m. Announcements

7:30 – 7:45 a.m. Paper #11
“Reducing the NTSV Cesarean Delivery Rate by Minimizing Elective Induction of Labor”
Elliot M. Levine, M.D.
Advocate Illinois Masonic Med. Center
Chicago, Illinois

7:45 – 8:00 a.m. Paper #12
“Relationship Between Obesity and Cesarean Delivery Rate”
Jessica H. Siegler, M.D.
University of Illinois at Chicago
Chicago, Illinois

8:00 – 8:15 a.m. Paper #13
“Clinical Guidelines by Society of Maternal-Fetal Medicine: An Overview”
Clifton O. Brock, M.D.
McGovern Medical School-UTHealth
Houston, Texas

8:15 – 9:00 a.m. Hot Topic #9
“Financial Wellness: The Cure for Fiscal Insomnia”
Brent W. Bost, M.D., MBA
Baylor University Medical Center
Dallas, Texas

9:00 – 9:15 a.m. Paper #14
“Outcome of Savior Sibling Program”
Norman A. Ginsberg, M.D.
Advocate Illinois Masonic Hospital
Chicago, Illinois
9:15 – 9:30 a.m.  
**Paper #15**  
Dr. Bryan D. Cowan  
FAR Research Network Award  
“Cesarean Section Does Not Improve Survival Outcomes Less Than 25 Weeks Gestational Age”  
Tiffany R. Tonismae, M.D.  
Indiana University School of Medicine  
Indianapolis, Indiana

9:30 – 9:45

**Paper #16**  
Dr. George W. Morley  
Memorial Paper  
“A System-Level Approach to Improving Cervical Cancer Screening Rates & Surveillance: Implementation of an Electronic Health Record Tracking System in a Community Health System”  
Courtney K. Pfeuti, B.A.  
University of Wisconsin  
School of Medicine & Public Health  
Madison, Wisconsin

9:45 – 10:15 a.m.  
Break/Refreshments  
(Oasis Arena)

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**EIGHTH SCIENTIFIC SESSION**  
(Oasis Arena)

**Moderators:**  
Brent W. Bost, M.D. – Program Committee Member  
Emmet Hirsch, M.D. – Program Committee Member

10:15 – 11:00 a.m.  
**Hot Topic #10**  
“Healthy Living: Myth vs. Reality”  
Shilpa Babbar, M.D., M.S.  
St. Louis University School of Medicine  
St. Louis, Missouri

11:00 – 11:15 a.m.  
**Paper #17**  
“Clinical Utilization of Weekly Laboratory Testing in the Outpatient Management of Preeclampsia”  
John A. Morgan, M.D.  
LSU-Health Shreveport  
Shreveport, Louisiana
11:15 – 11:30 a.m. **Paper #18**
“Newborn Renal Function as an Adjunct Biomarker in Timing of Fetal Neurologic Injury”
**Maika T. Manalastas, D.O.**
Loyola University Medical Center
Maywood, Illinois

11:30 – 11:45 a.m. **Paper #19**
“Adherence and Outcomes for 17-Hydroxyprogesterone Caproate Use in Women with a Previous History of Preterm Birth”
**Alexandra M. Edwards, M.D.**
Saint Louis Univ. School of Medicine
St. Louis, Missouri

11:45 – 12:00 p.m. **Paper #20**
“Transversus Abdominis Plane (TAP) Block with Liposomal Bupivacaine for Laparoscopic Hysterectomy with Umbilical Contained Tissue Extraction”
**Laura D. Young, M.D.**
Indiana University School of Medicine
Indianapolis, Indiana

12:00 – 12:15 p.m. **Paper #21**
“Maternal Obesity and Severity of Intrauterine Growth Restriction”
**Lisette D. Tanner, M.D., MPH**
McGovern Medical School-UTHealth
Houston, Texas

12:15 – 12:30 p.m. **Paper #22**
“The Significance of Unsatisfactory Cervical Liquid Based Cytology and the Subsequent Risk of Future Abnormal Cytology”
**Jenna R. Voirol, M.D.**
Indiana University
Indianapolis, Indiana
ADJOURN

PLEASE COMPLETE, SIGN AND RETURN ALL SPEAKER EVALUATION FORMS AS THESE ARE REQUIRED IN ORDER TO RECEIVE CME !!

THANK YOU FOR ATTENDING
7:00 a.m. General Registration (Oasis Arena)

7 a.m. – 12 noon INDUSTRY EXHIBITS OPEN

2 p.m. – 5 p.m. SCIENTIFIC POSTER SET UP

FIRST SCIENTIFIC SESSION
(Oasis Arena)

Moderators:
Vanessa M. Barnabei, M.D., Ph.D. – CAOG President
J. Coffy Pieternelle, M.D. – CAOG President Elect II

7:30 – 8:30 a.m. Hot Topic #1
“Reducing Complexity on Labor & Delivery”
Neel T. Shah, M.D., MPP
Beth Isreal Deaconess Medical Center
Boston, Massachusetts

Learning Objectives:
• Highlight common examples of complexity challenges on labor and delivery.
• Describe ways to reduce complexity challenges and errors on labor and delivery.
8:30 – 9:00 a.m.

**Paper #1 Central Prize Award**

The Relationship Between Glucose Testing in an Index Pregnancy and Outcomes in a Subsequent Pregnancy: Implications for Testing Guidelines

Emmet Hirsch, MD\(^1,2\), Samantha de los Reyes, MD\(^1,2\), Marci G Adams, MS\(^1\)

NorthShore University HealthSystem, Evanston, IL\(^1\), Pritzker School of Medicine, University of Chicago, Chicago, IL\(^2\)

**Purpose:** The purpose of this study is to categorize outcomes in a subsequent pregnancy based upon the results of glucose testing in an index pregnancy. We hypothesize that current practices for screening and diagnosis in subsequent pregnancies (i.e. 1-hour screening in all patients followed by 3-hour diagnostic testing for abnormal 1-hour results) can be modified rationally based upon these data to enrich for detection of abnormal glucose tolerance and to avoid performing unnecessary screening assays.

**Methods:** This is a retrospective cohort study of women who delivered at least two singleton pregnancies >24 weeks' gestation between June 2009 and December 2018 at NorthShore University HealthSystem hospitals. Patients were included if the result of a 1-hour glucose challenge screening test performed during the index pregnancy between 24-28 weeks' gestation was available in the Enterprise Data Warehouse. Potential associations between test results in the index pregnancy and outcomes in the subsequent pregnancy (abnormal glucose testing and/or diagnosis of gestational diabetes (GDM)) were examined.

**Results:** 4,163 women met inclusion criteria. Mean values for the index pregnancy included: maternal age 30.1; BMI 25.5; birth weight 3.371 kg; inter-pregnancy interval 705 days. Of the 4,163 patients, 3,382 (81.2%) had a normal 1-hour screen in the index pregnancy. Of these, 3,355 (99.2%) had a 1-hour screen in the subsequent pregnancy, of which 474 (14.1%) were abnormal. In total, only 146 (4.3%) of the 3,382 women with normal 1-hour screens in the index pregnancy received a diagnosis of gestational diabetes in the subsequent pregnancy (based on either a 1-hour screen above 200 mg/dl, 2 abnormal values on a 3-hour test, or ICD-9/10 coding). A diagnosis of gestational diabetes in the subsequent pregnancy was significantly more likely with BMI >30 kg/m\(^2\) (9.4% vs. 2.8%, Pearson Chi-Square p<0.001, OR 3.61, 95%CI 2.48-5.25), and inter-pregnancy interval of >2 years (5.9% vs. 3.4%, Pearson Chi-Square p=0.001, OR 1.76, 95% CI 1.26-
Of the 4,163 1-hour screens performed in the cohort during the index pregnancy, 781 (18.8%) were abnormal, and 269 of these patients (34.4%) were identified as having received a diagnosis of gestational diabetes in the index pregnancy based on either abnormal lab testing or ICD-9/10 coding. 731 of the 781 patients with abnormal 1-hour screens in the index pregnancy (94%) were screened with a 1-hour test in the second pregnancy, of which 356 (49%) were abnormal. Interestingly, 233 of these 781 patients (30%) received a diagnosis of gestational diabetes in the second pregnancy, but only 58% of these diagnoses were verified to be based on laboratory criteria.

**Conclusions:** At least 3 of the above observations prompt consideration of changes to current practices: First, among women with a normal 1-hour screen in an index pregnancy, the likelihood of gestational diabetes in a subsequent pregnancy is only 4.3%, and in this group, obesity and inter-pregnancy interval of >2 years identify patients at increased risk. These data suggest that testing for glucose intolerance in a subsequent pregnancy after a normal screen in the index pregnancy is unnecessary for most patients and might be directed at specific sub-groups. Second, the likelihood of an abnormal 1-hour screen in the subsequent pregnancy after an abnormal 1-hour screen in the index pregnancy is 49%. This result suggests that a 1-hour screening test in the subsequent pregnancy (which will necessitate a confirmatory diagnostic test in nearly half of patients) is an inefficient method that should be replaced with primary diagnostic testing in patients with a history of an abnormal 1-hour screen. Third, up to 42% of patients with a diagnosis of gestational diabetes in the subsequent pregnancy received this diagnosis in the absence of lab-based criteria. This suggests that formal criteria for diagnosing GDM are frequently bypassed in clinical practice, and that a critical examination of both the guidelines and the reasons for non-adherence to them is merited.

**Discussant:** David M. Haas, M.D., M.S.
Indianapolis, Indiana
9:00 – 10:00 a.m. **Hot Topic #2**
Mycoplasma Genitalium & Sexually Transmitted Infections
**Thomas F. Arnold, M.D.**
St. Alexius Women’s Clinic
Dickinson, North Dakota

**Learning Objectives:**
- Review the emergence of mycoplasma genitalium as a sexually transmitted infection.
- Explain where new testing for mycoplasma genitalium belongs in patient care.

10:00 – 10:45 a.m. **Break/Refreshments/Exhibits/Posters**
(Oasis Arena)

### SECOND SCIENTIFIC SESSION
(Oasis Arena)

**Moderators:**
Pamela R. Midboe-Penn, M.D. – CAOG Trustee
Andrew F. Wagner, M.D. – CAOG Secretary/Treasurer

10:45 – 11:30 a.m. **Hot Topic #3**
“Counseling and Management of Pregnancies at Risk of Perivable Birth”
**Emily A. DeFranco, D.O., M.S.**
Univ. of Cincinnati Medical School
Cincinnati, Ohio

**Learning Objectives:**
- Discuss counseling for patients at risk for perivable birth.
- Outline best management strategies to prevent perivable births.
Objective: Ovarian cancer accounts for 5% of all cancer deaths among women. Survival from ovarian cancer is strongly stage-dependent: the 5-year survival for all stages combined is 47% but is 92% for Stage I disease. There are presently no FDA-approved screening methods for detecting ovarian cancer, which is an unmet medical need.

Previously, we showed that women with higher serum calcium were significantly more likely to be diagnosed and to die of ovarian cancer and that, at the time of surgery, women with malignant ovarian tumors had significantly higher serum calcium than women with benign tumors [1,2]. A likely mechanism for the increased serum calcium in ovarian cancer involves parathyroid hormone-related protein, which is upregulated in malignant ovarian cells [3].

Because the higher serum calcium in women with ovarian cancer likely develops gradually, we hypothesized that a pattern of rising serum calcium over time could predict ovarian cancer. We asked, prior to their diagnosis, are women with ovarian cancer more likely to show a positive slope in their in albumin-adjusted serum calcium (a-asc) over time?

Methods: This is a population-based case-control study of serum calcium and serum albumin. The data are from patients seen at clinics operated by Sanford Health, in Sioux Falls, SD. Cases were women with epithelial ovarian cancer and controls are women without a diagnosis of cancer seen at the same clinics. Women with a previous history of cancer and/or parathyroid disease were excluded. We obtained longitudinal records of calcium and albumin from patients' Comprehensive Metabolic Panels (CMPs). Because 50% of calcium in blood is bound to serum albumin, we calculated albumin-adjusted serum calcium (a-asc) by standard formula (A-asc = [0.8 X (4.0 - patient's albumin)] + patient's calcium). We estimated
regression equations of each woman's a-asc from pre-
diagnosis to the time of diagnosis. Data were analyzed by 
multiple regression, ANCOVA and logistic regression.

Results: We studied 124 cases of epithelial ovarian cancer 
and 98 female controls. Cases were significantly older than 
controls (64.7 ± 12.9 SD, vs. 41.0 ± 16.8 years). The average 
time from first to last serum measurement was 1,383 ± 859 
days for cases and 575 ± 389 days for controls.

The first and last a-asc in the controls was identical: 9.23 
mg/dL (± 0.43,0.29,respectively),for an average slope of 0. 
The first and last values of a-asc for cases were 9.28 (± 0.44) 
and 9.37 mg/dL (± 0.32), with an average slope of 0.04 mg/dl 
per year (P< 0.001 for the difference in slopes). We stratified 
cases in 15 year intervals (ages 25-39, 40-54, 55-69, 70-84, 
85+). The slopes for a-asc/time in cases were significantly 
greater in cases for women < 70 years but did not differ 
significantly in cases 70+ years old.

The probability of ovarian cancer associated with a 0.04 
mg/dL/year increase in a-asc increased with age until age 70: 
the probability of being a case at age 50 for a woman with a 
0.04 mg/dL rise was 70%; for women aged 55, 60, and 65, the 
probabilities were 82.3, 90.3 and 95%, respectively. Increases 
in slope > 0.04 mg/dL were associated with significantly 
greater risks (i.e., a dose-response effect). Thus, the Odd 
Ratio (OR) of ovarian cancer for a 65 year old woman with a 
0.06 mg/dL increase/year was ~ 3.0; the OR for a woman 
with a 1 mg/dl increase/year was ~ 10. As we reported 
previously, even early stage tumors were associated with 
increases in a-asc.[2]

Conclusions: Serum calcium levels in healthy individuals are 
tightly regulated and the "expected" slope of a-asc is zero (as 
seen in the controls). Our findings of a significant positive 
slope of a-asc in women with ovarian cancer, if confirmed by 
future studies, suggests that a pattern of increasing a-asc could 
help identify women with undiagnosed ovarian cancer.

Increases in a-asc often were modest and likely would be 
overlooked even by alert clinicians. However, a computer 
algorithm could calculate the slope of a-asc from patients' 
medical records and "flag" women with positive slopes. These 
women could be candidates for increased medical 
surveillance (e.g., via transvaginal ultrasonography).

Further study of these well-characterized and inexpensive 
analytes in the early detection of ovarian cancer is warranted.

References:
1. Schwartz GG et al. Prospective studies of total and ionized 
serum calcium in relation to incident and fatal ovarian cancer 
Gynecol Oncol 2013;129:169.
2. Kelly MG et al. Serum calcium and serum albumin are biomarkers that can discriminate malignant from benign pelvic masses Cancer Epi Biomarkers Prev 2015;24:1593.

Discussant: Thomas F. Arnold, M.D.
Dickinson, North Dakota

12:00 – 1:00 p.m. **Hot Topic #4**
“What is Trauma-Informed Care? Exploring the Fundamentals of Trauma-Informed Care and How it Can Benefit You and Your Patients”
**Whitney E. Mendel, MSW, Ph.D.**
Daemen College
Amherst, New York

**Learning Objectives:**
- Define trauma informed care in medicine.
- Illustrate the challenge of teaching providers about trauma informed care.

6:00 – 7:00 p.m. Welcome Reception (Poolside)
SCIENTIFIC PRESENTATIONS
THURSDAY, OCTOBER 17, 2019

7:00 a.m. General Registration (Oasis Arena)

7 a.m. – 12 noon INDUSTRY EXHIBITS OPEN

7 a.m. – 12 noon SCIENTIFIC POSTER SESSION OPEN

THIRD SCIENTIFIC SESSION
(Oasis Arena)

Moderators:
Karolina Adam, M.D.– CAOG Vice President
Emily A. DeFranco, D.O., M.S. – CAOG Trustee

7:30 – 8:30 a.m. Hot Topic #5
“Impact of Consumerism/Social Media on Clinical Practice”
Neel T. Shah, M.D., MPP
Beth Isreal Deaconess Medical Center
Boston, Massachusetts

Learning Objectives:
• Assess the impact of consumerism/social medial on clinical practice today.
• Compare opportunities to positively address current consumerism/social media issues.
Introduction: Gestational diabetes mellitus (GDM) has been extensively studied and is associated with both maternal and neonatal complications. Maternal complications include an increased risk of developing preeclampsia and undergoing cesarean section. Neonatal complications include an increased risk of macrosomia, neonatal hypoglycemia, hyperbilirubinemia, shoulder dystocia, birth trauma, and stillbirth.

Contention exists regarding the risk of a single abnormal value on 3-hr glucose tolerance test (GTT). Previous studies regarding the risk of a single abnormal value have revealed mixed results. Some investigators have found that impaired glucose tolerance is associated with large-for-gestational-age (LGA) infants, macrosomia, cesarean delivery, and preeclampsia, while others have not found increased risk.

The objective of this study was to determine if treating women with one abnormal value on 3-hr GTT decreases the risk of adverse maternal and neonatal complications. We hypothesized that women with a single abnormal GTT value who are managed as a gestational diabetic will be at decreased risk of neonatal complications including macrosomia, shoulder dystocia, neonatal intensive care unit (NICU) admission, birth trauma, hypoglycemia and stillbirth. In addition, maternal complications including incidence of preeclampsia, postpartum hemorrhage, 3rd/4th degree laceration and cesarean delivery would be decreased.

Methods: We conducted a retrospective cohort study of all women that were screened for GDM with a 3-hour glucose tolerance test between July 2013 and July 2018 at Henry Ford Health System. Pregnancies were screened for GDM with 1-hour GTT, women with values above 135 mg/dL were then recommended to undergo a 3-hr GTT. The exclusion criteria included multiple gestation, preterm delivery, chronic steroid use or pregestational diabetes.

Elevated GTT values were defined as plasma blood glucose of ≥ 95, 180, 155, 140 mg/dL for fasting, 1-hour, 2-hour, and 3-hour tests, respectively, after the 100 gram glucose load
utilizing the Carpenter-Coustan criteria. Neonatal and maternal outcomes in women with only a single abnormal GTT value managed as a gestational diabetic were compared with outcomes in women with one elevated GTT value who received routine care.

Descriptive statistics are reported as mean ± SD for continuous variables and as frequencies (percentages) for categorical variables. The means of continuous variables were compared using Student's t tests. Categorical variables were analyzed using chi-square or Fisher's exact tests. Univariate and multivariate logistics regression models were used to assess the effect of treatment with a single abnormal value on 3-hour GTT on neonatal and maternal outcomes, adjusting for baseline characteristics. Statistical significance was considered to be P <.05. All analyses were performed using SAS9.4 (SAS Institute, Cary, NC)

Results: There were a total of 9,422 women who underwent 3-hr GTT. Of these women, a total of 1054 women met criteria for inclusion, 381 (36.15%) were treated and 673 (63.85%) received routine care. The average age was 30.7 years and the average body mass index (BMI) at initiation of prenatal care was 30.7 kg/m². Age and initial BMI were similar in both groups. The majority of the women were Caucasian (470; 44.6%), followed by African American (207; 19.6%), Middle Eastern (155; 14.7%) and Hispanic (113; 10.7%). The treated group had more women with a history of GDM.

The treated group had a lower risk of birth weight > 4000 grams (11% vs 15.5%, p = 0.045), but was found to have a higher risk of neonatal hypoglycemia (8.1% vs 2.5%; p < 0.0001). There were no other statistically significant differences between treated and untreated groups on fetal outcomes including shoulder dystocia, birth trauma, NICU admission or stillbirth/neonatal death. There were no statistically significant differences between treated and untreated groups on maternal outcomes including cesarean delivery, preeclampsia, postpartum hemorrhage, or 3rd/4th degree lacerations.

There were no differences in composite maternal morbidity (p=0.86) and composite neonatal morbidity (p=0.99). After adjusting for baseline characteristics of age, race, nulliparity, BMI and previous history of GDM, a 3 fold increased risk of neonatal hypoglycemia remained in the treated group.

Further analysis was completed based on the different methods of treatment. Women treated with glyburide had the highest rate of fetal hypoglycemia. In the multivariate analysis, glyburide had more than 7-fold increased risk of fetal hypoglycemia compared to the untreated group (aOR 6.66; 95% CI: 2.72-16.35, p <0.001). A composite analysis of
all other treatments revealed a 3-fold increased risk (aOR 2.54; 95% CI: 1.28-5.07; p = 0.007).

**Discussion:** Treating women with 1 abnormal value on 3-hr GTT, increased their risk for neonatal hypoglycemia without improvement in other maternal or neonatal outcomes. Regardless of method of treatment, this increased risk for neonatal hypoglycemia remained increased compared to women in the group receiving routine care.

These unexpected findings should prompt future studies regarding optimal management of patients with 1 abnormal value on 3-hr GTT, ideally with a prospective randomized controlled trial. Providers need to consider the possibility that treatment of patients with one abnormal value on 3-hr GTT may result in increased morbidity.

**Discussant:** Pamela R. Midboe-Penn, M.D.
Lexington, Kentucky

9:00 – 10:00 a.m. **Hot Topic #6**
“Improving the Performance of Fetal Monitoring”
**Mark I. Evans, M.D.**
Comprehensive Genetics
New York, New York

**Learning Objectives:**
- Review the current failings of electronic fetal monitoring in obstetrics.
- Explain ways that fetal monitoring performance can be significantly improved.

10:00 – 10:45 a.m. **Break/Refreshments/Exhibits/Posters**
(Oasis Arena)
FOURTH SCIENTIFIC SESSION  
(Oasis Arena)

Moderators:  
Lee P. Shulman, M.D. – CAOG Past President  
James W. Van Hook, M.D. – CAOG Trustee

10:45 – 11:15 a.m.  
Paper #4 Young Investigator Award  
The Influence of Insufficient Prenatal Care on Severe Maternal Morbidity

Michael William DeGrandis, BA, Emily A. DeFranco, DO, MS

University of Cincinnati College of Medicine, Cincinnati, OH

Objective: Prenatal care is associated with improvement in pregnancy outcomes. Given the increasing incidence of maternal mortality in the US, we sought to investigate the influence of quantity of prenatal care on serious maternal morbidity among a contemporary population of live births in the state of Ohio.

Study Design: We performed a population-based cohort study of all live births in Ohio over a 10 year period, 2006-2015, utilizing US live birth records from the state of Ohio.

The exposure variables were insufficient and lack of prenatal care, compared to referent group of sufficient care. The number of prenatal care visits is recorded on the US certificate of live birth based on data obtained from the obstetric medical record. From this and the gestational age at birth we classified quantity of prenatal care for each birth as sufficient, insufficient, or no prenatal care. Insufficient prenatal care was defined as less than 50% of the recommended number of prenatal care visits per the American College of Obstetricians and Gynecologists, stratified by gestational age at birth.

The primary outcomes for this study were maternal ICU admission during delivery hospitalization and a composite adverse maternal outcome, which included any of the following individual outcomes: blood product transfusion, unplanned hysterectomy, unplanned operation after delivery, ruptured uterus, or maternal ICU admission. These outcomes were chosen because they are recorded on the US certificate of live birth and represent indicators of a serious adverse event of the mother during delivery hospitalization.
Maternal demographic characteristics and obstetric outcomes available from the birth certificate were compared between the three exposure (prenatal care) groups. To minimize overlap with other factors that could lead to a significant risk of adverse maternal outcome, we limited our analyses to singleton live births between 28 to 42 weeks of gestational age. Analysis was limited to singletons to avoid duplicate counting of maternal outcomes for multifetal gestations. Generalized linear regression models (GLM) estimated the relative association of insufficient prenatal care with maternal adverse outcomes after adjusting for coexisting risk factors.

Results: Of the 1,463,506 live births in Ohio during the 10-year study period, there were 1,304,536 (89.1%) births recorded between 28 and 42 weeks of gestational age. There was minimal missing data on gestational age at birth (n=1,822, 0.12%) and number of prenatal visits (n=119,450, 8.16%); these births were not included in analysis.

Three categories were created from the remaining 1,257,367 births; no prenatal care (n=25,612, 2.0%), insufficient prenatal care (n=155,458, 12.4%), and sufficient prenatal care (n=1,076,297, 85.6%). The rate of no prenatal care was higher among Non-Hispanic (NH) black women and Hispanic women compared to NH white, (3.8% and 3.3% compared to 1.6% in White, respectively), p<0.001. The rate of insufficient prenatal care was higher among NH black and Hispanic women compared to NH white, (18.8% and 17.6% compared to 10.7%, respectively), p<0.001.

Women who had existing risk factors: pre-gestational DM, gestational DM, GHTN, and CHTN on average were more likely to have sufficient prenatal care, p<0.001. Medicaid was used more frequently by women who received no prenatal care and insufficient prenatal care compared to sufficient (42.3 vs. 47.8 vs. 34.8% p<0.001). Cigarette use (29.2 vs. 24.0 vs. 16.9% p<0.001) was more prevalent among the no and insufficient prenatal care groups.

After accounting for the confounding influence of coexistent risk factors, NO prenatal care was found to significantly increase the risk of the two primary outcomes nearly 2-fold, ICU admission (Adjusted Relative Risk [aRR] 2.8, 95% confidence interval [CI] 2.2-3.6), and the composite adverse outcome (aRR 1.9, CI 1.8-2.1). NO prenatal care was also strongly associated with ruptured uterus (aRR 3.4, 95% CI 2.2-5.3). Insufficient prenatal care was not significantly associated with the primary composite adverse outcome (aRR 0.97, CI 0.92-1.02), but did increase the risk of maternal ICU admission by 20%, aRR1.2, CI 1.02-1.4. Insufficient Prenatal Care also modestly increased the risk of Unplanned Hysterectomy (aRR 1.4, CI 1.1-1.8).
Conclusion: In this study we found that lack of prenatal care is associated with nearly 2-fold increase in risk of severe maternal morbidity, which is a known driver of maternal mortality. Considering that access to prenatal care is a potentially modifiable factor, these data support focused public health interventions aimed to improve access to prenatal care for all women in the US.

Discussant: Elliot M. Levine, M.D.
Chicago, Illinois
Adverse Outcomes Among Low-Risk Pregnancies at 39 to 41 Weeks: Stratified by Fetal Growth

Hector Mendez-Figueroa, MD 1, Han-Yang Chen, PhD 2, Suneet P Chauhan, MD, Hon DSc 2

Department of Obstetrics and Gynecology, Baylor College of Medicine, Houston, TX 1 and Department of Obstetrics, Gynecology and Reproductive Sciences, McGovern Medical School-UTH Health, Houston, TX 2

Background: Randomized clinical trial and population-based studies suggest that among low-risk pregnancies adverse outcomes increase as the gestational age advances from 39 to 41 weeks. A possible explanation is that small- and large-for gestational age newborns are unidentified and their continued aberrant growth contributes to the increasing morbidity. To address the knowledge gap, we used a large national database to compare week-to-week composite neonatal or maternal morbidity among low-risk women at 39 to 41 weeks, stratified by fetal growth.

Methods: This cohort study, utilizing the U.S. vital statistics datasets (2013-2017), evaluated low-risk women with non-anomalous singleton gestations who labored and delivered at 39, 40, or 41 weeks (as reported in completed weeks; e.g., 39 weeks include 39+0 – 39+6 weeks). Nomogram by Duryea was utilized to categorize the fetal growth of newborns as small (birth weight < 10th percentile for gestational age; SGA)-, large (≥ 90th percentile; LGA)- or appropriate (10 to 89th percentile; AGA)-for-gestational age.

The primary outcome, composite neonatal adverse outcome (CNAO), included any of the following: Apgar score < 5 at 5 minutes, assisted ventilation > 6 hours, seizure, or neonatal death. The secondary outcome, composite maternal adverse outcome (CMAO), included any of the following: intensive care unit admission, blood transfusion, uterine rupture, or unplanned hysterectomy.

Multivariable Poisson regression was used to estimate the association between gestational age and adverse outcomes, stratified by fetal growth (using adjusted relative risks [aRR] and 95% confidence intervals [CI]).

Results: Of 19.8 million live births during the study interval, approximately 8.9 million (44.9%) met the inclusion criteria, with 9.9% being SGA, 9.2% being LGA, and 80.9% being AGA.
The overall rates of composite neonatal adverse outcome were 8.6, 8.6, and 6.2 per 1,000 live births among SGA, LGA, and AGA newborns, respectively. SGA newborns delivered at 40 (aRR 1.17; 95% CI 1.12-1.23) and at 41 weeks (aRR 1.55; 95% CI 1.45-1.66) had significantly higher risk of CNAO than those that at 39 weeks. LGA newborns delivered at 40 (aRR 1.13; 95% CI 1.07-1.19) and 41 weeks (aRR 1.44; 95% CI 1.35-1.54) had higher risk of CNAO than at 39 weeks. AGA newborns delivered at 40 (aRR 1.24; 95% CI 1.21-1.26) and 41 weeks (aRR 1.57; 95% CI 1.53-1.61) also has significantly higher CNAO than at 39 weeks.

The overall rates of composite maternal adverse outcome were 2.2, 4.0, and 2.6 per 1,000 live births among women who delivered SGA, LGA, and AGA newborns, respectively. Women with SGA newborns delivered at 40 (aRR 1.11; 95% CI 1.01-1.23) and at 41 weeks (aRR 1.29; 95% CI 1.12-1.48) had significantly higher risk of CMAO than those that at 39 weeks. Women with LGA newborns delivered at 40 (aRR 1.11; 95% CI 1.03-1.20) and 41 weeks (aRR 1.43; 95% CI 1.30-1.58) had higher risk of CMAO than at 39 weeks. Women with AGA newborns delivered at 40 (aRR 1.19; 95% CI 1.15-1.22) and 41 weeks (aRR 1.57; 95% CI 1.51-1.64) also has significantly higher CMAO than at 39 weeks.

Conclusions: Among low-risk pregnancies, the rates of composite neonatal and maternal adverse outcomes incrementally increase (albeit modestly), from 39 through 41 weeks’ gestation, regardless of whether newborns are SGA, LGA, or AGA.

Discussant: Emmet Hirsch, M.D.
Evanston, Illinois

11:45 – 12:45 Hot Topic #7
“The Cost of the Work: Acknowledging the Realities of Physician Burnout and Exploring Strategies for Prevention”
Whitney E. Mendel, MSW, Ph.D.
Daemen College
Amherst, New York

Learning Objectives;
- Identify the clinical signs of physician burnout.
- Devise a strategy to diagnose, manage and prevent physician burnout.
SCIENTIFIC PRESENTATIONS
FRIDAY, OCTOBER 18, 2019
7:00 a.m. General Registration (Oasis Arena)

7:00 – 10:45 a.m.  Industry Exhibits Open
7:00 – 10:45 a.m.  Scientific Poster Session Open

FIFTH SCIENTIFIC SESSION
(Oasis Arena)

Moderators:
Dana M. Benden, M.D. – CAOG Trustee
Peter B. Greenspan, D.O. – CAOG Trustee

7:30 a.m.  Announcements
7:30 – 8:00 a.m.

**Paper #6**

**Apgar Score at 5 Minutes and Adverse Outcome Among Low-Risk Pregnancies**

Han-Yang Chen, PhD, Sean C Blackwell, MD, Suneet P Chauhan, MD, Hon DSc

McGovern Medical School-UTHealth, Houston, TX

**Objectives:** The association of low Apgar score at 5 minutes with the adverse neonatal outcomes is established (Casey BM et al NEJM 2001). Nonetheless, there is a paucity of contemporary publication examining if low Apgar score at 5 minutes (0-3 or 4-6) is associated with neonatal and maternal morbidity, particularly among low-risk pregnancies delivered at 37-41 weeks.

The primary objective of this study was to compare neonatal and maternal morbidity among newborns of low-risk pregnancies at 37-41 weeks, with 5-minutes Apgar scores of 0-3, 4-6, and 7-10 (referent). The secondary objective was to determine the risk of infant mortality among the three groups of Apgar score at 5 minutes.

**Methods:** This was a population-based retrospective cohort study using the U.S. vital statistics datasets (2012-2016). Our study population was restricted to live births from low-risk women with no anomalous singleton gestations who labored at 37-41 weeks of gestation. We excluded women with hypertensive disorders, gestational or pregestational diabetes, born outside the hospital, or no Apgar score at 5 minutes documented.

Apgar scores at 5 minutes were categorized into 3 groups: i) 0-3; ii) 4-6 and; iii) 7-10 (referent). The primary outcomes were composite neonatal morbidity (CNM) and composite maternal morbidity (CMM). CNM was defined as any of the following: assisted ventilation longer than 6 hours, neonatal seizure, or neonatal mortality (death within 27 days). CMM was defined as any of the following: admission to the intensive care unit, maternal blood transfusion, uterine rupture, or unplanned hysterectomy. The secondary outcome was infant mortality (death within one year).

Differences in the maternal characteristics stratified by groups of Apgar score at 5 minutes were examined using chi-square tests for categorical variables. CNM, CMM and infant mortality were reported as the number of cases per 1,000 live births. Multivariable Poisson regression models were used to estimate the association between 5-minutes Apgar scores and the risks of morbidity and mortality outcomes, while adjusting for maternal age, maternal race and ethnicity, maternal
Results: During the study period, there were over 19.8 million live births and 11,657,254 (58.7%) met the inclusion criteria. Among them, 98.9% had 5-minutes Apgar score of 7 to 10, 0.9% had score of 4-6, and 0.2% had a score of 0-3.

Compared to women who delivered newborns with low 5-minutes Apgar scores (0-3, 4-6), those who had newborns with score of 7-10 were more likely to be older age, of Hispanic ethnicity, married, parous, have normal weight before pregnancy, but were less likely to use cigarette during pregnancy and have cesarean delivery (P < 0.001).

The overall CNM was 3.23/1,000 live births and it increased from 2.39 in referent group , to 60.71 in those with 5-minutes Apgar score of 4-6 and 134.77 when the score was 0 to 3. After adjustments, compared to referent group, the risk of CNM was significantly higher among those with score of 4-6 (aRR 20.8; 95% CI 20.2-21.4) or of 0-3 (aRR 43.1; 95% CI 41.6-44.5). The rate and aRR for each components of CNM were also significantly higher for the newborns with 5-minutes Apgar score of 4-6 or 0-3 than those with score of 7 to 10.

The overall CMM was 2.45/1,000 live births and it increased from 2.35 in referent group to 9.21 with deliveries with 5-minutes Apgar score of 4-6 and to 15.94 if the score was 0 to 3. After adjustment, compared to referent group, the CMM was significantly higher in deliveries with 5-minutes Apgar score of 4-6 (aRR 3.1; 95% CI 2.9-3.3) and in deliveries with score of 0-3 (aRR 4.6; 95% CI 4.2-5.0). Similar results were found in all individual components of CMM, and also in the sensitivity analysis of CMM without transfusion.

The overall infant mortality was 1.34/1000 live births and it increased from 1.22 in referent group to 5.15 in those with 5-minutes Apgar score of 4-6 and 35.71 (989/27,693) when the score was 0 to 3. After adjustment, compared to referent group, the infant mortality was significantly higher among newborns with 5-minutes Apgar score of 4-6 (aRR 3.8; 95% CI 3.5-4.1) and of 0-3 (aRR 25.2; 95% CI 23.6-26.9).

Conclusions: In this population-based study of low risk women delivered at term, though approximately 1% of the neonates have Apgar score < 7 at 5 minutes, our results suggest that not only composite neonatal and maternal morbidity but also infant mortality is significantly higher among deliveries with low Apgar scores at 5 min. The
findings are useful in counselling families with low Apgar score, and in designing trials to mitigate adverse outcomes.

Discussant: Jonathan K. Muraskas, M.D.
Maywood, Illinois
8:00 – 8:30 a.m.

**Paper #7**

**Use of Ibuprofen in Managing Cervical Shortening**

Craig V Towers, MD, Brogan Fulks, MD, Katie Chattin, BA, Bobby Howard, MD, Lynlee Wolfe, MD, Kevin Visconti, MD

Department of Obstetrics and Gynecology, Maternal-Fetal Medicine, University of Tennessee Medical Center, Knoxville, TN

**Background:** Prostaglandins are known to affect cervical architecture and are commonly used as a cervical ripening agent prior to labor induction. Therefore, antiprostaglandin medications, theoretically may have an opposite effect on cervical architecture. When faced with a shortened cervix at the extremes of prematurity, the primary pharmacologic treatment is vaginal progesterone. Non-pharmacologic options may include the use of a pessary or placement of a cerclage. Nonsteroidal anti-inflammatory drugs (NSAIDs) have antiprostaglandin properties, but most studies have analyzed these agents in the treatment of preterm labor. The principal NSAID that has been used most often is indomethacin. Several studies have also suggested that indomethacin is the best tocolytic agent; however, it is recommended that its use only occur for 48 to 72 hours. The concerns with indomethacin and NSAIDs in general are in utero constriction of the fetal ductus arteriosus, development of oligohydramnios, and necrotizing enterocolitis (NEC) in the newborn postdelivery. Pharmacologically, indomethacin is one of the stronger NSAIDs; whereas, ibuprofen is a weaker NSAID.

**Objective:** To report the pregnancy and newborn outcome of a series of pregnancies that were treated with oral ibuprofen in the management of a shortened cervix at the extremes of prematurity.

**Study Design:** Retrospective cohort study from 1/1/2014 to 12/31/2018 reporting outcome data on the use of ibuprofen in treating patients with a shortened cervix (≤ 20mm by transvaginal ultrasound) that failed vaginal progesterone or stopped/declined the use of vaginal progesterone. Only patients with confirmation of filling a prescription of ibuprofen were included. The ibuprofen protocol was a daily dosage of 600mg four times per day with weekly ultrasound assessments for peak systolic flow of the fetal ductus arteriosus and amniotic fluid volume. Ibuprofen treatment was stopped at 32 weeks gestation in all cases that attained that gestational age. The drug was also discontinued if the peak
systolic flow exceeded 120 cm/sec or if oligohydramnios occurred (AFI < 5.0). Data collection included demographics, parity, cervical length at drug initiation, reason the drug was discontinued (if discontinued), gestational age at delivery, and neonatal outcome. The study was reviewed and approved by the institutional review board.

**Results:** A total of 211 patients were managed during the study period. No maternal complications occurred. The mean gestational age for starting ibuprofen was 22.8 weeks (+/- 2.4 weeks). The gestational age range at ibuprofen initiation was 18 to 29.5 weeks. The mean cervical length at ibuprofen start was 16 (+/- 2.1) mm. Of the 211 patients, 100 (47.4%) delivered prior to 37 weeks gestation demonstrating that this population was high-risk. Seven (3.3%) delivered previable; 14 (6.6%) delivered < 32 weeks but > 24 weeks gestation; and 79 (37.4%) delivered < 37 weeks but ≥ 32 weeks gestation (after ibuprofen was discontinued). Nearly 90% were able to stay on the medication up to 32 weeks gestation. There were 23 (11%) that discontinued the medication for obstetrical indications of oligohydramnios or elevated peak systolic flow of the fetal ductus arteriosus. No intrauterine fetal demises occurred. There were 2 cases of NEC. One occurred in a patient that had preterm premature rupture of membranes at 315/7 weeks with cocaine usage; ibuprofen was discontinued; delivery occurred at 320/7 weeks with chorioamnionitis; NEC developed day 11 post-delivery. The second delivered at 270/7 weeks with preterm labor and NEC occurred day 10 post-delivery.

**Conclusions:** This is the largest study to date on the use of ibuprofen in pregnancy for treating cervical shortening in patients that failed, declined, or stopped vaginal progesterone. Overall, the drug appears to be safe and in most cases the drug was able to be continued up to 32 weeks gestation. A minority had the drug stopped for elevated peak systolic flow in the fetal ductus arteriosus or oligohydramnios. NEC was rare but it is a major newborn complication that needs to be scrutinized for closely. This study cannot prove efficacy which would require a prospective multicenter randomized placebo-controlled trial that is now in the development phase based on the safety data from this study.

**Discussant:** James W. Van Hook, M.D.
Toledo, Ohio
8:30 – 9:30 a.m.  **Hot Topic #8**
“Mexican Women’s Health Care: An Overview”
**Ernesto Castelazo Morales, M.D.**
Mexico City, Mexico

**Learning Objectives:**
- Compare women’s health care in Mexico vs. the United States.
- Illustrate common cross border practices in both Mexico and the United States.
Introduction: Preconception and prenatal carrier screening permits the identification of couples who are at risk for having children affected with genetic (Mendelian) conditions. Carrier screening was initially offered in a more limited algorithm to individuals of certain racial and ethnic origins for whom the incidence of certain diseases (e.g., sickle cell disease in African-Americans) was increased based on higher frequencies of pathogenic variants for specific genes in those particular populations. However, with decreasing endogamy in the United States and elsewhere, as well as increased delineation of genetic conditions in specific population groups as well as the population in general, more and more couples are being offered a more comprehensive carrier gene panel that covers ethnic/racial based conditions as well as many others that occur without great variation based on racial or ethnic group. The ability to offer such screening has been facilitated by a considerable reduction in the cost of such screening, essentially permitting the addition of numerous genes to a screening panel without altering the actual cost of the laboratory test to the patient. In this study we sought to assess the impact of preconception expanded carrier screening on preimplantation genetic testing for Mullerian conditions (PGT-M).

Materials and Methods: We reviewed the indications for PGT-M at Reproductive Genetic Innovations, a laboratory specializing in preimplantation genetic testing. We reviewed all cases performed at our center from 2016 through 2018, inclusive. These dates were chosen because of the relatively recent increase in expanded carrier screening, supported in part by two Committee Opinions (690 and 691) published by ACOG in March 2017. In this study we differentiated the indications for PGT-M into two groups. Group 1 comprised of carrier couples and women undergoing PGT-M as result of a personal or family history of a genetic disorder while Group 2 included those couples and women who had screening results
identifying them to be a carrier couple or a woman found to be a carrier for an X-linked condition (e.g., Fragile X, Duchenne muscular dystrophy) without any previous personal or family history.

**Results:** In 2016, a total of 325 cases of PGT-M were performed with 40% (130 of 325) being undertaken as result of identifying a carrier couple or X-linked female carrier through carrier screening. In 2018, 500 cases of PGT-M were performed with 60% (300) resulting from carrier screening detection. With regard to cystic fibrosis, 53.3% (16 of 30) cases were undertaken in 2014 because of carrier screening, whereas 75% of such cases (42 of 56) were the result of carrier screening in 2018.

**Conclusions:** The recent availability of expanded carrier screening for preconception, as well as prenatal, carrier screening has provided couples with an accurate risk assessment for an expanded selection of autosomal recessive and X-linked recessive conditions that permit such couples more options concerning conception and pregnancy management. A benefit of PGT-M is that it allows for a carrier couple to considerably reduce their risk for an affected pregnancy/child, whereas prenatal diagnosis (i.e., CVS, amniocentesis) and new prenatal screening options only permit the diagnosis or risk assessment of the pregnancy. It should be stated that PGT-M currently requires the couple to undergo IVF and will not guarantee a pregnancy unaffected with the condition for which the couple/woman carries a deleterious variant. This study demonstrates that the increasing use of carrier screening, including expanded carrier screening, has changed the landscape of preimplantation genetic testing by increasing the number of couples electing to use PGT-M to reduce their risk of an affected child, with this increase likely associated with the detection of carrier couples who have no relevant personal or family history and are identified as carrier couples solely through carrier screening.

**Discussant:** Mark I. Evans, M.D.
New York, New York

10:00 – 10:45 a.m. **Break/Refreshments/Exhibits/Posters**
(Oasis Arena)

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Preimplantation Genetic Testing for Structural Rearrangements (PGT-SR): Outcomes and Incidental Findings from 24-Chromosome Analysis

Savanie I Maithripala, MSc, LCGC1, Andrew F Wagner, MD1,2, Anver Kuliev, MD/PhD1, Svetlana Rechitsky, PhD1
Reproductive Genetic Innovations, LLC, Northbrook, Illinois1 and Northwestern Medicine, Chicago, Illinois2

Purpose: Preimplantation Genetic Testing for Structural Rearrangements (PGT-SR) is utilized to identify unbalanced chromosomal copy number variations in embryos following IVF. This testing can be used when parents are identified as carriers for balanced structural rearrangements such as reciprocal translocations, Robertsonian translocations, and/or inversions. To date, limited data is available on the risk for unbalanced embryos and, therefore, offspring when a structural rearrangement is present. PGT-SR can also evaluate embryos for maternal-age related aneuploidy risk.

The purpose of this study is to analyze our experience of PGT-SR and to provide the resulting data to aid in counseling of couples with balanced translocations. Additionally, to present our experience on incidental finding of parental structural chromosome rearrangements detected by 24-chromosome analysis of blastocysts.

Methods: Analyzed data included 1069 embryo biopsies, obtained from 193 IVF cycles of PGT-SR testing over a 6 year period. Of these cycles, 154 (822 samples) were analyzed by array Comparative Genomic Hybridization (aCGH), and 39 (247 samples) using Next Generation Sequencing (NGS). The rate of unbalanced (UB) embryos, normal/balanced (NB) embryos and embryos suitable for transfer (SFT; normal/balanced and euploid) was calculated in each scenario based on PGT results for each translocation. In addition, retrospective analysis of the results of PGT-Aneuploidy (PGT-A) cycles incidentally identified couples highly suspicious for a parental structural chromosome
rearrangement. Follow up high resolution karyotyping for parents/donors was recommended based on findings of whole chromosome or segmental aneuploidy involving the same chromosome in three or more embryos during testing.

Results: The average age of female partners in our cohort was 33.01 years (SD 3.8 years). Overall, the rate of SFT embryos for reciprocal (30.9%; 567/821) vs. Robertsonian translocations (43.1%; 141/248), differed significantly based on translocation type (p < 0.02). The rate of SFT embryos based on paternal or maternal carrier of translocation did not differ significantly (p>0.05). In reciprocal translocation carriers the rate of UB, NB, and SFT embryos did not differ significantly between maternal and paternal translocation carriers. [UB total: 56.1% (461/821); Maternal UB: 58.6%(246/420); Paternal UB: 53.6% (215/401); p > 0.05] [NB total: 43.8% (360/821); Maternal NB: 41.4%(174/420); Paternal NB: 46.4% (131/401); p >0.05] [SFT total: 30.9% (254/821); Maternal SFT: 29.3% (297/420); Paternal SFT: 32.7% (270/401); p >0.05]. In Robertsonian translocation carriers, the rate of UB, NB, and SFT embryos did not differ significantly between maternal and paternal translocation carriers. [UB total: 30.6% (76/248); Maternal UB: 33.8% (47/139); Paternal UB: 26.6% (29/109); p >0.05] [NB total: 69.3% (172/248); Maternal NB: 66.2% (92/139); Paternal NB: 73.9% (80/109); p >0.05] [SFT total: 43.2% (107/248); Maternal SFT: 38.1% (254/821); Paternal SFT: 49.5% (54/109); p >0.05].

A total of 12 cases of suspected parental structural chromosome abnormality were detected in PGT-A cycles. Structural chromosome abnormalities were identified for patients pursuing PGT-A, with or without PGD. Parental karyotyping confirmed the presence of structural chromosome abnormalities in six cases, of which four were identified using aCGH, and two by NGS. Parental karyotyping did not reveal a structural chromosome abnormality in two cases, while follow up karyotyping was declined or pending in four cases. Following karyotyping, results were reclassified, and confirmed euploid embryos were recommended for transfer. Of the identified abnormalities, five were found to be reciprocal translocations and one was found to be a paternally inherited deletion on the Y chromosome.

Conclusions: This study shows that Robertsonian translocation carrier couples have a higher rate of embryos suitable for transfer following PGT-SR, compared to reciprocal translocation carrier couples. The rate of embryos suitable for transfer does not differ significantly based on if the carrier for the translocation is maternal or paternal. Our experience shows that 24-chromosome embryo testing allows
incidental detection of parental structural chromosome abnormalities. High resolution parental karyotyping should be further applied if multiple embryos are identified to have similar structural abnormalities. Genetic counseling is recommended for these to patients to help clarify their reproductive risks.

Discussant: Steven J. Ory, M.D.
Margate, Florida
Objective: Putatively due to variance in the hospital resources and circadian rhythm fatigue, the time of delivery influences the likelihood of adverse outcomes. Prior studies on the topic have combined high-and low-risk pregnancies, focused on cesarean delivery only, or had too small a sample size to ascertain if uncommon morbidities (i.e. hysterectomy or neonatal seizure) vary by the time of delivery.

The primary objective of this analysis was to compare the neonatal and maternal morbidity among low-risk women who delivered at 7:00 to 15:00 (first shift), 15:00 to 23:00 (second shift), and 23:00 to 7:00 (third shift). We hypothesized that among low-risk women delivering at 37-41 weeks, the neonatal and maternal morbidity would be the lowest if deliveries occur during the first shift.

Methods: This was a population-based retrospective cohort study using the U.S. vital statistics datasets (2012-2016). The study population was restricted to live births from low-risk women with nonanomalous singletons who labored at 37-41 weeks of gestation. We excluded women with hypertensive disorders, gestational or pregestational diabetes, births outside the hospital, or those with no data on time of birth. The primary exposure variable for this study was the time at which delivery occurred. This timing was divided into three shifts: i) the first shift: 7:00 to 15:00 (referent); ii) the second shift: 15:00 to 23:00; and; iii) the third shift: 23:00 to 7:00. The primary outcome was composite neonatal morbidity (CNM), which included any of the following: 5 minute Apgar less than 5, assisted ventilation for >6 hours, neonatal seizures or neonatal mortality (death within 27 days). The secondary outcome was composite maternal morbidity (CMM), which encompassed any of the following: admission the intensive care unit, maternal blood transfusion, uterine rupture and unplanned hysterectomy. Newborns or women with more than one outcome were counted once when formulating the composites.

Differences in the maternal characteristics stratified into groups by time of delivery were examined using chi-square tests for categorical variables. Composite and individual
neonatal and maternal morbidity were reported as the number of cases per 1,000 live births. Multivariable Poisson regression models were used to estimate the association between time of delivery and the risks of composite and individual neonatal and maternal morbidity, while adjusting for maternal age, maternal race and ethnicity, maternal education, marital status, nulliparous, prepregnancy body mass index (BMI), prenatal care, smoking during pregnancy, delivery route, gestational age, neonatal sex, weekend, and delivery year. The results were presented as adjusted relative risk (aRR) with 95% confidence intervals (CI).

**Results:** During the study period, there were 19,858,574 live births, of which 59% (n=11,667,094) met the inclusion criteria. Among the study population of low risk women, 36% delivered at the first shift (>7:00 to 15:00), 37% at the second shift (>15:00 to 23:00), and 26% at the third shift (>23:00 to 7:00). The maternal demographics—age, ethnicity, marital status, education, nulliparity, smoking, and pre-pregnancy body mass index—varied significantly among the three time groups. The gestational age at delivery, and the route of delivery also varied significantly, as did the year of delivery and the neonatal sex (p < 0.0001 for all comparisons).

The overall rate of CNM was 6.64 per 1,000 live births. The multivariable adjusted analysis demonstrated that, compared to neonates delivered at the first shift, the risk of CNM was higher in the second shift (aRR=1.07, 95% CI=1.05-1.09), and the third shift (aRR=1.24, 95% CI= 1.22-1.27). The risk of three individual neonatal morbidities—5 minute Apgar less than 5, assisted ventilation for >6 hours, neonatal seizures—also were significantly higher in the second & the third shifts.

The overall rate of CMM was 2.45 per 1,000 live births. After adjustment, there was no significant difference in the risk of CMM based on timing of delivery. Similarly, results of no significant difference between time shifts were also found in individual maternal morbidities.

**Conclusion:** This is the largest population-based study to date examining the influence of timing of delivery on neonatal and maternal morbidity. We found that the risk of neonatal morbidity is elevated if the delivery occurs outside of the main hours of hospital activity (07:00-15:00), while the risk of maternal morbidity remains stable regardless of time shifts. These findings suggest trials are needed to either optimize neonatal outcomes among women delivering during off-peak hours or to deliver a greater proportion of women during the first shift.

Discussant: Karolina Adam, M.D.
Houston, Texas
11:45 – 12:30 \textbf{Keynote Address}  
“Global Women’s Health Challenges”  
\textbf{John J. Sciarra, M.D., Ph.D.}  
Northwestern University  
Chicago, Illinois

\textbf{Learning Objectives:}
- Define global women’s healthcare challenges today.
- Formulate a plan to compare women’s health care challenges by country.

12:30 – 1:15 p.m. \textbf{Presidential Address}  
“Well I’m Still a Feminist: From Misogyny to Maternal Mortality”  
\textbf{Vanessa M. Barnabei, M.D., Ph.D.}  
Jacobs School of Medicine  
Univ. at Buffalo-The State Univ. of NY  
Buffalo, New York

\textbf{Learning Objectives:}
- Identify misogyny and maternal mortality issues from the feminist’s point of view.
- Contrast differences between the female and male approach to ob-gyn.

1:15 p.m \textbf{Installation of New President}

1:15 – 1:45 p.m. \textbf{Annual Business Meeting CAOG}
SCIENTIFIC PRESENTATIONS
SATURDAY, OCTOBER 19, 2019

7:00 a.m. General Registration (Oasis Arena)

SEVENTH SCIENTIFIC SESSION
(Oasis Arena)

Moderators:
Angelina Gangestad, M.D. – Program Committee Member
Irene A. Stafford, M.D. – CAOG Member
7:30 – 7:45 a.m.

**Paper #11**

**Reducing the NTSV Cesarean Delivery Rate by Minimizing Elective Induction of Labor**

Elliot M Levine, MD, Katherine Tadros, MD, Leah N Delfinado, MD, Stephen R Locher, MD

Advocate Illinois Masonic Medical Center, Chicago, IL

**Introduction:** The rate at which cesarean deliveries are performed has continued to rise in these past two decades, for which many have expressed concern. The reason for this concern lies in the associated maternal morbidity that has been seen with cesarean delivery. Specifically, the risk of hemorrhage with repeat cesareans appears to be related to the number of prior cesareans. This risk of excessive hemorrhage is most often due to the morbidly adherent placenta (MAP), itself related to placentation occurring at the site of a previous uterine scar. A uterine scar would be less prevalent if fewer cesareans were performed.

We have recently seen the rising incidence of elective induction of labor (IOL). There have been many publications on whether IOL contributes to an increased risk of cesarean delivery, and this may be worth examining, since opposing sides appear to be represented. On the one hand, there are meta-analyses and a randomized controlled trial (RCT) showing a reduced cesarean risk with IOL compared with "expectant management", yet studies counter to that have been published as well, comparing IOL with spontaneous labor (SL). The authors wished to add to the evidence in this matter, prompting the current investigation.

**Methods:** A retrospective observational cohort study was performed for deliveries at Advocate Aurora Health Illinois Masonic Medical Center from January 1, 2014 through December 31, 2018. The obstetrical deliveries performed during this time period represents a population intended to deliver there at whatever gestational age, either by IOL or via SL initially, excluding cesarean deliveries scheduled at maternal request (CDMR), for prior uterine surgery, for active genital herpes, or for placenta previa. The deliveries in this investigation included only nulliparous term singleton vertex-presenting (NTSV) pregnant women. The cesarean delivery rates (CDRs) of those whose labors were induced were compared with those pregnant women presenting in spontaneous labor, at each respective estimated gestational age (EGA), at 39 - 41 weeks of gestation. In addition, the indication for induction was noted, to compare elective versus medically-indicated IOL. The perinatal outcome for these
groups (IOL vs. SL) were also compared. The clinical data collected were analyzed using its own proprietary Structured Query Language (SQL) perinatal database. Chi2 and Fisher Exact statistical analyses were applied in this comparison.

Results: There were 458 NTSV induced deliveries at 39 weeks of gestation in this cohort (39 0 - 39 6), of which 150 were delivered by cesarean (32.8%). In this same time period, there were 760 NTSV patients who presented in spontaneous labor at 39 weeks of gestation, of which 135 had cesarean deliveries (17.6%); and at 40 weeks of gestation, 634 NTSV patients were induced, of which 228 had cesarean deliveries (36%), and 662 NTSV patients presented in spontaneous labor, of which 122 had a cesarean delivery (18.4%); and at 41 weeks of gestation, 287 NTSV patients were induced, of which 106 delivered by cesarean (37%), and 136 NTSV patients presented in spontaneous labor, of which 35 had a cesarean delivery (25.7%). Statistical analysis of these comparisons (IOL vs. SL) yielded a p value of < 0.001, < 0.001, and 0.02, at 39, 40 and 41 weeks, respectively. When perinatal outcome was compared, as measured by the number of 5-minute Apgar scores < 5 in each group, in the IOL group, there were 6 neonates, and 0 neonates in the SL group, during the length of the investigation, and this difference was not statistically significant.

Conclusion: Our findings are in contrast to a recently published investigation, the ARRIVE trial, which demonstrated a decreased NTSV cesarean delivery rate if labor was induced in the 39th week of gestation than if a pregnancy was expectantly managed. However, our retrospective cohort investigation compared induction of labor with those pregnancies beginning labor spontaneously, to determine the likelihood of cesarean delivery in these two groups.

This study may be limited by a lack of an active management of labor (AMOL) protocol at its institution, which may be reason that IOL yielded such a high CDR. There is reason, therefore, that future data may yield a different result. Nonetheless, the data presented here may indicate caution, regarding the dangers associated with a less than ideal plan for the induction of labor, which may also apply to other medical institutions in the community.

Awaiting the natural onset of labor, if there are no maternal or fetal reasons to intervene, may yield no worse a perinatal outcome than an earlier induction of labor. The consequences of a cesarean delivery are known to be associated with maternal morbidity, and this can be potentially avoided, if elective inductions of labor can be minimized.
Purpose: Approximately 27.5% of women of childbearing age are obese, defined as body mass index (BMI) greater than 30. Decades-old research supports an association between obesity and increased rate of cesarean delivery (CD), although this research is limited in exploring the relationship between the highest-class obesity and CD rate. As rates of obesity have continued to increase, with more women than ever in the highest class of obesity, an updated and expanded understanding of the relationship between increasing BMI and CD rate is needed.

Methods: Using a retrospective cohort study design, we gathered information about BMI, delivery type, common pregnancy comorbidities, and background characteristics from nulliparous women with singleton pregnancies delivering at an urban hospital across the years 2000-2015. We calculated BMI from self-reported weight at the time of admission for delivery. We used the NIH definitions for BMI classes: underweight, BMI less than 18.5; normal weight, BMI 18.5-24.9; overweight, BMI 25.0-29.9; class I obesity, BMI 30.0-34.9; class II obesity, BMI 35.0-39.9; and class III obesity, BMI 40.0 and greater. Additionally, we further divided class III obesity into BMI 40.0-49.9, BMI 50.0-59.9, and BMI 60.0 and greater. We examined the association between BMI class and rates of CD, gestational diabetes (GDM), gestational hypertension (GHTN), and preeclampsia using chi-squared tests and logistic regression.

Results: Overall rates of CD were 17.2% in the sample of 25,604 births. CD rates increased with each increase in delivery BMI class ($X^2 (7, N=25,604) =151.40, p<.0001$). The rates of CD across BMI class were: underweight, 12.90%; normal weight, 14.60%; overweight, 15.50%; Class I obesity, 16.20%; Class II obesity, 18.60%; Class III obesity with BMI 40-49.9, 20.50%; Class III obesity with BMI 50-59.9, 27.20%; Class III obesity with BMI>60, 35.70%. Maternal age significantly predicted delivery BMI ($F (1,25585) =539.19, p<.0001$), with an $R^2$ of .02. Women's predicted BMI at delivery is equal to 28.47+.17(age), with age measured in years. GDM significantly increased across each BMI class, from 0% for the underweight group to 25.1% for BMI>60, ($X^2 (7, N=25,604) =471.08, p<.0001$). GHTN
significantly increased across each BMI class, from 9.7% for the underweight group to 45.0% for BMI>60, ($X^2(7, N=25,604) =326.35, p<.0001$). Preeclampsia significantly increased across each BMI class from 3.2% for the underweight group to 7.0% for BMI>60, ($X^2 (7, N=25,598) =85.88, p<.0001$). Using logistic regression, each increasing delivery BMI class predicted 1.15 times greater odds of CD, OR=1.15 (95% CI, 1.12-1.17). Even after adjusting for maternal age, GDM, GHTN, and preeclampsia, each increasing BMI class predicted 1.12 times greater odds of CD, OR=1.12 (95% CI, 1.09-1.15). Pre-pregnancy BMI class also predicted higher odds of CD, OR=1.08 (95% CI, 1.06-1.11). After controlling for measured covariates, pre-pregnancy BMI class remained significantly predictive of higher odds of CD, OR=1.06 (95% CI, 1.03-1.08).

**Conclusion:** Increasing delivery BMI class was associated with increasing rates of CD, GDM, GHTN, and preeclampsia. Even within class III obesity, we found a dose-dependent effect of BMI class on rates of CD, GDM, GHTN, and preeclampsia. Additionally, increasing BMI class both pre-pregnancy and at time of delivery remained predictive of CD after controlling for several important measured covariates. Our findings can be used to better counsel our patients on their risk factors for CD and common pregnancy complications.
Objective: Our previously published overview of 55 Practice Bulletins (PB) by The American College of Obstetricians and Gynecologists (ACOG) reported that 29% of ACOG clinical recommendations were categorized as "level A" (based on good or consistent scientific evidence). Only 17% of the publications referenced in support of PB recommendations were randomized clinical trials (RCT). In the present study, we sought to similarly analyze the clinical guidelines published by the Society for Maternal Fetal Medicine (SMFM).

Methods: All Publications included on the SMFM Publications and Guidelines website (https://www.smfm.org/publications) were reviewed. The site was most recently searched in May of 2019. SMFM implemented the "GRADE" system for clinical guidelines in 2013 (Chauhan et al 2013). Publications that included "GRADE" recommendations were included for analysis. Each recommendation was assessed for quality of evidence (Grade A, B, or C) as well as the authors' reported strength of the associated recommendation (Strength 1 or 2). Quality of evidence Grades were compared across Strength groups. GRADEs (i.e. 1A, 1B) were also compared between documents by SMFM and ACOG vs. SMFM alone.

All references underlying each recommendation were reviewed and categorized as one of the following types: previous SMFM documents, guidelines from another committee, meta-analyses, RCTs, non-randomized interventional studies, longitudinal cohort studies, case control studies, retrospective cohort studies, secondary analyses, cross sectional studies, review articles and "other." The types of evidence underlying recommendations were compared between groups by Strength and quality of evidence Grade as well as between documents by SMFM and ACOG vs. SMFM alone. Chi square tests or Fisher exact tests were used to determine all differences between groups. Summary statistics for continuous variables are expressed as mean ± standard deviation.

Results: SMFM published 28 clinical guidelines between September 2013 and May 2019. Recommendations with a
GRADE were included in 20 (71.4%) of these publications and ACOG co-published 5 (25.0%) of them. The total number of GRADE recommendations was 160 with 21 (13.1%) being Grade A; 66 (41.3%) Grade B; 59 (36.7%) Grade C and; 14 (8.9%) "best practice" recommendations. 116 (79.5%) recommendations had strength 1 and 30 (20.5%) had strength 2. Strength 1 recommendations had higher quality supporting evidence (18.1% Grade A, 45.7% Grade B, 36.2% Grade C) than Strength 2 recommendations (0.0% Grade A, 43.3% Grade B, 56.7% Grade C, p = 0.02). Recommendations in documents by SMFM and ACOG were of higher grade (p = 0.03) and strength (p = 0.01) than those by SMFM alone.

The GRADE recommendations are supported by 618 references with a mean 3.7 ± 4.5 references per recommendation. Grade A recommendations had a similar number of references (3.7 ± 3.5) as Grade B (4.6 ± 5.0) or Grade C (2.7 ± 4.2, p = 0.06) recommendations. Retrospective cohort studies were the most common type of reference supporting 34.4% of recommendations, followed by review articles (25.6%), longitudinal cohort studies (25.6%), guidelines from other committees (22.5%), and systemic review/meta-analysis (19.4%). RCTs supported 14 (8.8%) guidelines. GRADE 1A recommendations were more likely to be supported by an RCT (19.1%) than 1B (7.6%), GRADE 1C (2.4%), GRADE 2B (7.1%) or GRADE 2C (5.6%, p < 0.001). A similar trend held for recommendation support by systemic review/meta-analysis (GRADE A1 28.6%, 1B 18.9%, 1C 7.3%, 2B 35.7%, and 2C 16.7%, p < 0.001), and guidelines from other committees (GRADE A1 28.6%, A2 20.8%, 1C 17.1%, 2B 28.6%, 2C 27.8%, p < 0.001). Guidelines publications by SMFM and ACOG together were similarly likely to be supported by RCTs (10.8%) as those by SMFM alone (7.4%, p = 0.45). The same trend held for systemic review/meta-analysis (20.0% vs 18.9%, p = 0.86) and guidelines by other committees (21.5% vs. 23.1%, p = 0.81).

Conclusion: In 20 clinical guidelines, SMFM has published 160 recommendations with GRADE ratings. Although only 8.8% of the supporting literature are RCTs, 13.1% of the guidelines are Grade A and 79.5% have Strength 1. While guidelines published by ACOG and SMFM had greater strength and quality of evidence than those by SMFM alone, the underlying publications supporting recommendations were similar. The paucity of RCTs in support of the SMFM clinical guidelines is a compelling reason to encourage additional randomized trials.
8:15 – 9:00 a.m.  **Hot Topic #9**
“Financial Wellness: The Cure for Fiscal Insomnia”
**Brent W. Bost, M.D., MBA**
Baylor University Medical Center
Dallas, Texas

**Learning Objectives:**
- Explain how financial wellness reduces stress and avoids burnout.
- Design a life plan that improves financial wellness and minimizes stress.
Paper #14
Outcome of Savior Sibling Program

Norman A Ginsberg, MD1, Joe Leigh Simpson, MD2, Andwar Kulev, MD2, Elliott M Levine, MD1, Svetlana Rechitsky, PhD2

Advocate Illinois Masonic Hospital, Chicago, IL1, Reproductive Genetic Innovations, Northbrook, IL2

Objective: Report on the outcome of HLA Savior sibling program for the treatment of genetically affected siblings that could be cured by hematopoietic bone marrow transplantation.

Material & Methods: After IRB approval, patients had evaluation of their HLA sites for the mother, father & affected child. If recombination had occurred within the HLA region, they were excluded. Patients went through ovarian hyperstimulation by usual in vitro fertilization (IVF) protocol with collection of oocytes. Sperm from the father was utilized to create embryos. In the beginning, a single blastomere or blastocyst biopsy were removed from these embryos and exposed to preimplantation genetic testing (PGT) for the HLA composition of the embryo, the gene defect and for aneuploidy. Once an embryo was identified with the same HLA type as the affected sibling and was free of the gene defect and aneuploidy was absent, it was then transferred to the mother as a fresh cycle. When vitrification became available, blastocysts were biopsied and went through PGT evaluation, followed by freezing and then transferred in the next cycle. This allowed for more assured evaluation and an improved pregnancy rate. This study ran from the years 2000 to 2018.

Results: Families with recombination at the HLA site were detected in 6.1%, including 1.5% of those with paternal origin and 3% of maternal origin. The study group encompassed 29 different disorders. The most common indication was for abnormalities in the beta fraction of hemoglobin. Followed by variants of Fanconi anemia, just HLA typing, Diamond-Blackfan Anemia, Immunodeficiency with Hyper-IgM, Type1, X-linked chronic Granulomatous Disease and 17 other diseases; HLA typing only was done for Diamond-Blackfan anemia. The total number of patients included was 229, for whom 480 IVF cycles were performed, resulting in 286 embryo transfers (59.5%). A total of 418 embryos were transferred (1.4 embryos per transfer on the average). These transfers lead to 117 pregnancies of which 109 children were
born (47.6% take-home-baby rate). The unaffected HLA compatible children resulting from the above PGT-HLA program provided the source stem cell transplant treatment of the affected siblings or pending. To have one embryo to transfer, according to our experience, up to 10 embryos need to be created to have one embryo for transfer.

**Conclusion:** Creation of savior siblings is a complicated undertaking. This is further complicated by maternal age. Women that are older do not produce as many oocytes and these oocytes are more likely to be aneuploid thereby reducing the number of available embryos for transfer. Despite the complexity, the baby take home rate is similar to well run IVF programs.
Cesarean Section Does Not Improve Survival Outcomes Less Than 25 Weeks Gestational Age

Tiffany R Tonismae, MD, Christine Carlos, MD, Bree Andrews, MD, MPH, Katie A Fritz, MD, MPH, Steven R Leuthner, MD, MA, Christin Lawrence, DO, Naomi Laventhal, MD, Drew Hayslett, MD, Tasha Coleman, MD, Mobolaji Famuyide, MD, MA, Dalia Feltman, MD, MA, David M. Haas, MD, MS, Brown Syne Tucker Edmonds, MD, MPH, MS

Indiana University School of Medicine, Dept. Ob-Gyn, Indianapolis, IN, University of Chicago Comer, Children’s Hospital, Chicago, IL, Medical College of Wisconsin, Milwaukee, WI, University of Michigan, C.S. Mott Children’s Hospital, Ann Arbor, MI, University of Mississippi Medical Center, Jackson, MS, NorthShore University Health System Evanston Hospital, Evanston, IL

Purpose: Based on current publications, the cesarean section rate has increased in pregnancies delivered between 22 and 24 weeks gestational age. The joint workshop with representative from obstetrics, maternal-fetal medicine, pediatrics, and neonatology released recommendations for management of periviable deliveries in May of 2014. Changes in neonatal outcomes since this publication are unknown and previous studies have shown limited or no benefit in the use of cesarean delivery for these infants. The aims of this study were: 1) to review the factors contributing to cesarean delivery of infants born between 22 0/7 and 24 6/7 weeks gestational age; 2) to determine if cesarean delivery affected likelihood for survival to NICU discharge or live birth for newborns born in this age range for whom resuscitation was planned.

Methods: This retrospective study of 6 INDEED (Investigating Neonatal Decisions for Extremely Early Deliveries) centers reviewed pregnant patients admitted between 22 0/7 to 24 6/7 weeks facing preterm delivery who delivered in this periviable period from 2011 to 2015. Patients with known anomalies or missing medical records were excluded. Multiple gestations were excluded. Records were reviewed for demographics, resuscitation plan, and obstetric interventions. Mode of delivery and indication for cesarean section were noted as well as condition at birth and survival of the infant to neonatal intensive care unit (NICU) discharge. For newborns for whom resuscitation was planned, bivariate
testing (Fisher or Chi testing) examined delivery mode and separate outcomes of live birth and survival to NICU discharge. Multivariable logistic regression analyses were performed to determine odds ratios for live birth and survival, adjusting for newborn factors (birthweight, gestational age, sex) and maternal receipt of antenatal steroids, shown in prior analyses to increase likelihood of survival in this cohort.

**Results:** 398 singleton pregnancies met inclusion criteria including a total of 148 infants delivered by cesarean section (22wk: n=2, 2.6%; 23wk: n=27, 22.5%; 24wk: n=119, 59.5%) during the study years. Indications for cesarean delivery included fetal distress (n= 21, 14.2%), fetal malpresentation (n=54, 36.5%), maternal well-being (n=30, 20.3%), more than one indication (n=35, 23.6%), and unknown (n=3, 2.0%). A plan for resuscitation was documented for 308 of the 398 (77.4%) singletons and 144 of 148 (97.3%) infants delivered by cesarean section.

Outcomes for the 308 singletons for whom resuscitation was planned were analyzed. 300 were liveborn, 7 were not, and one had unknown condition at birth but did not survive to NICU admission. Bivariate analyses comparing newborns delivered by cesarean vs. vaginal delivery at 22, 23, and 24 weeks gestational age revealed no significant differences in live birth or survival to NICU discharge. At 22 weeks, 2 of 26 newborns (7.7%) were delivered by cesarean vs. vaginal delivery; 100% vs. 91% were liveborn (p=1.000), and 0% vs. 8.3% survived to NICU discharge (p=1.000) At 23 weeks, 25 of 89 (28%) were delivered by cesarean vs. vaginal delivery; 100% vs. 95% were liveborn (p=0.556); 44% vs. 36% survived to NICU discharge (p=0.515). At 24 weeks, 117 of 193 (61%) newborns were delivered by cesarean vs. vaginal delivery; 100% vs. 97% were liveborn (p=0.078), and 57% vs. 55% survived to NICU discharge (p=0.924).

Multivariable analyses performed on the group of 308 singletons for whom resuscitation was planned also showed no significant change in likelihood for survival to NICU discharge (OR 1.0, CI 0.59-1.8, p=0.912) when adjusting for newborn factors (birthweight, gestational age, sex) and antenatal steroids and magnesium sulfate. As most newborns were born alive, our sample size was too small to yield reliable odds for live birth with cesarean delivery (OR 2.88x10^8, CI 0 to infinity, p=0.29). Similarly, multiple variable analyses were unable to be performed for 22 week newborns due to small sample size (n=26), but were done at 23 and 24 weeks separately, and revealed no effect of delivery mode on likelihood of survival.

**Conclusion:** We identify delivery by Cesarean section at periviable gestational ages, with dramatically increasing
prevalence across the range of 22 to 24 weeks gestation. However, even after adjusting for receipt of maternal antenatal steroids, cesarean delivery conferred no significant benefit at any periviable gestational ages for singletons. We conclude that cesarean section has limited utility in the setting of periviable infants without need for emergent delivery. Further study of the utility of cesarean delivery across a range of indications including multiple gestation is needed.
9:30 – 9:45 a.m.

Paper #16  Dr. George W. Morley Memorial Paper Award

A System-Level Approach to Improving Cervical Cancer Screening Rates & Surveillance: Implementation of an Electronic Health Record Tracking System in a Community Health System

Courtney K Pfeuti, BA1, Andrew J Borgert, PhD2, Cary M Rasmussen, MS2, Dana M Benden, MD2

University of Wisconsin School of Medicine & Public Health, Madison, WI, Gundersen Health System, La Crosse, WI

Purpose: To evaluate cervical cancer screening rates and compliance with guideline-based management in our health system before and after implementation of an electronic health record (EHR)-based tracking tool.

Methods: The cervical cancer screening EHR tracking system works to track screening results, patient outreach, follow-up procedures, and surveillance testing based on current American Society for Colposcopy and Cervical Pathology (ASCCP) guidelines. The program pilot began on January 16, 2016, and was implemented across our institution over the next 8 months, with 38 clinics-Family Medicine (FM), Internal Medicine (IM), and OB-GYN-implementing it by September 16, 2016. Women who met ACS-ASCCP-ASCP Cervical Cancer Screening Guidelines were considered to have been screened. Screening rates were determined at four intervals: 1 year prior to implementation, the pilot phase, and in Years 1 and 2 following implementation. Women with a partial or total hysterectomy or with a cervical cancer diagnosis were excluded. Screening rates were compared among departments (IM vs FM vs OB-GYN) and clinic location (main campus clinics vs regional clinics).

The EHRs of women with abnormal cervical cytology results were reviewed to assess follow-up of abnormal screening results. We examined time from abnormal cytology result to patient notification via telephone and to follow-up colposcopy in women with high-grade cytology (ASC-H, AGC, AIS, HSIL, carcinoma) in the year prior to implementation [Pre], during the pilot phase [Pilot], and at 1- and 2-year intervals post-implementation [Y1Post, Y2Post] and assessed for differences in follow-up. Patient demographics including age, clinic location, and payor status were examined to assess independent predictors of follow-up within 180 days via telephone call and colposcopy, if indicated. Groups were compared using the χ² and Wilcoxon rank sum tests, with p<.05 considered significant. All
analyses were performed with SAS 9.4 (SAS Foundation, Cary, NC). In those who received a follow-up colposcopy, we assessed the incidence of biopsy pathology results and assessed differences over time.

Results: During our study period, more than 1.3 million cervical cancer screening tests were completed in our health system. Compliance with screening guidelines showed significant improvement over time following implementation of the tracking system (Pre 79.82%, Pilot 80.41%, Y1Post 81.65%, Y2Post 82.74%; p<0.0001). Screening compliance varied by department and by clinic location; the highest rate of screening was in the main campus clinics (87.30%), with the highest rate in the Department of OB-GYN (88.53%).

Days to telephone contact in women with high-grade cytology results showed a significant improvement following implementation of the tracking system (Pre 9.6 ± 5.5, Pilot 7.0 ± 3.4, Y1Post 6.0 ± 2.7, Year2Post 5.3 ± 2.5; p<0.0001). Days to follow-up colposcopy also improved (Pre 66.7 ± 143.1, Pilot 65.9 ± 111.9, Y1Post 52.7 ± 90.7, Y2Post 34.3 ± 33.7; p<0.0001). Rates of telephone contact within 180 days of abnormal results were significantly higher after implementation of the tracking system (Pre 84.04%, Pilot 88.57%, Y1Post 96.54%, Y2Post 93.45%; p<0.0001); however, this association was not significant in colposcopy follow-up within 180 days. Women with private insurance were less likely to undergo follow-up colposcopy than were uninsured women (p<0.004) or those who held state-sponsored insurance (p<0.029). There was no significant association between clinic location and telephone or colposcopy follow-up within 180 days.

Of those women with high-grade cytology results, 82.56% followed up with the recommended colposcopy, and this percentage did not significantly change over time; however, shifts in biopsy results were significant, with an increase in "negative" results (p <0.025) and a decrease in "LSIL" results (p<0.025). Of all women who had high-grade results by cytology, 60.51% also had high-grade biopsy results. In the course of the study period, 13 women received cervical cancer diagnoses. The initial cytology screening results for these women were all abnormal: 1 with carcinoma, 10 with a high-grade category, and 2 with ASC-US with positive HPV testing.

Conclusions: Routine screening for cervical cancer is essential because it prompts follow-up of early dysplastic change that should be treated prior to the development of cervical cancer. Furthermore, guideline-based management of abnormal results is complicated, performed in a variety of specialties and settings, and is difficult to track, which results
in inadequate follow-up for many patients. Our study suggests that an EHR-based tracking system has the potential to improve cervical cancer screening rates in community health systems. The tracking system and its associated workflow also improve time to patient contact and to colposcopy following a high-grade cytology result. Implementation of an EHR-based tracking system addresses system-level factors that may contribute to inadequate follow-up and non-compliance with guidelines by providing a single portal capable of managing results of an entire health system, an intrinsic method of tracking inadequate follow-up, and access to a patient's comprehensive cervical cancer screening history with a single mouse click.
EIGHTH SCIENTIFIC SESSION
(Oasis Arena)

Moderators:
Brent W. Bost, M.D. – Program Committee Member
Emmet Hirsch, M.D. – Program Committee Member

10:15 – 11:00 a.m. Hot Topic #10
“Healthy Living: Myth vs. Reality”
Shilpa Babbar, M.D., M.S.
St. Louis University School of Medicine
St. Louis, Missouri

Learning Objectives:
- Define how yoga and fitness complement a balanced life style.
- Structure a yoga and fitness plan that could work best for you.
Clinical Utilization of Weekly Laboratory Testing in the Outpatient Management of Preeclampsia

John A Morgan, MD1, Lauren E McCalmont, MD1, Craig V Towers, MD2, Melissa Davis, MD2, Miriam Hankins, MD,1 David F Lewis, MD1

LSU-Health, Shreveport, LA1, University of Tennessee Medical Center, Knoxville, TN2

Objective: ACOG supports outpatient management of patients with hypertensive disorders without severe features provided that they continue to receive close surveillance. The current standard of care in the outpatient management of these conditions as guided by ACOG includes weekly laboratory evaluation of CBC, liver transaminases, and creatinine. This recommendation is guided by expert opinion alone and its utility has not been evaluated to date. The purpose of this study is to evaluate the clinical utility of weekly laboratory testing.

Methods: This is a multi-site retrospective cohort study that evaluated women diagnosed with gestational hypertension, pre-eclampsia without severe features or super-imposed pre-eclampsia without severe features that were managed in the outpatient setting between the gestational ages of 23w0d and 37w0d. Data collection occurred at Louisiana State University Health Sciences Center in Shreveport, LA and University of Tennessee Medical Center in Knoxville, TN between January 1, 2012 and August 18, 2018. The patients were divided into two groups. The first group had weekly laboratory evaluation (labs group) and the second group did not (no labs group). The primary outcome of this study was evaluation of the composite maternal morbidity including more than one of the following: development of severe features, HELLP syndrome, eclampsia, placental abruption, maternal ICU admission, or maternal death. Secondary outcomes included the presence of abnormal labs at delivery, indication for delivery, and compliance with outpatient visits. Neonatal outcomes were also evaluated. Continuous data was analyzed using unpaired t-test and categorical data was analyzed using $\chi^2$ and Fisher Exact test. A probability level of $<$0.05 was set as statistically significant.

Results: Our study cohort included 204 patients diagnosed with gestational hypertension, pre-eclampsia without severe features, or super-imposed pre-eclampsia without severe features that were managed in the outpatient setting. Labs
group (n=120) and no labs group (n=84). A comparison of demographics showed that the labs group was older (labs group 28.85 versus no labs group 26.67, p=0.02), had a higher rate of chronic hypertension (labs group n = 44, 36.7% versus no labs group n = 17, 20.2%, p=0.01), and a higher rate of superimposed preeclampsia. The labs group was statistically significantly more likely to experience the primary composite outcome (labs group n = 53, 44.2% versus no labs group n = 24, 28.5%, p=0.02). The only composite outcome seen in the study cohort was the development of severe features, and no patient was found to develop HELLP syndrome, placental abruption, eclampsia, maternal death or maternal ICU admission. Additionally, no patient in our cohort was delivered for an isolated finding of abnormal laboratory values. The indications for delivery were not significantly different between the two groups. The most common indication for delivery was reaching 37 weeks, followed by development of severe blood pressures. An additional secondary outcome was the presence of abnormal labs at delivery. Only one patient had abnormal labs at delivery, and this patient was being induced for development of severe blood pressures and severe maternal symptomatology. Analysis of compliance with prenatal visits was similar between the two groups. Overall compliance was 83.7%.

**Conclusion:** Pregnancies complicated by hypertensive disorders without severe features are more frequently being managed in the outpatient setting provided that patient is able to maintain frequent fetal and maternal assessment. However, there is currently little research that supports the necessity for weekly laboratory evaluation which is considered standard of care. Our study revealed that in a cohort of 204 patients managed in the outpatient setting, the group followed outpatient without weekly labs did not experience the composite primary outcome more frequently. Additionally, no patient in this study met criteria for delivery based on isolated abnormal laboratory values, with only one patient having abnormal labs at the time of delivery. Our retrospective study does not prove the safety of managing these patients without weekly laboratory testing. However, our study does suggest that weekly laboratory testing may have minimal clinical utility as management was more often guided by maternal blood pressure elevations or symptoms of severe preeclampsia in our population. Our study highlights a need for further prospective research to determine an appropriate frequency and utility for maternal labs in the outpatient management of patients with pregnancies complicated by hypertensive disorders.
Newborn Renal Function as an Adjunct Biomarker in Timing of Fetal Neurologic Injury

Jonathan K Muraskas, MD1, Maika Manalastas, DO1, Bianca Di Chiaro, MD2, Amy Yuan, MD2, John C Morrison, MD3

Pediatrics/Neonatology, Loyola Univ. Medical Center, Maywood, IL1, Loyola University Medical Center, Maywood, IL2, OBGYN, University of Mississippi, Jackson, MS3

Purpose: To investigate the rise and clearance of newborn creatinine values in 3 major asphyxial patterns of hypoxic ischemic encephalopathy in near term and term newborns which can provide evidence based medicine on the severity and duration of asphyxial injury.

Methods: This is an IRB approved retrospective chart observational study reporting preliminary data on the rise and clearance of newborn creatinine during the first 72 hours after birth. As a causation expert (JKM), approximately 137 cases of neonatal encephalopathy with a poor outcome with allegations of malpractice were reviewed over a 30 year period (1998-2018). These cases involved 37 states and 25% were reviewed for the plaintiff. Forty-five cases to date had serial creatinine values during the first 72 hours to analyze. Magnetic-resonance imaging (MRI) defined 3 types of perinatal insult: acute sentinel event or Acute Profound (AP) (i.e. placental abruption, cord prolapse, ruptured uterus), remote and/or intrapartum Partial Prolonged (PP) (i.e. cord compression, placental insufficiency) or Both (B) (i.e. pre-existing injury, limited fetal reserves, terminal collapse). On MRI, deep gray matter pattern of injury defined AP asphyxia while watershed pattern of injury affecting the subcortical white matter and overlying cortical gray matter defined PP asphyxia. In asphyxia associated with B types of injuries, MRI demonstrated a combination of patterns found in AP and PP. Of the 45 asphyxiated newborns with serial creatinine values, 14/45 (31%) newborns had AP injury, 10/45 (22%) newborns had PP, and 21/45 (47%) newborns had B injuries. We collected creatinine, liver function tests (alanine aminotransferase (ALT) and aspartate amino-transferase (AST)), nucleated red blood cells (NRBC), Apgars scores, birth weight, cord gases, and initial blood gas of all newborns studied. Creatinine values were stratified based on time interval of 0 to 24 hours, 25 to 48 hours, and greater than 48 hours of life. Normal creatinine values were defined as creatinine 0.2 to 0.7 milligrams (mg)/deciliter (dL). A total of 90 creatinine values were collected.
Results: AP injury shows a mild peak elevation of creatinine between 0 to 24 hours of life (AP Cr mean 1.07 mg/dL, SD 0.41) with rapid normalization between 25 to 48 hours of life (AP Cr mean 0.97 mg/dL, SD 0.28). PP shows a higher peak in elevation of creatinine between 0 to 24 hours (PP Cr mean 1.36 mg/dL, SD 0.59) in comparison to AP but with similar clearance of creatinine between 25 to 48 hours (PP Cr mean 0.93 mg/dL, SD 0.25). A combination of both AP and PP injury demonstrates the most significant elevation of creatinine between 0 to 24 hours (B Cr mean 1.73 mg/dL, SD 1.22) and delayed clearance with continued elevation at 25 to 48 hours (B Cr mean 1.38 mg/dL, SD 0.63), and normalization beyond 48 hours of life (Cr 0.83 mg/dL, SD 0.46).

We have previously demonstrated that NRBC and liver functions AST and ALT follow distinct patterns of rise and clearance dependent on the duration and severity of hypoxic ischemic insult. Both NRBC and liver functions AST and ALT demonstrate minimally elevated values and rapid clearance in AP and elevated values with delayed clearance in PP and B. Similar to NRBC’s and liver function tests, creatinine follows distinct patterns of rise and clearance depending on the severity and duration of asphyxial injury. Physiologically, the more chronic and sustained hypoxic ischemic insult leads to a significant diversion of blood from the negotiable renal, hepatic, and bone marrow circulation to the non-negotiable circulation of the brain, heart, lungs, and adrenal gland (diving reflex).

Conclusion(s): Preliminary data demonstrates creatinine values can provide valuable information to the obstetrician and neonatologist. Similar to NRBC and LFT, creatinine demonstrates distinct rise and clearance with different patterns of asphyxia. No single proven biomarker is diagnostic of neonatal encephalopathy but LFT, NRBC, and creatinine measured at birth and daily for 3 days can provide evidence based data to confirm or refute allegations of acute intrapartum asphyxia which accounts for <15% of cerebral palsy.

RBC, LFT’s, and creatinine are routinely drawn but not in a serial manner in depressed newborns. We propose obstetricians remind their neonatal/pediatric colleagues to draw these lab values at 1, 2, and 3 days of life. We feel further studies will confirm similar patterns and provide more evidence based data to reduce speculation in medicolegal litigation.
Adherence and Outcomes for 17-Hydroxyprogesterone Caproate Use in Women with a Previous History of Preterm Birth

Alexandra M Edwards, MD1, Sarah A Lowry, PharmD2, Sam Mikovich, PharmD3, Katy Gray, MD1, Alicia B Forinash, PharmD, FCCP, BCPS, BCACP2, Shilpa Babbar, MD, MS1

Saint Louis University School of Medicine, St. Louis, MO1, St. Louis College of Pharmacy, St. Louis, MO2, SSM Health St. Mary’s, St. Louis, MO3

Background: Spontaneous preterm birth (sPTB) is a significant public health problem, with an increased recurrence risk in subsequent pregnancies. A multicenter randomized trial assessing 17-hydroxyprogesterone caproate (17OHPHC) showed a reduction in the risk of recurrent PTB by 40%. Subsequently, national guidelines from SMFM and ACOG have recommended utilization of weekly 17OHPHC in women with a history of sPTB to reduce recurrence risk. However, there is conflicting data regarding the efficacy in an American population. Moreover, real world utilization and adherence are underreported and there is a paucity of evidence regarding how adherence relates to outcomes. Our objective is to evaluate the utilization and adherence of 17OHPHC in a high-risk population and its effects on antepartum management and neonatal outcomes.

Study Design: This retrospective cohort study includes women over 18 years old with a singleton gestation, a history of sPTB, who were prescribed to initiate 17OHPHC weekly injections between 16 to 20 weeks and delivered at our tertiary care center between 2014 and 2017.

Patients were identified through pharmacy reports and administration of injections were retrieved from the electronic medical record. Outcomes of women who were adherent, defined as the administration of greater than 80% of intended injections, were compared to those who were not adherent. Data regarding management of preterm birth were collected. Neonatal outcomes included NICU length of stay (LOS), birth weight, and 5 minute Apgar scores. A composite neonatal morbidity rate was assessed which included intraventricular hemorrhage, respiratory distress syndrome, necrotizing enterocolitis, and retinopathy of prematurity. Statistical analysis included descriptive data, independent t-test, Mann Whitney U, Chi-square test, and Fisher's Exact test where appropriate. Medians with interquartile ranges (IQR) or mean
standard deviation (SD) are reported. A p-value <0.05 was significant.

Results: Of the 100 charts reviewed, 92 women with complete charts were included in the final analysis. The adherence rate was 41% (n=38). At baseline, women who were adherent differed significantly in maternal age compared to the nonadherent group (adherent: 30.8 years, nonadherent: 27.4 years; p=0.01). Other maternal characteristics such as race, pre-pregnancy body mass index (BMI), hypertension, diabetes, smoking status and substance use were comparable between groups. The average number of intended injections received in the adherent group was 94.6%. The average number of intended injections received in the nonadherent group was 43.7%. Out of the entire cohort, 22.8% received 100% of intended injections (n=21).

The mean (SD) gestational age at initiation of 17OHPG was comparable between groups (Adherent: 17.3 (2.3) weeks, Nonadherent: 18.2 (2.1) weeks; p=0.06). There were no significant differences in antepartum management after initiation of 17OHPG. Similar rates of tocolytic use (adherent [n=5]: 13.2%, nonadherent [n=12]: 22.2%; p=0.32), antenatal corticosteroids use (adherent [n=11]: 28.9%, nonadherent [n=15]: 27.8%; p=0.84), cerclage placement (adherent [n=9]: 23.7%, nonadherent [n=15]: 27.8%;p=0.72) and pessary placement (adherent [n=6]: 15.8%, nonadherent [n=6]: 11.1%;p=0.48) were observed.

The mean (SD) gestational age at delivery was 36 weeks for each group (adherent: 36.8 (2.6) weeks, nonadherent: 36.5 (3.8) weeks; p=0.66). The rate of preterm birth less than 37 weeks (adherent (n=18): 47.4%, nonadherent (n=20): 37%; p=0.32) and 35 weeks (adherent (n=8): 21.1%, nonadherent (n=9): 16.7%; p=0.59) were similar between groups. The rate of preterm birth less than 32 weeks was similar in both groups (adherent (n=2): 5.3%, nonadherent (n=5): 9.3%; p=0.69). No preterm births occurred less than 28 weeks in the adherent group, however, the rate was 7.4% (n=4) in the nonadherent group. No significant differences in neonatal outcomes were observed. Average birth weight was comparable between groups (adherent: 2776 (SD 631.2) grams, nonadherent: 2709 (SD 841.2) grams; p=0.68). The composite neonatal morbidity rates were similar (adherent (n=7): 18.4%, nonadherent(n=11): 20.4%; p=0.86). The median NICU LOS was comparable between groups (adherent: 15.5 (5.0-30.5) days; nonadherent: 15 (6.0-49.0) days p=0.72).

Conclusions: Real world adherence is poor with approximately 59% of women receiving less than 80% of intended 17OHPG injections at our institution. Older women who initiate 17OHPG earlier in the recommended window of
initiation are more likely to remain adherent. Women who were nonadherent to weekly 17OHP were not at a higher risk of preterm birth or adverse neonatal outcomes.
Transversus Abdominis Plane (Tap) Block with Liposomal Bupivacaine for Laparoscopic Hysterectomy with Umbilical Contained Tissue Extraction

Laura D Young, MD, Kristie Lou, MD, David M Haas, MD, MS, Kelly Kasper, MD
Indiana University School of Medicine, Indianapolis, IN

Study Objective: To determine if liposomal bupivacaine TAP blocks affected peri-operative opioid requirements and self-reported pain scores in women undergoing laparoscopic hysterectomy for large pathology with specimens over 250 grams, requiring umbilical contained tissue extraction with manual morcellation.

Hypothesis: As posterior TAP blocks target the subcostal and lower TAP plexuses from T9-L1, providing somatic analgesia to the anterior abdominal wall and parietal peritoneum, and the umbilicus is innervated by intercostal nerves T10, the authors hypothesized that the longer acting liposomal bupivacaine TAP block would reduce opioid requirements and improve pain scores in patients requiring umbilical contained tissue extraction.

Design: Retrospective cohort study.

Setting: Academic tertiary care hospital.

Patients: Women undergoing laparoscopic hysterectomy for uteri greater than 250 grams with contained tissue extraction via a 3- to 4cm umbilical incision.

Methods: 70 laparoscopic hysterectomies for specimens over 250 grams were identified using CPT codes between July 1, 2017 and February 15, 2019, including both total and supracervical laparoscopic hysterectomies. Patients were included if the attending surgeon was a member of the Minimally Invasive Gynecologic Surgery division and surgery was performed at University Hospital. Exclusion criteria included robotic assisted surgery, a cancer diagnosis, conversion to laparotomy, route of tissue extraction other than an extended umbilical port incision (such as vaginal or mini-laparotomy in a Pfannenstiel fashion), TAP blocks using a non-liposomal bupivacaine anesthetic, history of chronic pain disorder as identified by ICD-10 codes, or if opioids were used for longer than a 3 week period preoperatively. As such, 30 patients were excluded. 40 were analyzed for outcomes.
with 21 in the control group and 19 in the liposomal bupivacaaine TAP group. All opioids were converted to intravenous milligram morphine equivalents (MME) using an equianalgesic chart in accordance with American Pain Society guidelines and standard reporting in the anesthesiology literature. After cases were identified by CPT codes, and extensive chart review was completed. All data was entered into a REDCap database. Statistical analysis was performed as follows: student's t test for continuous, normally distributed variables, Mann Whitney U test for continuous variables that were not normally distributed, and Fisher's exact test for categorical variables given the small sample size.

Results: Demographics including age, race, body mass index, preoperative diagnosis, procedure, complication rate, and pathology were similar between the two groups. Patients tended to be in their mid-40's and obese. Approximately 2/3 of patients were African American, and the remaining 1/3 were white. Approximately 80% of patients had a surgical indication of abnormal uterine bleeding due to leiomyomatous uteri, and the remaining 20% were for bulk symptoms. 57% of patients in each group underwent a total laparoscopic hysterectomy, and 42% underwent laparoscopic supracervical hysterectomy. Only one complication occurred, a 2mm cystotomy identified on selective cystoscopy at the end of the procedure that was repaired laparoscopically. Besides uterine leiomyoma, approximately 1/3 of patients also had a finding of adenomyosis upon review of final pathology. Median estimated blood loss was 250cc for the control group and 300cc for the TAP group (p=0.85). Median uterine weight was 881g versus 781g (p=0.33), though uterine weight ranged from 258 grams to 5 kilograms. More than 50% of patients were discharged on the day of surgery (13 in the control group versus 9 in the TAP group). Median intra-operative opioid requirements were 24.02 MME for the control group and 20.36 MME for the TAP group (p=0.24). Median post-anesthesia care unit (PACU) requirements were 4.67 MME versus 5.5 MME (p=0.28). Among admitted patients, median inpatient requirements were 10.43 MME versus 15 MME (p=0.35), and median total hospital requirements were 40.7 MME versus 37.95 MME (p=0.93). Median opioids prescribed were 46.67 MME versus 60 MME (p=0.12), and zero patients in either group required a refill opioid prescription in the 6-week postoperative period (p=1.0). No difference was seen in pain scores between groups at any time point measured (maximum PACU, first inpatient, maximum inpatient, average inpatient, and last prior to discharge).

Conclusion: Conflicting evidence exists regarding efficacy of short acting anesthetic TAP blocks at time of laparoscopic
hysterectomy. To the authors' knowledge, only one prior study examined liposomal bupivacaine TAP blocks (for robotic cancer cases) and no prior study assessed TAP blocks for contained tissue extraction via an extended umbilical incision. Liposomal bupivacaine TAP blocks do not appear to reduce peri-operative opioid requirements nor improve postoperative pain scores in women undergoing laparoscopic hysterectomy for uteri greater than 250 grams requiring umbilical contained tissue extraction with manual morcellation through a 3- to 4cm extended incision. Its use should be weighed against prolonged operative time and increased cost.
12:00 – 12:15 p.m.

Paper #21
Maternal Obesity and Severity of Intrauterine Growth Restriction

Lisette D Tanner, MD, MPH, Clifton Brock, MD, Suneeet P Chauhan, MD, Hon DSc

McGovern Medical School-UTHHealth, Houston, TX

Purpose: The purpose of this retrospective study was to evaluate the frequency of severe intrauterine growth restriction (IUGR) as well as the risk of severe IUGR and/or abnormal ultrasound findings among different classes of obesity as compared to non-obese women. Our hypothesis was the degree of IUGR based on estimated fetal weight and ultrasound abnormalities would be worse with increasing obesity.

Methods: This was a retrospective cohort study of all pregnancies complicated by IUGR from January 2016- March 2019 at a single center, whose antenatal surveillance included weekly biophysical profiles, umbilical artery and middle cerebral artery Doppler assessment. Exclusion criteria included multiple gestation, prenatally diagnosed fetal anomalies, and unknown maternal body mass index (BMI). We defined intrauterine growth restriction as an estimated fetal weight less than the 10th percentile for gestational age using Hadlock criteria. Patients were considered to have severe IUGR if the estimated fetal weight was less than the 3rd percentile for gestational age. Maternal BMI was categorized as non-obese (BMI <= 29.9), Class I obesity (30.0-34.9), and Class 2+ obesity (>=40.0). Abnormal Dopplers were defined as absent or reversed end diastolic flow. Oligohydramnios was defined as an amniotic fluid index (AFI) of < 5cm or a maximal vertical pocket (MVP) of < 2 cm. Polyhydramnios was defined as an AFI of > 25cm or MVP > 8cm. Maternal characteristics and ultrasound findings were compared between groups. Categorical variables were compared by X² or Fisher's exact test and continuous variables were compared by t test or nonparametric Wilcoxon rank sum test for data that were not normally distributed. P values are two-sided and P < 0.05 is considered significant. Logistic regression was used to calculate odds ratios (ORs) and 95% confidence intervals by adjusting for potential confounders including maternal age, hypertensive disorders, pre-gestational and gestational diabetes, auto-immune disorders, and gestational age at diagnosis.
**Results:** Of the 881 women that met the inclusion and exclusion criteria, 686 (78%) were not obese, 105 (12%) had class I obesity, and 90 (10%) had class II or III obesity. The three BMI groups were similar in age. Obese women were significantly more likely to be multiparous and had a lower mean gestational age at diagnosis of IUGR. Women with Class II or III obesity had the lowest mean gestational age at diagnosis of IUGR at 28.5 ± 6.1 weeks gestation. Women with class I obesity had a mean gestational age at diagnosis of 30 weeks gestation and non-obese women had a mean gestational age at diagnosis of IUGR of 31 weeks. Hypertensive disorders were more common with increasing BMI. 60% of women with class II or III obesity had a diagnosis of a hypertensive disorder, while 41% and 10% of women with class I obesity and non-obese women, respectively, had such a diagnosis (P < 0.01). There were no statistically significant differences between the obesity groups in regards to other co-morbidities including, pre-gestational or gestational diabetes, autoimmune diseases, cardiac diseases, renal diseases or asthma.

Obese women had significantly more frequent rates of severe IUGR as compared to non-obese women: 37% of women with class II or III obesity were diagnosed with severe IUGR while 29% of non-obese patients experienced severe IUGR (P< 0.05). The rates of abnormal Dopplers (absent or reversed end diastolic flow) was more frequent with worsening obesity- 31.4%, 34.4%, and 46.2% for non-obese, class I obesity, and class II or III obesity, respectively (P < 0.01). After adjusting for potentially confounding variables, there was a trend toward an increased OR of severe IUGR, abnormal Dopplers, fluid abnormalities, and abnormal antenatal testing for women with obesity as compared to non-obese women. While a trend was present for all of these findings, the only statistically significant findings were for an increased OR of 1.4 (95% CI 1.0-2.1) for severe IUGR among women with class I obesity and an OR of 1.7 (95% CI 1.2-2.6) for abnormal Dopplers among women with class II or III obesity as compared to non-obese women.

**Conclusion:** Obese women were more likely to have severe IUGR and abnormal Dopplers compared to non-obese women. These findings warrant further study into predictors of adverse outcomes among obese women with IUGR. Such information could be useful in counseling patients as to the possible course of disease after diagnosis of intrauterine growth restriction.
The Significance of Unsatisfactory Cervical Liquid Based Cytology and the Subsequent Risk of Future Abnormal Cytology

Jenna R Voirol, MD, Nicole P Scott, MD, Monica Neuman, MD
Indiana University, Indianapolis, IN

Background: The significance of unsatisfactory cervical liquid based cytology (LBC) and subsequent risk of abnormal cytology is undetermined in high-risk populations.

Objective: The objective of this study is to determine the odds of having abnormal cervical cytology after an unsatisfactory pap smear in a large urban underinsured population.

Methods: All cervical LBC performed by the department of Obstetrics and Gynecology between October 2016 and June 2018 were retrieved from the electronic medical record system of the local county hospital. The patient demographics, training level of providers, human papilloma virus diagnosis, and pregnancy status of the patient were all recorded. The cytologic diagnosis of all of the satisfactory cytology was recorded at the initial visit. The unsatisfactory cytology was then followed to a secondary, follow up visit, and cytologic diagnosis was then recorded. The satisfactory cytology that was collected at the initial visit was used as the control group.

Results: Of the 8897 cytologic specimens that were collected at the initial visit, 593 (5.7%) were found to be unsatisfactory. Of the satisfactory specimens at initial visit, 1369 (16.4%) were found to have positive cytology. Positive cytology was defined as any diagnosis that was not negative for intraepithelial lesion or malignancy (NILM). At the second visit, 532 (89.7%) of the repeat specimens were satisfactory. 61 (10.3%) of the repeat specimens were found to be unsatisfactory again. Positive cytology was noted on 140 (23.6%) of the repeat specimens. A logistic regression analysis for having a positive cytology after having unsatisfactory cytology was done using SAS 9.4 software. An unadjusted odds ratio (OR) was found to be 1.775 with CI 1.45-2.17 (p<0.0001). When adjusted for variables such as race, smoking status, and pregnancy status, the adjusted OR was 1.88 with a CI 1.53-3.330 (p<0.0001).
Conclusions: Compared to subjects who had satisfactory LBC at initial visit, subjects who had an unsatisfactory LBC and went to follow up, had 89% higher odds of having positive cytologic diagnosis.
ADJOURN

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THANK YOU FOR ATTENDING
SCIENTIFIC POSTERS

POSTER SET UP

WEDNESDAY
OCTOBER 16, 2019
2:00 P.M. – 5:00 P.M.

POSTER SESSIONS

THURSDAY
OCTOBER 17, 2019
7:00 A.M. – 12:00 P.M.

FRIDAY
OCTOBER 18, 2019
7:00 A.M. – 10:45 A.M.
Poster #1
Urinary Retention Outcomes After Concurrent Colpoclesis and Mid-Urethral Sling

Rhea B. Eubanks, B.A.
Loyola University Chicago Stritch School of Medicine
Maywood, Illinois

Poster #2
An Evaluation of Neonatal Outcomes when Cesarean Delivery is Performed for Fetal Tachycardia at a Tertiary Care Hospital in Mekelle, Ethiopia

Abida Hasan, M.D.
University of Illinois at Chicago
Chicago, Illinois

Poster #3
Provider Attitudes and Current Practice Regarding the Prescription of Opioid Containing Pain Medication for Vaginal Delivery

Sarah E. Atkinson, M.D.
University of Illinois at Chicago-UIC Health
Chicago, Illinois

Poster #4
Neonatal Brachial Plexus Palsy and Hill's Criteria of Association or Causation: An Examination of the ACOG Task Force's Publication

Christine E. McGough, M.D.
McGovern Medical School-UTHealth
Houston, Texas

Poster #5
Neonatal Seizures at Term: Risk Factors and Adverse Outcomes

Morgen S. Doty, D.O.
McGovern Medical School-UTHealth
Houston, Texas

Poster #6
Neonatal Brachial Plexus Palsy Subsequent to Shoulder Dystocia: Documentation and Persistence

Morgen S. Doty, D.O.
McGovern Medical School-UTHealth
Houston, Texas
Poster #7
Characteristics of Randomized Clinical Trials in Obstetrics and Gynecology Registered at ClinicalTrials.gov
Megha Gupta, M.D.
McGovern Medical School-UTHealth
Houston, Texas

Poster #8
Structured Ultrasound Curriculum for Obstetrics and Gynecology Residency Programs Enhances Learning
Roopali V. Donepudi, M.D.
McGovern Medical School-UTHealth
Houston, Texas

Poster #9
Risk of Neonatal Abstinence Syndrome in Infants Delivered to Patients with Opioid Use Disorder and Mood Disorders
Tiffany R. Tonismae, M.D.
Indiana University School of Medicine
Indianapolis, Indiana

Poster #10
An Institutional Review of Multidisciplinary Approach to Management in Patients with Morbidly Adherent Placenta
Osman G. Chaudhry, M.D.
Indiana University School of Medicine
Indianapolis, Indiana

Poster #11
Are There Specific Antepartum Factors and Labor Complications That Predict Elevated Immediate Postpartum Edinburgh Postnatal Depression Scale Scores?
Katherine V. Ayo, M.D.
Indiana University School of Medicine
Indianapolis, Indiana

Poster #12
Psychosocial Contributors to Breastfeeding Intention in First-Time Mothers
Tondy L. Baumgartner, M.D.
Indiana University School of Medicine
Indianapolis, Indiana
Poster #13
**Accuracy of Diagnosis of Arrest of Dilation in Patients Undergoing Primary Cesarean at Three Ascension Institutions Using Contemporary Diagnostic Criteria**

Brittany N. Sherron, M.D.
St. Vincent Women's Hospital
Indianapolis, Indiana

Poster #14
**Postpartum Preeclampsia: A Case Series**

Katherine E. Roberts, M.D.
Advocate Illinois Masonic Medical Center
Chicago, Illinois

Poster #15
**Migration of Angular Pregnancy to Centric Position: A Case Report**

Katherine M. Tadros, D.O.
 Advocate Illinois Masonic Hospital
Chicago, Illinois

Poster #16
**Serpentine Placental Aneurysm: A Case Report**

Tiphany D. Jackson, M.D.
Advocate Illinois Masonic Medical Center
Chicago, Illinois

Poster #17
**Preeclampsia Screening and Prophylaxis Without the Use of Uterine Artery Doppler and Multiple Markers**

Norman A. Ginsberg, M.D.
Advocate Illinois Masonic Hospital
Chicago, Illinois

Poster #18
**HPV Vaccination: Optimizing Rates in Our Ambulatory Clinic at Aultman Hospital**

Brennan N. Anderson, D.O.
Aultman Hospital/NEOMED
Canton, Ohio
Poster #19
Improving Follow Up of Abnormal Pap Smears in Resident Ambulatory Clinic
Jessica C. Nazzaro, D.O.
Aultman Hospital
Canton, Ohio

Poster #20
Previous Cycle Tracking with a Wearable Multiparameter Device Reduces Time to Conception
Lee P. Shulman, M.D.
Northwestern University
Northbrook, Illinois

Poster #21
Preconception and Prenatal Carrier Screening: Are We Obtaining Actionable Information for our Patients?
Lee P. Shulman, M.D.
Northwestern University
Northbrook, Illinois

Poster #22
Impact of Robotic Surgery on Hysterectomy in a Community Institution: A 10-Year Review
Echko K. Holman, B.S.
University of Wisconsin School of Medicine & Public Health
La Crosse, Wisconsin

Poster #23
Prevalence of Mycoplasma Genitalium Collected From Pregnant Women with Pelvic Complaints in Houston, Texas
Irene A. Stafford, M.D.
Baylor College of Medicine
Houston, Texas

Poster #24
The Use of Suspected or Proven Neonatal Sepsis as a Predictor for Postpartum Endometritis
Alexandra L. Berra, M.D.
Baylor College of Medicine
Houston, Texas
Poster #25  
Contraception Planning in a Designated Obstetrical Opioid Use Disorder Clinic  
Craig V. Towers, M.D.  
University of Tennessee Medical Center  
Knoxville, Tennessee

Poster #26  
Placental Surface Cysts and Fetal Outcome  
Nancy Oropeza, M.D.  
Texas Tech HSC  
El Paso, Texas

Poster #27  
Micropenis: What is Normal?  
Leticia Diaz, M.D.  
Texas Tech HSC  
El Paso, Texas

Poster #28  
Assessment of Obstetric and Gynecologic Device Recalls and the FDA Approval Processes  
Sheena Galhotra, M.D.  
Rush University Medical Center  
Chicago, Illinois

Poster #29  
Structured Teaching to Enhance Laparoscopy Learning  
Sheena Galhotra, M.D.  
Rush University Medical Center  
Chicago, Illinois

Poster #30  
New-Onset Postpartum Preeclampsia in Women Without Prior History of Hypertensive Disorders  
Barbara K. Neuhoff, M.D.  
Louisiana State University Health Science Center  
New Orleans, Louisiana

Poster #31  
Tranexamic Acid (TXA) Use in Patients Among Gynecologist and Obstetricians  
Rebecka Bogue, M.D.  
Loyola University Medical Center  
Maywood, Illinois
Poster #32
Obstetrician-Gynecologists in General Practice in New Mexico: A Comparison Between Rural and Metropolitan Settings
Jacquelyn A. Blackstone, D.O.
University of New Mexico
Albuquerque, New Mexico

Poster #33
Comparison of Cytology and Visual Inspection with Acetic Acid Triage of Human Papilloma Virus DNA Positive Women for Detection of CIN
Saritha Shamsunder, M.D.
VMMC & Safdarjung Hospital
New Delhi, Delhi

Poster #34
Incidentally Found Luteoma at Time of Cesarean Section
Dawei David Wang, M.D.
State University of New York
Buffalo, New York

Poster #35
Case Presentation of a Desmoid Tumor in Pregnancy with a Review of the Literature
Alexandra C. Christie, D.O.
Hackensack Meridian Health, Jersey Shore Univ. Med. Center
Neptune, New Jersey

Poster #36
Implications of Recreational Genetic Testing
Sarah E. Goodheart, D.O.
Jersey Shore University Medical Center
Neptune, New Jersey

Poster #37
Early Identification of High Risk Pregnancies in a Medicaid Population
Larry P. Griffin, M.D.
Evolent Health/Passport Health
Louisville, Kentucky
Objective: The optimal method of managing stress urinary incontinence in patients electing for colpocleisis remains unclear. We aim to compare the postoperative urinary retention rates in women with colpocleisis with or without concomitant midurethral tension free vaginal tape (TVT).

Methods: After IRB approval, we performed a retrospective chart review of all patients who received a colpocleisis with or without concomitant TVT 10/2007 to 10/2017 at our tertiary care center. Prior to surgery, all patients completed validated Pelvic Floor Distress Inventory (PFDI) questionnaire and underwent a POPQ examination and catheterized post void residual (PVR). Stress urinary incontinence (SUI) assessment was via cough stress test or urodynamics. All patients had preoperative PVR and postoperative PVR at 2 weeks. Urinary retention was defined as PVR of ≥100ml. Symptoms of prolapse, SUI and urge urinary incontinence (UUI) were assessed at 6 weeks postoperatively. Maximum follow up was 1 year. Analysis was performed with Chi-square or t-test as appropriate for categorical or continuous variables with SPSS version 25.

Results: 402 patient charts were reviewed with a total of 229 patients included in the final analysis. 42 were excluded for missing preoperative PVR and 131 were excluded for missing postoperative PVR. 93 patients had a colpocleisis with concomitant TVT (77 retropubic midurethral sling, and 16 transobturator (TVT-O)), while 136 had colpocleisis without concomitant TVT. All patients in the study had a mean age of 77.7 years (S.D. +/- 6.02 years, median 78 years). Previous surgeries included prior continence procedure 8.3% (19/229),
prior prolapse surgery 9.2% (21/229) and prior hysterectomy 48% (110/229). The median POPQ stage was 2 (2-4) and preoperative mean POPDI score 32/100 (+/- 20 SD) and UDI 43/100 (+/- 26 SD). Half (50.9%: 116/229) of patients self-reported symptoms of SUI and 53.7% (123/229) reported symptoms of UUI preoperatively.

The patients had a median preoperative PVR of 60ml with 93 patients (40.6%) meeting criteria for urinary retention (PVR ≥ 100ml). Of the patients who underwent colpocleisis alone, 61 of 136 patients (44.9%) had preoperative urinary retention whereas 32 of 93 patients (34.4%) with colpocleisis with midurethral sling had preoperative urinary retention (p=0.114). Postoperative retention was present in 11.8% (11/93) patients with concomitant sling and 10.3% (14/136) of patients with colpocleisis alone (p=0.644).

Among the patients who had colpocleisis alone, 49/61 (80.3%) had resolution of their pre-operative urinary retention. Similarly, patients with colpocleisis with midurethral sling, 29/32 (90.6%) had resolution of their pre-operative urinary retention. Three (3/93, 3.1%) patients required reoperation for sling release. Only 1 of these 3 patients had an elevated PVR preoperatively.

At 6 weeks postoperatively, all but 2 patients reported resolution of prolapse symptoms (227/229). At 6 week postoperatively, only 1 out of 93 (1.1%) patient who received colpocleisis with concomitant TVT reported SUI symptoms. However, in patients who received colpocleisis alone, 10/135 (7.4%) patients reported SUI symptoms.

Subgroup analysis showed urinary retention was not associated with midurethral sling type, prior hysterectomy, prior continence surgery, prior prolapse surgery, age or BMI. There was no predictive value of the presence of elevated preoperative PVR and postoperative urinary retention.

Conclusions: Performing a concomitant TVT at the time of colpocleisis allows for simultaneous treatment of prolapse and SUI without high risk of urinary retention. All patients with SUI and POP electing for colpocleisis should be offered this combined approach regardless of preoperative PVR.
Poster #2

An Evaluation of Neonatal Outcomes When Cesarean Delivery is Performed for Fetal Tachycardia at a Tertiary Care Hospital in Mekelle, Ethiopia

Abida Hasan, MD\textsuperscript{1}, Hale Teka, MD\textsuperscript{2}, Awol Yemane, MD\textsuperscript{2}, Stacie Geller, PhD\textsuperscript{1}

University of Illinois at Chicago, Chicago, Illinois\textsuperscript{1} and Mekelle University, Mekelle, Tigray, Ethiopia\textsuperscript{2}

**Purpose:** In low-middle income countries (LMIC), electronic fetal monitoring (EFM) is often used without paper (relying only on the digitally displayed fetal heart rate), forcing providers to make management decisions regarding fetal well-being without fetal heart rate pattern interpretation. Making labor management decisions with incomplete information can affect maternal and neonatal outcomes. At Ayder Comprehensive Specialized Hospital in Mekelle, Ethiopia, fetal tachycardia of \(\geq 160\) beats per minute persisting for >10 minutes is the leading indication for cesarean delivery (CD). The purpose of this study is to assess neonatal outcomes when the indication for non-elective CD is fetal tachycardia when EFM is used without pattern interpretation.

**Methods:** This study is a subgroup analysis of neonatal outcomes from the first phase of a 3-phase study evaluating the use of EFM with and without pattern interpretation. Descriptive statistics were used to assess these neonatal outcomes.

The composite 3-phase study is a prospective cohort study of women \(\geq 18\) with singleton pregnancies who delivered at Ayder Comprehensive Specialized Hospital in Mekelle, Ethiopia between October 2017 and January 2018. Phase 1 involved baseline data collection for the cohort of women receiving electronic fetal monitoring without pattern interpretation. Phase 2 referred to a 3 week long teaching phase in which interpretation and management of electronic fetal monitoring were reviewed using the American College of Obstetricians and Gynecologists (ACOG) EFM toolkit for all obstetric care providers for the purpose of standardization. After this teaching phase was completed, a practice change was instituted so that EFM without pattern interpretation was no longer to be used. Rather, all patients received EFM with pattern interpretation. Phase 3 referred to the period of post-intervention data collection for women in the cohort receiving electronic fetal monitoring with pattern interpretation, and is currently underway.
IRB approval was obtained from University of Illinois at Chicago as well as Mekelle University College of Health Sciences.

**Results:** Six hundred fourteen women were enrolled during the study period; 115 (18.7%) delivered by CD, and 499 (81.3%) delivered vaginally. Of the 115 who delivered by CD, 58 (50.4%) underwent CD for non-reassuring fetal status (NRFS). Of these 58 CD for NRFS, 43 (74.1%) were delivered for fetal tachycardia, making fetal tachycardia the most common indication for CD when EFM was used without pattern interpretation. The remaining 15 (25.9%) of the 58 CD for NRFS were secondary to fetal bradycardia. Fifty-seven (49.6%) of CD were performed for other indications including failed induction before active labor, arrest of dilatation during active labor, arrest of descent during second stage, history of prior CD plus an additional indication, meconium plus an additional indication, malpresentation, and other unspecified indications.

Neonatology was called to evaluate 8 (18.6%) neonates delivered by CD for fetal tachycardia. A higher percentage of neonates delivered by CD for all other indications, n=16 (22.2%), required evaluation by NICU. Neonatal intensive care unit (NICU) admission was required for 5 (11.6%) neonates delivered by CD for fetal tachycardia versus 11 (15.3%) delivered by CD for all other indications. Accordingly, 35 (81.4%) of the 43 neonates delivered by CD for fetal tachycardia did not require evaluation by Neonatology, and 38 (88.4%) of the 43 neonates delivered by CD for fetal tachycardia did not require NICU admission. No intrauterine fetal demises (IUFD) or early neonatal demises (END) occurred in the CD for fetal tachycardia cohort. One IUFD occurred among those who underwent CD for all other indications. No END occurred in this group.

Of the 5 neonates admitted to NICU after CD for fetal tachycardia, 1 neonate was admitted for sepsis, low birth weight, hypothermia, and severe anemia; the other 4 were admitted for respiratory distress, meconium aspiration, low birth weight, and jaundice. No neonates were admitted to NICU for low Apgar. None of the neonates delivered by CD for fetal tachycardia had a 5-minute Apgar of <7. By comparison, 5 (45.5%) of the 11 neonates delivered by CD for all other indications had a 5-minute Apgar of <7.

**Conclusions:** Fetal tachycardia was used as a marker of NRFS in this cohort when EFM was used without pattern interpretation. The majority of neonates delivered by CD for the indication of fetal tachycardia did not require NICU evaluation or admission, suggesting that fetal tachycardia did not represent NRFS in a majority of cases. The fetal
tachycardia identified in the majority of these deliveries may have been a benign finding. Accelerations must be distinguished from pathologic persistent fetal tachycardia, which is possible when the fetal heart pattern is evaluated over time as in EFM with pattern interpretation. Evaluation of fetal heart tracing using the visual pattern may have avoided many CD without adversely affecting neonatal outcomes. This suggests that the implementation of EFM with pattern interpretation may result in a safe decrease in CD, particularly for those that are performed for fetal tachycardia.
Poster #3
Provider Attitudes and Current Practice Regarding the Prescription of Opioid Containing Pain Medication for Vaginal Delivery

Sarah E. Atkinson, MD, Abigail Litwiller, MD
University of Illinois at Chicago-UI Health, Chicago, IL

Purpose: The rates of substance abuse admissions and deaths attributable to prescription opioid abuse and misuse are on the rise. Additionally, prescription opioid abuse is a risk factor for subsequent heroin use (1). With rising numbers of women addicted to opioids, there have been significant efforts made at both the state and local level to begin to monitor the opioid prescribing habits of physicians. The most common reason women interact with the healthcare system, in terms of hospitalization, is for maternity care. Recent data revealed that more than 1 in 10 Medicaid-enrolled women fill an outpatient opioid prescription after vaginal delivery (2).

Previous research of opioid prescribing practices after cesarean deliveries in privately insured women revealed that approximately 1 in 300 women became persistent users of opioids after filling a prescription after cesarean delivery (3). There is limited data regarding opioid prescribing practices for post-partum women, especially after discharge for vaginal deliveries.

Methods: Utilizing a survey of obstetric providers, this study examined current prescribing practices clinical factors involved in a provider's decision to prescribe opioids following a vaginal delivery. Obstetrics and Gynecology physicians and Certified Nurse Midwives (CNMs) from a range of different practice backgrounds and settings were surveyed via two email listservs of providers. Additional participants were recruited to participate at the annual clinical meeting for the Central Association of Obstetrics and Gynecology. Participants were excluded if they do not currently practice obstetrics. The online participants completed the surveys using RedCap. Surveys completed in person were entered into RedCap by the principal investigator. Data collected from providers included age, years in practice, training background, and practice setting as demographic variables. Provider characteristics and prescribing practices were then compared. The data was analyzed in SPSS utilizing frequencies and chi-square analysis.

Results: The survey was completed by 106 providers from October 2018 until January 2019 with 99 complete surveys.
available for analysis. Forty-two percent (n=42) of participants were medical doctors (MD) and fifty-seven percent (n=57) were CNMs. The largest proportion of providers came from either private practice (27%, n=27) or university based academic settings (38%, n=38). Providers were evenly split by age ≥ 50 or < 50 (50.5% vs 49.5%) and time in practice ≥ 15 years or < 15 years (52.5% vs 47.5%).

Twenty seven percent of providers utilize opioids as pain control for inpatient use following a vaginal delivery. There were no significant differences in the utilization of opioids inpatient based on provider characteristics. Eight percent of the providers surveyed (n=8) prescribe opioids at discharge after vaginal deliveries. There was a statistically significant difference in the proportion of MDs who provide opioid prescriptions at the time of discharge compared to CNMs (n=7 vs n=1, p=0.007). There was no significant difference based on age, years in practice, or practice setting. The most common reasons for prescribing opioids at discharge included postpartum tubal ligation (56.4%), third and fourth degree lacerations (59.6% and 73.4%, respectively), and operative deliveries (26.6%). MDs were significantly more likely to prescribe an opioid in the setting of a second degree laceration (n=8 vs 3, p=0.03). Providers who were < 50 years old (10 vs 1, p=0.004), had been practicing for less than 15 years (n=9 vs 2, p=0.016) and CNMs (n=11 vs 0, p=0.003) were significantly more likely to prescribe an opioid pain medication for multigravid patients. MDs were more likely to prescribe an opioid pain medication for patients who are chronic opiate users (n=4 vs 0, p=0.017) as opposed to other providers.

CNMs were significantly less likely to prescribe opioids if the patient's history was consistent with current illicit drug use (n=43 vs 22, p=0.06) or with a history of illicit drug use (n=46 vs 23, p=0.006). CNMs were also less likely to prescribe opioids for patients who were under twenty years old (n=9 vs 2, p=0.074). There was no significant difference in the opioid prescribing patterns for providers in terms of patients who were breastfeeding, with concomitant psychiatric diagnoses, tobacco use, insurance type, or race.

Conclusions: In order for understanding surrounding the prescription of opioids following vaginal delivery to occur, it is important to not only identify the current practice patterns, but also to quantify what differences exist amongst the prescribing patterns based on the background of the provider. This study contributes data to address these goals. Additionally, with the influx of new guidelines for pain management after a vaginal delivery, it is important to understand and specifically address the aspects of a hospitalization that are more or less likely to trigger an opioid
prescription by a provider. By starting with information regarding why and how providers make the prescription choices they do regarding opioids, better guidelines regarding appropriate and universal prescribing practices can be developed to help assist providers in providing adequate pain relief without subjecting women to unnecessary opioid prescriptions.
Objective: In 2014, the American College of Obstetricians and Gynecologists (ACOG) published the Task Force on Neonatal Brachial Plexus Palsy (NBPP), the most common peripheral neurologic injury at birth. This review synthesized the literature on the definition, rate, risk factors, putative etiologies and management of NBPP. It also opined about the antecedent factors which may be associated with or cause NBPP.

The publication, however, did not publish whether Hill's nine criteria were utilized to determine if the factors were associative or causative (Proc R Soc Med. 1965). Differentiating between associative versus causative factors has implications for understanding NBPP, risk management, counseling families, and designing trials averting the sequelae.

The primary purpose of this review was to cull all Task Force statements with the word "associate" or "cause", and ascertain how many of Hill's nine criteria of causation are fulfilled overall. The secondary purpose was to determine: i) if the culled statements refer to transient (T-NBPP), persistent (P-NBPP), or are non-specific (NS-NBPP); ii) what are the risk factors and putative etiologies that are linked with NBPP; and iii) the data in the references cited for statements culled.

Methods: The NBPP Task Force document was reviewed and all statements with the following four words were culled: "associate," "association," "cause," or "causation." If reference(s) were cited with the statement, the article was pulled. For the primary purpose, five reviewers—a fourth year medical student, a biostatistician, an obstetrician-gynecologist, a MFM sub-specialist and a neurosurgeon who manages children with NBPP—individually reviewed every statement for: i) does it refer to transient (T-NBPP), persistent NBPP (P-NBPP) or is non-specific; ii) if the statement / reference met any of Hill's nine criteria for causation.
The nine Hill's criteria to establish causation are: 1) Strength, 2) Consistency, 3) Specificity, 4) Temporality, 5) Biological Gradient, 6) Plausibility, 7) Coherence, 8) Experiment, and 9) Analogy. Reviewers, blinded to others response and without adjudication, ascertained which, if any, of Hill's criteria were met for each statement. If a majority of reviewers (≥ 3) agreed on any of Hill's nine criterion, a statement was considered to have met that aspect of Hill's criteria. Chi-square or Fisher exact tests were used; P < 0.05 considered significant.

Results: The Workshop's publication on NBPP has 66 statements with the word "associate / association"; among them 83% did not specify if they referred to T-NBPP or P-NBPP, 11% referred to P-NBPP and 8% to T-NBPP. Among the 39 statements with "cause /causation," 92% did not specify if they refer to transient or persistent NBPP, 3% referred to P-NBPP and 5% to T-NBPP.

Among the 66 statements with "associate/association," putative etiologies were identified 73 times (some statements had > 1 etiology). The two most common risk factors for NBPP cited were shoulder dystocia (48%) and antepartum risk factors (15%). Among the 39 statements with "cause /causation," putative etiologies were identified 51 times. The two most common factors were endogenous force (31%) and exogenous force (29%). Shoulder dystocia as a risk factor was cited significantly more commonly in statements with "associate/association" than those with "cause/causation" (P < 0.0001). Endogenous and exogenous forces were the factors that were significantly more common in "cause/causation" statements than "associate/association" (P < 0.0001 and 0.0008, respectively).

The 66 statements with "associate/association" cited 48 references and among them there were over 2.2 million births. In these 48 references, there were 6,683 cases of NBPP (rate of 3.0 / 1,000 births), with 456 being T-NBPP (rate 0.2/1,000 births) and only 90 P-NBPP (4.5 / 10,000 births). The 39 statements with "cause/causation" cited 11 references and among them there were over 90,000 deliveries. In the 11 references, there were 175 cases of NBPP (1.9 / 1,000 births) with 96 being T-NBPP (1.1 /1,000 births) and only 18 being P-NBPP (5.7 / 100,000 births).

The majority of the reviewers opined that all nine of Hill's criteria were satisfied among the 66 statements with "associate / association." The top three criteria on which the majority of reviewers agreed were: Plausibility (30% of statements), Strength of Association (26%), and Consistency (18%). For the statements with "cause/causation" the majority thought 7 of 9 Hill's criteria were satisfied. Hill's two criteria which a majority did not agree on were "Strength of
Association" and "Analogy." The three criteria the reviewers agreed upon were: Plausibility (40% of statements), Coherence (25%), and Consistency (20%).

**Conclusion:** The ACOG Taskforce on NBPP does not formally ascertain if Hill's criteria were satisfied; however, a majority of our reviewers indicated that 7 of the 9 criteria were met, thereby implying putative causation. Additional research on the topic should focus on the two criteria-Strength of Association and Analogy-that the diverse group of reviewers considered unfulfilled. Our analysis is a novel, albeit modifiable, roadmap to ascertain associative versus causative factors for other adverse outcomes like cerebral palsy.
**Objective:** According to ACOG, an integral component of the definition of neonatal encephalopathy is seizures of the newborn. However, there is a paucity of population-based data on neonatal seizures. Hence, we sought to ascertain the rate, risk factors and associated adverse outcomes with neonatal seizure at term (37-41 weeks) in the U.S.

The primary objective of this study was to identify risk factors associated with neonatal seizures. The secondary objective was to compare the neonatal and maternal morbidity, as well as infant mortality, among deliveries complicated with neonatal seizures.

**Methods:** This was a population-based retrospective cohort study using the U.S. vital statistics datasets (2011-2015). Inclusion criteria were singleton gestations, without known fetal anomalies, documented by the 2003 revised birth certificate, delivered at 37-41 weeks, and had data on neonatal seizure. Composite neonatal morbidity (CNM) was defined as any of the following: 1) Apgar < 5 at 5 minutes, 2) assisted ventilation > 6 hours, or 3) neonatal death. Composite neonatal morbidity (CMM) was defined as any of the following: 1) maternal transfusion, 2) uterus rupture, 3) unplanned hysterectomy, or 4) ICU admission. Infant mortality was death within the first year of birth.

Differences in the maternal characteristics were examined using chi-square tests for categorical variables. CNM and CMM were reported as the number of cases per 1,000 live births. Multivariable Poisson regression models with robust error variance were used to examine the risk factors of neonatal seizure. We also examined the association between neonatal seizure and adverse outcomes, while adjusting for maternal age, maternal race and ethnicity, maternal education, marital status, nulliparous, prenatal care, smoking during pregnancy, body mass index (BMI) at delivery, gestational age, hypertensive disease, maternal diabetes, labor type, chorioamnionitis, route of delivery, neonatal sex, and delivery year. Adjusted relative risk (aRR) with 95% confidence intervals (CI) was calculated.

**Results:** During the study period, there were 19,863,745 live births, of which 16,031,623 (80.7%) women met inclusion...
criteria. Neonatal seizures (n=4,209) occurred in 0.3 per 1,000 live births. Factors significantly associated with increased risk of neonatal seizures include: maternal age ≥ 35 years old; maternal education less than high school; primiparous; no prenatal care; smoking during pregnancy; overweight or obese at pre-pregnancy; gestational age of 41 weeks; hypertensive disease; maternal diabetes; had labor, either spontaneous or induced / augmented; and male infant. The strongest risk factor for neonatal seizures was chorioamnionitis (aRR 3.32; 95% CI 2.91-3.79). Factors associated with a decreased risk of neonatal seizures include: black or Hispanic ethnicity; more than high school education; being married; underweight BMI at delivery; gestational age of 38 or 39 weeks; and having cesarean section.

The overall CNM was 415.5 versus 7.0 per 1,000 live births with and without neonatal seizures (aRR 36.2; 95% CI 34.6-37.8). Each component of CNM occurred significantly more often among newborns with seizure than without: Apgar < 5 at 5 minutes with a rate of 285.6 versus 4.0 per 1,000 live births (aRR 43.5; 95% CI 41.2-46.0); assisted ventilation > 6 hours with a rate of 292.5 versus 3.1 per 1,000 live births (aRR 54.4; 95% CI 51.4-57.7), and; neonatal death with a rate of 73.4 versus 0.3 per 1,000 live births (aRR 151.3; 95% CI 134.3-170.5).

The overall CMM was 45.9 versus 3.2 per 1,000 live births with versus without neonatal seizures (aRR 9.5; 95% CI 8.3-11.0). The rate and aRR for each component of CMM were significantly higher for women whose newborn had seizure versus did not: maternal transfusion with a rate of 22.1 versus 2.3 per 1,000 live births (aRR 6.5; 95% CI 5.3-7.9); uterus rupture with a rate of 18.8 versus 0.2 per 1,000 live births (aRR 53.5; 95% CI 42.9-66.7); unplanned hysterectomy with a rate of 5.0 versus 0.3 per 1,000 live births (aRR 13.3; 95% CI 8.7-20.3); ICU admission with a rate of 20.5 versus 0.9 per 1,000 live births (aRR 13.6, 95% CI 10.9-16.8).

Infant deaths were also significantly increased in neonates with seizure than without: 86.0 versus 1.4 per 1,000 live births (aRR 47.8; 95% CI 43.0-53.2).

**Conclusion:** Our population-based study indicates that while the rate of neonatal seizure is uncommon, both the composite and individual neonatal and maternal morbidities, as well as infant mortality, were significantly higher among term deliveries complicated with versus without seizure. The results of analysis can be used to counsel family, and to plan trials to mitigate the sequela to infant-mother dyad of deliveries complicated by neonatal seizure.
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Objective: For three reasons, documentation of how the shoulder dystocia (SD) is managed is an integral component of optimal care. First, the American College of Obstetricians and Gynecologists' Patient Safety Checklist for SD documentation describes what should be incorporated in the record. Second, with improved documentation, there is suggestion of minimizing litigation exposure associated with neonatal brachial plexus palsy (NBPP). Third, the acknowledged principle is that poor documentation equals poor care.

Nevertheless, there is a paucity of reports on the extent of documentation with deliveries complicated by SD and children with NBPP. Our hypothesis is that inadequate documentation of management of SD is more likely associated with persistence and extent of NBPP versus adequate documentation.

Methods: We conducted a retrospective cohort study of children managed at the University of Michigan Interdisciplinary Brachial Plexus Program from 2002 to 2017. The inclusion criteria were non-anomalous, singletons, for whom maternal and perinatal records documented SD. We excluded cases with cesarean delivery. Demographics were noted, as were Apgar scores, fractures and bruising at delivery, NBPP persistence at 1 and 2 years of age, and extent of NBPP by Narakas score (grade III-IV being more extensive with injury to all 5 nerve roots of brachial plexuses).

Clinicians evaluating the status of NBPP in children were blinded to the management of SD. The obstetric charts were reviewed by a MFM attending, a MFM fellow and an OB/GYN resident-all blinded to the status of NBPP at 1 and 2 years of age. A priori, the description of management of SD was categorized as adequate if at least 3 of the following 5 ACOG criteria were documented: 1) type of maneuvers used to relieve the impacted shoulder; 2) duration of shoulder dystocia; 3) description of traction applied (gentle, normal or excessive); 4) anterior arm (right or left); and 5) use or lack of fundal pressure. These 5 variables were chosen from the
ACOG Patient Safety Checklist of SD documentation. If fewer than 3 criteria were mentioned, documentation of management of SD was considered inadequate. Chi-square or Fisher exact tests were used where appropriate and odds ratios with 95% confidence intervals (CI) were performed. P < 0.05 or CI not crossing integer 1 was considered significant.

Results: Among the 106 cases of NBPP during the study period, 83 (78%) met inclusion criteria. Overall, an estimated fetal weight was noted in 27% of cases; the duration of second stage of labor in 34%; type of provider present in 77%; a call for "help" at the time of SD in 11%; description of the maneuvers used to relieve the impaction in 59%; the duration of shoulder dystocia in 52%; birthweight in 96%; Apgar score at 5 min in 98%; umbilical acid-base assessed in 24%; and evidence of injury to newborn in 98%. Whether the right or left arm was anterior was noted in 46% of the cohorts, and whether fundal pressure was applied was mentioned in 54% of charts.

Regarding the documentation of management of SD, 48% (40/83) could be categorized as adequate and 52% (43/83) as inadequate. Delivery with adequate documentation, versus those with inadequate charting, were significantly more likely to describe i) maneuvers used to reduce shoulder dystocia (97% vs 23%; OR 128.7, 95% CI 15.7-1058.7; P < 0.0001); ii) duration of shoulder dystocia (90% vs 16%; OR 46.3, 95% CI 12.5-172.0; P < 0.0001) and; iii) identification of which arm was anterior (76% vs 12%; OR 35.8, 95% CI 10.4-123.7; P < 0.0001).

Among the adequate versus inadequate documentation groups, the following occurred with similar frequencies: i) Apgar score < 5 at 5 min (12% vs 5%); ii) bruising noted on the newborn (26% vs. 21%), and iii) fracture of bone (10% vs 19%). The rate of persistent NBPP at 1 year was similar among those with adequate versus inadequate documentation (21% versus 18%; OR 1.25, 95% CI 0.33-4.71), as was persistence of NBPP at 2 years (29% versus 35%; OR 0.75, 95% CI 0.20-2.85). Lastly, the likelihood of having Narakas score of III / IV were also similar in the two groups (37% versus 44%; OR 0.76, 95% CI 0.31-1.82).

Conclusions: To our knowledge, this is the first report to describe documentation of deliveries complicated by shoulder dystocia with confirmed NBPP. The majority of maternal and perinatal records of children with NBPP lack good documentation, and our study suggests that no association exists between presence of NBPP and adequate versus inadequate documentation of shoulder dystocia management.
Objectives: Among approximately 4,000 references cited in ACOG Practice Bulletins, less than 20% are level I references (i.e. randomized clinical trials (RCTs)). There is a paucity of research examining the characteristics of successfully completed RCTs in obstetrics and gynecology that were registered at ClinicalTrials.gov.

The primary purpose of this study was to describe the characteristics of RCTs in obstetrics and gynecology that were registered at ClinicalTrials.gov. The secondary purposes were i) to compare the proportion of RCTs that were completed, ii) compare RCTs that are published between obstetrical and gynecological, and iii) to identify factors associated with RCT publication.

Methods: Data from 2009-2013 were collected from the National Institutes of Health- US National Library of Medicine database on ClinicalTrials.gov. Utilizing the National Institutes of Health recommended search terms of "Studies by Topics", we identified all registered obstetrical and gynecological RCTs. Data abstracted from randomized clinical trials included intervention and randomization criteria. ClinicalTrials.gov defines recruitment for all studies registered. Trials with a "completed" status were identified. A trial with publication in a peer reviewed journal indexed in PubMed was considered published. In addition to PubMed, Google Scholar was searched using author's name and study title to identify publications. Two authors examined all trial designs and titles to ensure they met the inclusion criteria. Cases of disagreement were resolved with discussion with a senior author to reach consensus.

Differences in characteristics between obstetrical and gynecological studies were compared using chi-square or Fisher's exact test for categorical variables and Wilcoxon rank sum test for continuous variables. Poisson regression models were used to examine the association between factors and trial published status (yes vs no). Unadjusted relative risk (RR) with 95% confidence interval (CI) was calculated.
Results: During the 5-year study period, 1,389 obstetrical and gynecological RCTs were registered: 31% (n=538) in obstetrics and 69% (n=851) in gynecology. Among all registered RCTs, 59% (n=816) were completed and 29% (n=406) were published.

Compared to obstetric randomized trials, gynecological RCTs were more likely to be industry sponsored (22.0%), have a procedure as intervention (16.6%), and have a design for treatment purpose (75.0%). Obstetrical RCTs, on the other hand, were more likely to have a design for prevention purpose (41.6%), and utilize a behavior intervention (16.9%) (p<0.0001 for all comparisons). There were no significant differences in whether trials were conducted in the U.S. or other countries and whether they were conducted in single or multiple sites. Importantly, obstetrical RCTs were more likely to be completed than gynecological RCTs (69.3% vs 52.1%, p<0.0001).

Among all completed RCTs (n=816) in obstetrics and gynecology, gynecological RCTs were more likely to be published than obstetrical RCTs (55.5% vs 42.9%; p=0.0003). Among all published RCTs (n=406) in obstetrics and gynecology, however, obstetrical RCTs were more likely to be published in a high-impact journal (impact factor ≥5) than gynecological RCTs (38.8% vs 13.4%; p<0.0001). Among completed RCTs in gynecology, studies with an enrollment number ≥150 were more likely to be published (RR=1.29, 95% CI= 1.02-1.63). Among completed RCTs in obstetrics, studies that were funded by NIH/US Federal Government (RR=3.36, 95% CI=1.46-7.74) or other non-industry organizations (RR=2.41, 95% CI=1.07-5.38), have a procedural intervention (RR=1.52, 95% CI=1.12-2.06), have an enrollment number 51-100 (RR=2.49, 95% CI=1.39-4.46), 101-150 (RR=2.63, 95% CI=1.41-4.93), or ≥150 (RR=2.73, 95% CI=1.57-4.75) were more likely to be published.

Conclusion: Among the obstetrical and gynecological RCTs registered at ClinicalTrials.gov, about two-thirds were completed, but only one-third were published, with less than 1 in 10 being published in high-impact journals. Several factors associated with published RCTs were identified. These findings provide insights into designing trials that may improve the likelihood of publication.
Structured Ultrasound Curriculum for Obstetrics and Gynecology Residency Programs Enhances Learning

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Introduction: Ultrasound is an important tool in obstetric care. Unfortunately, most obstetrics and gynecology (OBGYN) residency programs do not offer structured training and these skills are obtained mainly by observing senior residents. Some programs have used ultrasound simulation, but the ideal model is unclear. A task force consisting of representatives from American Institute of Ultrasound in Medicine (AIUM), Society for Maternal-Fetal Medicine (SMFM), American Congress of Obstetricians and Gynecologists (ACOG), American College of Osteopathic Obstetricians and Gynecologists (ACOOG), American College of Radiology (ACR), International Society of Ultrasound in Obstetrics and Gynecology (ISUOG), and Society of Radiologists in Ultrasound (SRU) have published guidelines to incorporate a structured curriculum to promote training and testing of these competencies. Our objective was to determine if a curriculum consisting of didactics, hands on training and close supervision by faculty improved their ultrasound skills.

Methods: First year OBGYN residents at our program participated in this study. Two groups were identified: Group 1 - formal ultrasound training was not incorporated in the curriculum. Group 2 - All intern residents had a month-long ultrasound rotation, which included a mix of prenatal genetics, didactics and hands on scanning experience. The didactics consisted of a two hour-lecture outlining the basic principles of ultrasound and required images as described by the task force. Interns from both groups had a week of orientation prior to starting their residency in the last week of June. During this orientation, baseline knowledge was assessed with an eighteen-question written test. The questions were based on AIUM webinars reviewing first trimester ultrasound, fetal biometry, multiple gestation, placenta, biophysical profile, umbilical artery (UA) Dopplers and assessment of the cervix in pregnancy. For Group 2, after completion of their ultrasound rotation, clinical skills were assessed by reviewing resident's ultrasound images and scored based on the task force guidelines. Maternal fetal medicine faculty supervised the residents and reviewed all images. At
the end of the intern year, the knowledge was assessed again by repeating the 18 question written test.

**Results:** Group 1: no formal ultrasound curriculum implemented, had 12 residents. Group 2: new curriculum consisting of didactics and hands on training, had 12 residents.

Average starting score for the intern residents in both groups was 55%. The score at the end of the intern year for group 1, where formal ultrasound training was not provided, was 62.7% \((p = 0.47)\). Average score at the end of the year for group 2, which incorporated a structured curriculum, was 76.4% \((p = 0.013)\). Questions covering first trimester, UA Dopplers, placenta accreta, abruption and cervical length were answered incorrectly at the initial assessment by over 75% of the residents. The areas that did not show improvement were UA Dopplers and placental abruption.

**Conclusion:** A structured curriculum is essential in ultrasound education for OBGYN residents. The baseline scores were similar for both groups of intern residents. However we found a significant improvement in the test scores with the introduction of this curriculum. The combination of didactics and hands on training with faculty supervision is necessary. The guidelines by the AIUM task force aid in objectively assessing their competencies. Interestingly, in spite of the ultrasound rotation, the score at the end of the first year was only 76.4%. This highlights the need for ongoing ultrasound training throughout residency to further improve the resident's skills. Our next steps include assessing image quality at baseline and after the ultrasound rotation using the image scoring system described by the task force. Future studies incorporating simulation may also be helpful.
Poster #9
Risk of Neonatal Abstinence Syndrome in Infants Delivered to Patients with Opioid Use Disorder and Mood Disorders

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Purpose: The purpose of this study is to compare the development of Neonatal Abstinence Syndrome (NAS) in infants delivered to mothers treated with buprenorphine for OUD in patients with history of mood disorders versus those without mood disorder.

Methods: This is a retrospective cohort study at Indiana University through the Department of Maternal Fetal Medicine. Patients were included in the study if they had at least one outpatient visitation with our center during pregnancy and delivered within the Indiana University Health system from September 2015 to July 2018. Charts were reviewed for maternal demographics, maternal medical history and prescription use. Comparison groups included those patients with history of mood disorder including depression, anxiety, or post-traumatic stress disorder (PTSD) based on initial appointment intake forms. Medication treatment for OUD with the use of buprenorphine was recorded including starting dose and maximum dose during pregnancy. Urine drug screen was obtained on each prenatal visit to view additional drug usage. Neonatal charts were reviewed to determine length of stay after delivery, need for admission to the neonatal intensive care unit (NICU) need for treatment for NAS including initial and maximum dose of morphine required and length of treatment with morphine. Maternal and neonatal charts were reviewed to determine if the infant was breast or bottle fed during hospitalization. Student's t-tests and Analysis of Variance models were performed to compare dose across categorical variables and correlation analyses were performed when comparing continuous variables to dose. All analytic assumptions were verified, with non-parametric tests being performed where necessary. Analyses were performed using SAS v9.4 (SAS Institute, Cary, NC).

Results: 266 patients were treated with buprenorphine, and 171 patients met criteria for mood disorder [148 with depression, 130 anxiety, and 19 post-traumatic stress disorder (PTSD)], and over 40% had more than one mood disorder.
There was no statistical difference between patients with or without mood disorder and the development of NAS in the infant. There was no difference in risk of development of NAS for those patients with mood disorder that breastfed vs bottle-fed infants. For those that developed NAS, infants whose mothers had anxiety or PTSD had a longer length of stay for treatment requiring 2-6 extra days of treatment compared to those infants of mothers without mood disorder (p=0.0088, p=0.0291) with no difference seen for depression or a combination of mood disorders. Development of NAS or length of treatment did not vary if the mother was on medication for treatment of her mood disorder.

Conclusions: While the risk of NAS in infants whose mothers were treated for OUD is well established, there is limited data on the effect of an additional mood disorder on the risk of NAS in this population. In women treated with buprenorphine for OUD, we found no difference in the development of NAS in infants whose mothers also had a mood disorder, though there is an increase length of NICU stay for treatment of NAS for women with anxiety or PTSD. These findings may help guide provider counseling of these women in discussion of post-delivery expectations.
Poster #10
An Institutional Review of Multidisciplinary Approach to Management in Patients with Morbidly Adherent Placenta

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Purpose: Morbidly adherent placenta (MAP) is a life-threatening obstetrical emergency often requiring a peripartum cesarean hysterectomy and leading to high volume post-partum hemorrhage. The purpose of this study is to review outcomes prior to and following the development of a multidisciplinary placenta accreta team at a large tertiary care center.

Methods: This is a retrospective cohort study performed through Indiana University from 2014 to 2019 with review of patients with a suspected placenta accreta and their treatment for delivery and postpartum care. This study included two cohorts: cohort 1 (C1) including patients treated from 2014 to mid-2016 prior to initiation of a multidisciplinary team and cohort 2 (C2) including from mid-2016 to 2019 after initiation. Outcomes reviewed included antepartum care (consults, ultrasound findings, maternal obstetric history), operating room care (estimated blood loss, units of RBC transfusion, volume of crystalloid given, massive transfusion protocol usage, operative complications, intra-operative consults), post-operative care (intensive care unit admissions, return to the operating room, post-procedure transfusions), and outcomes of the neonate (gestational age at delivery, neonatal intensive care unit (NICU) admissions, respiratory distress, and birthweight). A two-sample t-test was used if normality was met to test whether the means were same between the two groups. If normality was not met, the Wilcoxon-Mann-Whitney test was used to test whether the two medians were equal. For categorical variables, chi-square or Fisher's exact test was used.

Results: A total of 66 cases of potential MAP were identified from 2014 to 2019 - 34 in C1 and 33 in C2 (2016 and after). Of the 34 patients in C1, 16 were found to not have a placenta accreta at the time of delivery. Eight additional patients from C1 were excluded because they delivered at another clinical site or suspicion of accrete was excluded during outpatient consultation. This left a total of 10 patients in the C1 arm. Of the patients identified in C2, 9 were excluded for no suspicion
of MAP following outpatient consultation, resulted in final total of 23 patients. Baseline characteristics between both groups were similar including age, BMI, gestational age at delivery, parity, and history of prior cesarean section.

After instituting the multidisciplinary team, there was a non-statistically significant improvement in EBL (C1= 5400.0-ml, C2= 4116.52ml, p = 0.189), units of RBC transfusion (C1=6.7, C2=9.8 p = 0.236 ), and post-operative hemoglobin changes (C1= 2.27, C2=1.72, p = 0.45). While over 80% of the patients in both cohorts received a blood transfusion intraoperatively, (C1 80%, C2 86.96%, p = 0.627), fewer patients in the second cohort required initiation of the massive blood transfusion protocol (C1=60%, C2=36.4%, p=0.233)). Similar amounts of crystalloid were given in both groups (C1= 4412.11ml, C2=4472.52ml, p= 0.953).

Improvement was noted in surgical complications. Intentional cystotomy decreased from 30% in C1 versus 4.35% in C2 (p= 0.073), while there was no difference in the number of ureteral injuries between the groups (C1=10%, C2=8%, p = 1.00). The rate re-operation rate was higher in the C2 group, though not statistically significant (C1=10%, C2=13.04%, p=1.00). Patients in the second cohort also had a decrease length in hospital stay following their operation (T1=6.3 days, C2=4.57 days, p=0.037).

In the neonates, the average gestational age of delivery decreased by approximately 1 week (C1=34wks, C2=33wks, p=0.045). While the rate of NICU admissions was similar among the two groups (C1=70%, C2=84%, p=0.633), the C2 group required a longer duration of stay following delivery (C1=10.67 days, C2=23.12 days, p=0.006). There was no significance in the diagnosis of respiratory distress in the neonates (C1=70%, C2=79%, p=0.665).

**Conclusion:** With goals of improving pregnancy outcomes and maternal morbidity, the initiation of this project allowed us to review our own institution's outcomes in regard to MAP. While our study contains low numbers in both cohorts, it gives a good basis of changes that can be made with implementation of a multidisciplinary team. As the number of MAPs continue to increase on both a national and state level, we hope to continue to study outcomes on this topic to find new ways to improving both maternal and neonatal care. Data continues to be collected at our institution towards this goal of improvement in the management of MAP.
Poster #11
Are There Specific Antepartum Factors and Labor Complications That Predict Elevated Immediate Postpartum Edinburgh Postnatal Depression Scale Scores?

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**Background:** Postpartum depression is a common medical condition diagnosed in the weeks after delivery. There are several modifiable risk factors during the antepartum, labor and delivery, and immediate postpartum periods that may influence the likelihood that an individual will develop this condition.

**Objective:** The purpose of this study was to identify risk factors that may predict an individual's risk of developing postpartum depression.

**Methods:** We conducted a retrospective cohort study of all deliveries over a 14 month period. Demographic characteristics and complications during pregnancy and delivery were obtained from the electronic medical record. The Edinburg Perinatal Depression Scale (EPDS) was administered to all postpartum women before discharge. Antenatal and delivery characteristic associations with EPDS cutoffs of \(\geq 10\) and \(\geq 13\) were determined and significant variables were included in a logistic regression to determine predictive factors for elevated immediate postpartum EPDS scores.

**Results:** A total of 1,913 women had valid immediate postpartum EPDS results. Women with a history of depression, those with a positive drug screen on admission to labor and delivery, those with babies admitted to the neonatal intensive care unit (NICU), and those with alcohol or opioid abuse were found to have increased risk of development of PPD. Logistic regression analysis found that having a positive drug screen (OR 2.54, 95% CI 1.43-4.52), history of depression (OR 3.97, 95% CI 2.44-6.30), alcohol use (OR 5.30, 95% CI 1.39-20.16), and opioid use disorder (OR 8.64, 95% CI 1.06-70.49) predicted EPDS scores \(\geq 10\), while having a baby admitted to the NICU (OR 1.70, 95% CI 1.20-2.57), history of depression (OR 4.46, 95% CI 2.81-7.07), opioid use disorder (OR 9.32, 95% CI 1.14-76.39) predicted EPDS scores \(\geq 13\).
Conclusion: Several modifiable risk factors were found that could lead to an increased risk of PPD. Early screening and intervention based on risk factors may decrease the likelihood of developing early postpartum depression.
Poster #12
Psychosocial Contributors to Breastfeeding Intention in First-Time Mothers

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Objective: To examine psychosocial contributors to factors associated with a first-time mother's intention to breastfeed

Methods: A secondary analysis of the prospective "Nulliparous Pregnancy Outcomes Study: monitoring mothers-to-be" (nuMoM2b) study of nulliparous women with singleton pregnancies was performed. Predictors of breastfeeding intention at the time of delivery were analyzed, including sociodemographic and psychosocial questionnaire data.

Results: For the 6,443 women with complete information about breastfeeding intention and all predictors, women who intended to breastfeed were more likely to be older, not black, more educated, have higher incomes, and be nonsmokers. In the multivariable model predicting intention to breastfeed, only women with higher Hassle Intensity ratios on the Pregnancy Experience Scale was associated with lower odds of exclusively breastfeeding (OR 0.71, 95% CI 0.55-0.92). Other psychosocial measures did not significantly predict either exclusive breastfeeding or any breastfeeding after controlling for demographic characteristics. Women intending to breastfeed were more likely to report that the pregnancy was planned (OR 1.27, 95% CI 1.02-1.64).

Conclusion: Several sociodemographic factors, having a planned pregnancy, and fewer pregnancy hassles are associated with intention to breastfeed. Identifying these factors antenatally may allow providers to identify populations at high risk of not breastfeeding in order to focus education efforts about breastfeeding on these women.
Introduction: For most pregnancies, cesarean delivery is associated with greater risk of maternal morbidity and mortality than vaginal delivery. The long-term risks that follow cesarean delivery are largely associated with future pregnancies. Between 1996 and 2011, the United States experienced a rapid increase in cesarean delivery rates. Since 2011, the cesarean rates have plateaued. This increase in cesarean rates was not accompanied by evidence of decreases in maternal or neonatal morbidity or mortality rates. This disconnect leads us to question whether we are overusing cesarean delivery in the United States and if there is room for improvement when it comes to preventing the primary cesarean delivery. ACOG (The American College of Obstetrics and Gynecologists) released an Obstetric Care Consensus entitled Safe Prevention of the Primary Cesarean Delivery in 2014 and was then reaffirmed in 2016. This consensus provides recommendations for the safe prevention of primary cesarean delivery for the first and second stages of labor. In this study, we focused on the most frequent indication for primary cesarean delivery: labor dystocia or arrest of dilation. This document defines arrest of dilation as greater than or equal to 6cm dilated for at least 4 hours with adequate contractions or 6 hours of inadequate contractions.

The objective of the study is to assess if contemporary diagnostic criteria are being utilized to diagnose arrest of dilation in those undergoing a primary cesarean section for that reason at Ascension institutions. Another objective of the study is to evaluate if the teaching institution, St. Vincent Women's Hospital, is more or less adherent to contemporary definitions when diagnosing arrest of dilation or labor dystocia than the other selected facilities. We also assessed various subpopulations for differences in guideline adherence.

Methods: This retrospective cohort study was carried out by querying the Centricity QS electronic medical record for all patients undergoing a primary cesarean section at St. Vincent Women's Hospital, St. Vincent Carmel, and St. Vincent Kokomo from July 1, 2017 through June 30, 2018. The query
yielded 272 total patients undergoing cesarean with the primary indication of arrest of dilation, arrest of descent, failed induction, protracted second stage, or 'other' indication. Charts were further evaluated to determine eligibility based on established inclusion and exclusion criteria. Inclusion criteria included primary cesarean section, non-scheduled cesarean, and primary diagnosis of arrest of dilation. Exclusion criteria included any scheduled cesarean, repeat cesarean, elective cesarean, maternal condition necessitating cesarean, multiple pregnancy, malpresentation of fetus, non-reassuring fetal heart tracing, fetal anomaly requiring cesarean, or placental abnormality requiring cesarean. The demographic variables of maternal age, gestational age at delivery, gravidity, parity, and body mass index (BMI) were compared using Kruskal-Wallis tests, and infant birth weights were compared using a One-Way ANOVA tests. The primary outcome evaluating if the rate of correct diagnosis of arrest of dilation at each institution was evaluated by a Fisher's Exact test. A Fisher's Exact test was also utilized to evaluate if variables such as BMI >30, BMI >40, maternal age >35, or prior vaginal delivery affected the rate of correct diagnosis of arrest of dilation. Additionally, cervical exam measurements (cm) between correctly and incorrectly diagnosed patients were compared using a Mann Whitney U test.

**Results:** Of the 272 patients identified, 69 met inclusion criteria. Of those that met inclusion criteria, 31 (44.9%) occurred at Women's Hospital, 27 (39.1%) at Carmel, and 11 (15.9%) at Kokomo. Analysis showed a significant difference in the accuracy of correctly diagnosing arrest of dilation at Women's Hospital, 54.8%, vs Carmel, 18.5% (p=0.005) and Women's, 54.8%, vs Kokomo, 0% (p=0.001) but not Carmel, 18.5%, vs Kokomo, 0%, (p=0.13). Maternal age was the only demographic variable evaluated with a significant difference between institutions (p=0.01). Gestational age (p=0.55), infant birth weight (p=0.89), gravidity (p=0.89), parity (p=0.22), and BMI (p=0.17) did not differ between institutions.

**Conclusions:** Overall, the rate of correctly diagnosing arrest of dilation was low with St. Vincent Women's having the highest rate at 54.8%. However, there was a significant difference between adherence rates to diagnosis guidelines at the teaching institution, Women's Hospital, in comparison to the other two institutions. It did not appear that BMI, having a prior vaginal delivery, gestational age at delivery, BMI, or infant birth weight affected the accuracy of diagnosing arrest of dilation. Of the 47 patients incorrectly diagnosed with arrest of dilation, 26 (55.3%) were diagnosed at a cervical dilation of 6 centimeters or greater. This indicates that
recommendations regarding the amount of time allowed for a patient to progress in labor may expose an area to target for practice change within our institutions in an effort to reduce the primary cesarean rate.
Introduction: Preeclampsia and other hypertensive disorders of pregnancy complicate 2-8% of pregnancies worldwide. They are one of the leading causes of maternal and perinatal morbidity and mortality. In the United States, the rate of preeclampsia has increased >25% in the last 30 years. It has been reported that the estimated cost of preeclampsia is over $2 billion within the first year after delivery. Due to the increasing rates, risks of poor outcomes, and increasing medical costs, a significant amount of research has been done to investigate optimal management of preeclampsia. However, research is limited to preeclampsia events specific to the postpartum period. For the purpose of this project, a postpartum preeclampsia event was defined as a diagnosis, progression, or exacerbation of preeclampsia in the postpartum period. More understanding of postpartum preeclampsia events may lead to better risk stratification, as well as management in the antepartum, intrapartum, and postpartum periods.

Methods: This retrospective case series looked at all cases that included a postpartum preeclampsia event from July 1, 2015 through December 31, 2018 at Advocate Illinois Masonic Medical Center. Information was primarily collected through our institution's Structured Query Language (SQL) Database, "PG Works".

A total of 37 cases were reviewed. Information was collected on each subject that included age, gravida and parity, gestational age at delivery, prenatal issues throughout the pregnancy, the presence or absence of known risk factors for preeclampsia, when preeclampsia was diagnosed, initial management of preeclampsia, and management of postpartum preeclampsia event.

Results: Out of the 37 cases with a postpartum preeclampsia event, 23 cases (62%) were initially diagnosed with preeclampsia in the postpartum period. 8 of 37 cases (22%) with a postpartum preeclampsia event, were initially diagnosed with preeclampsia in antepartum period. 6 of 37 cases (16%) with a postpartum preeclampsia event, were initially diagnosed with preeclampsia intrapartum. Out of the 23 cases diagnosed with preeclampsia in the postpartum period, only 65% had some hypertensive disorder at the time.
of delivery. 35% had no hypertensive disease prior to diagnosis of preeclampsia in the postpartum period. 59% of all patients with a postpartum pre-eclampsia event had no preeclampsia at time of delivery and had a postpartum diagnosis of preeclampsia with severe features. 24% of all patients had an exacerbation of preeclampsia with severe features in the postpartum period. 14 % of all patients had a progression of preeclampsia in the postpartum period in which severe features were diagnosed initially in the postpartum period. Eight patients with no hypertensive disease at delivery were diagnosed with preeclampsia with severe features in the postpartum period. Nine patients with gestational hypertension at time of delivery were diagnosed with preeclampsia with severe features in the postpartum period. Six patients with chronic hypertension at the time of delivery were diagnosed with preeclampsia in the postpartum period. Five of these six had severe features at time of diagnosis. One of these six did not have severe features. Four patients had chronic hypertension with superimposed preeclampsia at time of delivery. One of these four had severe features diagnosed postpartum. Three of these four had exacerbation of severe features postpartum. Ten patients had preeclampsia at time of delivery. Four of these ten had severe features diagnosed postpartum, whereas six of the ten had an exacerbation of severe features postpartum.

Discussion: Rates of preeclampsia are increasing in the United States, leading to an increase in poor outcomes and health care related costs. There is a vast amount of ongoing research regarding preeclampsia; however, research specific to the postpartum period is limited. In our experience, the majority of postpartum preeclampsia events included severe features which can lead to maternal morbidity and mortality. Our study included 37 patients and 33 patients required hospital readmission. Four patients required two readmissions. There was a large range of presentation in the postpartum period - from a slight increase of baseline blood pressures to an eclamptic seizure in the postpartum period.

While this study is too small to draw any clinical conclusions, it appears that preeclampsia is not limited to time before delivery. Even though delivery is thought to be curative to preeclampsia, the postpartum period may also require careful monitoring. We report this study to increase awareness that preeclampsia should not be disregarded in the postpartum period and all patients should be monitored for and educated on symptoms of preeclampsia.
Poster #15
Migration of Angular Pregnancy to Centric Position: A Case Report

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Introduction: With the increased use of Three-Dimensional Ultrasound, a more precise visualization of Ectopic Pregnancy (EP) has become possible, causing a change of our resultant terminology. It is recognized that an Angular Pregnancy (AP) has the risk of uterine rupture with growth in the cornual region of the uterus, with potentially catastrophic consequences. In AP, close monitoring is necessary, as such an ectopic gestation can become interstitial in location, but can also migrate to a more centric position within the uterine intraluminal space. This case report, presented here, illustrates this possible migration.

Case Report: A 30 y/o G1P0 woman was referred to a gynecologic specialist surgeon for possible surgical management of suspected interstitial pregnancy. She had a history of infertility and her current pregnancy was conceived with IVF after three prior failed intrauterine insemination cycles. An initial ultrasound showed a possible interstitial pregnancy, and a follow-up ultrasound showed borderline findings.

A 3-Dimensional ultrasound (3DTVS) was then performed at 6 weeks gestational age, revealing a gestational sac in an eccentric location within the right horn of a minimal arcuate uterus, approximately 4.4 mm from the uterine serosa, which was most consistent with an angular pregnancy, and she was deemed appropriate for expectant management with close ultrasound surveillance.

Repeat 3D TVS one week later showed further evidence of an angular pregnancy with a broad connection between the gestational sac and endometrial cavity measuring 18.3 mm. The distance from the gestational sac to the uterine serosa had progressed to 7.7 mm, suggesting migration of the pregnancy into the proper uterine cavity.

Repeat 3D TVS two weeks later at 9 weeks gestational age revealed a live intrauterine pregnancy at the center of the uterine cavity. The distance from the gestational sac to the right uterine serosa was now 13 mm. The patient resumed her prenatal care at the outside institution, eventually resulting in a live birth.
Discussion: The term "cornual pregnancy" should be abandoned because it has been used to describe 5 different types of pregnancy. AP refers to an intrauterine pregnancy that is implanted in one of the lateral angles of the uterine cavity, medial to the uterotubal junction. Full term delivery is likely, as the gestational sac descends into the uterine cavity.

Several complications of AP have been previously described. AP can end in abortion, or it can result in uterine rupture. AP has a higher rate of adverse outcomes, according to the previously reported literature. Cases regarded as AP may also include interstitial ectopic pregnancy (IEP). Therefore, the true incidence of obstetric complications in patients with AP remains unclear.
Introduction: The placenta plays a vital role in the development of a fetus as its primary source of nutrients and oxygen, coupled with its role in removing waste byproducts. Aneurysms of the placental surface vessels are rare, but have potentially severe consequences on fetal outcomes. The vasculature of the placenta physiologically has a helical coiling pattern, but hyper-coiled umbilical cords, defined as more than 0.3 coils/cm, increase the risk of complications and adverse outcomes. A particularly rare form of surface placental vessel hyper-coiling is "serpentine aneurysms". It is a rare finding, accounting for only 7.5% of all commonly described placental aneurysms.

In a literature search, only a few documented cases of serpentine aneurysm were found, and which were associated with both intrauterine growth restriction (IUGR) and fetal thrombocytopenia. In one reported case, a portion of the placenta was replaced with a partial hydatidiform mole and otherwise was without fetal consequence. The case described below, however, demonstrates none of the previously reported findings. There were no adverse neonatal effects beyond those associated with late premature birth. However, the non-reassuring nature of the fetal heart tracing was likely a sign of placental insufficiency, prompting the early delivery.

Case: Patient presented as a 21 y/o G3P1011 at 35 weeks and 5 days gestation complaining of decreased fetal movement since the prior day. Prenatal issues included one previous cesarean delivery, lumbar spondylolisthesis L5-S1 and Rh negative status. On fetal heart monitoring, recurrent variable decelerations were noted, including one that lasted over 3 minutes.

Recommendation was made for urgent repeat cesarean delivery for non-reassuring fetal heart tones, which the patient agreed to. A single dose of betamethasone was given preoperatively for prematurity. Low transverse cesarean delivery via pfannenstiel incision was uncomplicated, with an estimated blood loss (EBL) of 700 ml. A liveborn female was delivered with Apgars of 6 at 1 minute and 8 at 5 minutes, weighing 2145 grams. On visual inspection of the placenta, multiple loops of exposed cord were noted, which was sent to pathology. The neonate was admitted to the neonatal intensive care unit.
care unit (NICU) for respiratory distress and was discharged home on day of life 10.

The pathology report showed a third trimester placenta weighing 768 grams with a three-vessel umbilical cord. A 7.1 cm peripheral infarction involving 10% of the placental disc was noted in addition to prominent serpentine aneurysms.

**Discussion:** Pregnancy is a natural phenomenon not without risks to mother and baby for a variety of reasons. Serpentine aneurysms are rare, the least common type of aneurysm described in the literature, with an unknown cause. Furthermore, sonographic detection is limited. Thus, identifying a serpentine aneurysm prior to delivery can prove difficult. In a previous publication, a 37-week multigravida similarly was delivered secondary to fetal distress, however in the setting of IUGR. In that case, there was also a placental infarction. Typically, with placental aneurysms, there is a higher incidence of atypical insertion of the umbilical cord, a single umbilical artery, fetal growth restriction, among other placental anomalies. As with many placental abnormalities, there is concern for poor blood flow to the fetus, with potentially poor fetal outcome. In an environment where intervention and delivery can result in improved outcomes for a fetus, it is important to have a low threshold of suspicion in labor and delivery, when interpreting fetal heart tracings and a patient's clinical picture in deciding whether to move towards an immediate delivery. As in the described case, proper patient counseling on fetal movements and swift decision making for delivery when indicated are perhaps the best protections against the rare, but potentially serious finding of serpentine placental aneurysms.
Poster #17
Preeclampsia Screening and Prophylaxis Without the Use of Uterine Artery Doppler and Multiple Markers

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Objective: To determine if history alone can identify a high-risk group for developing preeclampsia at minimal cost and can be performed in a timely manner to institute prophylactic therapy. Preeclampsia is a common serious disorder with frequent morbidity for both the mother (nearly 16% of maternal deaths) and the newborn (5.5 times the number of deaths).

Method: After IRB approval, the authors queried the Structured Query Language (SQL) perinatal database for obstetrical deliveries from 2009 to 2018. The following factors were examined: total number of deliveries, parity, prematurity (<37 weeks of gestation), advanced maternal age (≥ 35 years of age) and incidence of preeclampsia and chronic hypertension. The study group was defined as those patients that had the following history when presenting for prenatal care: nulliparity, advanced maternal age (AMA) and chronic hypertension. Students t test was used to evaluate the finding. P of ≤ 0.05 was considered as significant.

Results: Within the study period, 23,047 delivered. Within that group 10,159 were nulliparas. There were 5,216 (22%) women with AMA in the general population, while there were 1,548 AMA nulliparas with preeclampsia (29%). Chronic hypertension was seen in only 340 patients. Prematurity within the entire group was 2,721 (12%). Preeclampsia occurred in 1,548 patients 175 (11%). Those that developed preeclampsia at < 37 week included 160 women (10%). Of the 1,548 preeclamptic women, 949 were nullipara (61%). There were 175 elderly mothers, of which 11% had preeclampsia, and 8% were without preeclampsia. The study group made up only 96 patients, and of those, 38 developed preeclampsia (39.5%), and 23 (61%) delivered at < 37 weeks. The likelihood ratio for developing preeclampsia was >20, and the likelihood ratio for significant prematurity is 109.

Conclusion: The study group (nulliparity, advanced maternal age and chronic hypertension) was at extremely high-risk for developing preeclampsia, which can be identified simply by taking a history at the time of the first prenatal visit. This can be done by either a physician, nurse-midwife or nurse
practitioner. This method of identification requires no additional training or certification and can be done at both a university setting as well as rural low resource office and has no added cost. The ability to get instant results makes it very feasible to begin low-dose aspirin prophylaxis at <16 weeks of gestation, for which it has been shown to be most effective. The study group was small, thereby limiting the number of patients requiring therapy. Clearly, this is a highly cost-effective method. The addition of Uterine Artery Doppler plus multiple serum markers (PAPP-A, PP13, Inhibin A, Activin A, and VEGF) will identify a much higher percentage of patients destined to develop preeclampsia, but at great expense. Since historical risk factors can vary considerably, with regard to the risk of preeclampsia, a logistic analysis of a population cohort may be useful. For example, in our population, almost 40% of those with a history of chronic hypertension developed preeclampsia prior to term, which is more than five times the risk of an AMA nullipara. If all of the nulliparous patients had a Uterine Artery Doppler for screening, and assuming the average ultrasound charge was $200 dollars, the cost to screen the nulliparas would have been $2,031,800. This is in contradistinction to the cost of screening the described prenatal population for history of chronic hypertension.
Poster #18
HPV Vaccination: Optimizing Rates in Our Ambulatory Clinic at Aultman Hospital

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Background: Human papilloma virus (HPV) is a pathogen that can result in anal genital and oral pharyngeal disease in males and females, causing virtually all cancers of the cervix. A vaccination was developed in 2006 and was found to prevent advancing cervical dysplasia and vulvar intraepithelial neoplasia. The general public has been resistant to the overall increase in vaccinations and therefore overall incidence of Gardasil administration has been suboptimal. It is important for the healthcare provider to consistently and clearly educate the patient concerning vaccination and provide them with relevant information.

Study Objectives: Our purpose of the study is to evaluate the efficacy of a verbal reminder and a reminder in each patient's EMR chart to assess the HPV status of the patient and track the number of vaccinations administered with the goal to improve vaccination rates.

Study Methods: A prospective quality improvement initiative started in October of 2017 which consisted of four phases of intervention. Phase one: all OB/GYN providers of My Community Health Clinic residents were initially notified that Gardasil was now available. Residents were notified on Wednesdays and Fridays to offer vaccines to patients. Phase two: providers and nursing staff were notified each morning. Phase three: HPV informational packets were given to patients at time of check in. Phase four: Pop-up reminder was placed on every active patient's EMR chart. A report on the Allscripts EMR was obtained in February 2019 and the total number of vaccinations recorded. No data for HPV vaccination prior to 2017 was available as the HPV vaccine was not available in prior years.

Study Results: During the 16 month period 931 patients who were candidates for the vaccine had been seen by OB/GYN providers. Analysis of ICD 10 codes during the specified times of phases one through four revealed a statistically significance increase between phase two and four based on a Chi square analysis. Vaccinations of each phase 1 through 4 were 2, 0, 8, and 15 respectively.

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Study Conclusion: The electronic medical record can be used as an instrument for improving patient care and vaccination administration although vaccination rates continue to be suboptimal. In a healthcare system that is constantly changing, it appears that there are significant barriers to improving patient care despite the patient and the physician being adequately equipped and educated.
Improving Follow Up of Abnormal Pap Smears in Resident Ambulatory Clinic

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Background: In recent decades there has been a more than 50% decrease in the incidence of cervical cancer largely owing to the Pap smear screening test. In 1975, the incidence was 14.8 per 100,000 women and by 2011 the incidence was 6.7 per 100,000 women. Worldwide when cervical cancer screening programs are introduced to communities, reductions in cervical cancer follow. The most common oncogenic HPV genotype associated with cervical cancer is 16 (55-60% of cervical cancer cases worldwide), followed by 18 (10-15% of cervical cancer cases worldwide). HPV infections can be transient or persistent, leading to neoplasia and cancer.

Objective: The purpose of this study is to increase the number of patients receiving colposcopy after abnormal Pap smear when colposcopy is indicated and create a consistent tracking system for abnormal results. The secondary objective is to decrease the time interval between abnormal Pap result and colposcopy.

Methods: A retrospective cohort study was performed. Data was collected from March of 2016 through September of 2017. A chart review of abnormal Pap smears was performed for three months in 2016 and 2017, before and after initiation of a new EMR (Electronic Medical Record) tracking protocol.

Results: After establishing an EMR protocol and tracking system, there was a significant increase in overall colposcopy follow up performed. There was also a decrease in time interval to colposcopy. The sample size of Pap smears requiring colposcopy was 121 (69 in 2016, 52 in 2017).

Conclusion: With the intervention of an EMR protocol of abnormal Pap smears in the resident clinic, a significant increase in appropriate colposcopy follow up was achieved. The mean days to colposcopy also decreased by more than half. Patient engagement was improved with provider phone calls. This suggests that establishing a consistent tracking system can lead to improved patient care, cancer screening, and provider-patient relationships.
Poster #20
Previous Cycle Tracking with a Wearable Multiparameter Device Reduces Time to Conception

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Introduction: Menstrual cycle tracking has been used by women and couples for centuries, as a way to determine the optimal time to engage in or to avoid conception. Without the inclusion of more sensitive physiological markers, such approaches have been shown to provide minimal contraceptive effectiveness, especially among women with irregular menstrual patterns. Digital monitoring of the menstrual cycle has more recently become increasingly used; indeed, many women have turned to mobile apps or wearable technology to better determine their fertile window, thereby promoting conception or preventing pregnancy. Tracking multiple physiological parameters simultaneously, wearable sensor technology has been shown to detect the fertile window with up to 90% accuracy. This study aims to determine if women who cycle track using a wearable device prior to trying to conceive (TTC) became pregnant faster than women who did not cycle track first.

Materials and Methods: This is a retrospective study of women using the Ava Fertility Tracker bracelet and smartphone software (e.g., real-world users). Worn on a woman's wrist while she sleeps, the Ava Fertility Tracker measures seven physiological parameters including pulse rate, respiratory rate, skin perfusion, heart rate variability, skin temperature, sleep quality, and movement. An underlying machine learning algorithm in the corresponding smartphone app then predicts the user's current and upcoming fertility based on these biophysical inputs. At present, the user can choose one of three in-app operational "modes": cycle tracking, trying to conceive, or pregnancy. To be included in our study, users had to have reported a pregnancy in-app and switched to the pregnancy mode for at least 30 days. We compared two groups of users: women who used the "tracking cycle mode" first, followed by the "trying to conceive mode" (prior cycle tracking group [PCT]); and, women who only began to cycle track during the "trying to conceive mode" (no prior cycle tracking [NCT] group). Data was only included if a user had remained in each tracking mode for at least 30 days. As time to conception was positively skewed for both
the PCT and NCT groups, we conducted a Mann-Whitney test to assess our hypothesis that prior cycle tracking using a wearable device is associated with shorter time to pregnancy. The Mann-Whitney test is nonparametric and assumes the null hypothesis that the two groups share the same sampling distribution. We also ran a follow-up Welch's t-test, as more recent research suggests that increasingly larger sample sizes mitigate the risk of a Type I error. Secondary analyses implementing robust linear regression considered the potential covarying effects of age, Body Mass Index (BMI), number of cycles tracked in TTC mode and time since stopping hormonal contraceptives.

Results: Data from 12,540 European and American women who purchased the Ava Fertility Tracker and reported a positive pregnancy test were included, with subjects divided between the PCT (n=451) and NCT (n=12,089) groups. On average, women were 32 years old when they conceived (Standard Deviation [SD]=4 years), had a BMI of 25.21 (SD=5.73), and became pregnant after 107.96 days of cycle tracking (SD=65.43 days). Results from the Mann-Whitney test suggested that the sampling distribution of time to pregnancy differed significantly for the PCT versus NCT groups (U=2908652, p<.001). In particular, Welch's t-test revealed that time to pregnancy was significantly faster in the PCT group (mean=75 days, SD= 51 days]) compared to the NCT group (mean=89 days, SD=65 days; t(587) = -8.5936, p<.001). Women in the NCT group were slower to conceive than women in the PCT group (b=14.25, p<.001), regardless of how long they had been trying to get pregnant prior to using the Ava Fertility Tracker (b=.03, p=.04). Robust linear regression also revealed no significant difference in time to conception for women 35 years or older compared to their younger peers (b= 18.69, p=.839), with prior experience using the Ava Fertility Tracker for cycle tracking constituting the only significant predictor in the model (b=226.08, p<.001; interaction term b=115.87, p=.215). Finally, when considering all covariates and interaction terms simultaneously, time to pregnancy remained significantly faster among women in the PCT compared to the NCT group (b=20.70, p<.001); all other predictors did not significantly affect time to pregnancy (all p's≥.09).

Conclusions: In a study of "real-life" users of the Ava Fertility Tracker, earlier cycle tracking was associated with a shorter time to pregnancy. Our findings suggest that cycle tracking using wearable technology offers a unique advantage beyond acquiring knowledge about one's fertility. Planned follow-up analyses will probe the role of the underlying algorithm and how the Ava Fertility Tracker's accuracy in
predicting the fertile window changes over time for women in the PCT versus NCT groups. Our research demonstrates the potential benefits for women's health that arise when advances in wearable technology and machine learning are applied to more traditional methods of fertility awareness.
Preconception and Prenatal Carrier Screening: Are We Obtaining Actionable Information for Our Patients?

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A stated goal of preconception and prenatal carrier screening is "to provide couples with information to optimize outcomes based on their personal values and preferences." While there are several approaches to performing carrier screening, most obstetrical providers utilize a sequential process in which the woman is first screened and the male partner is subsequently brought in for testing only if the female partner's results reveal that she carries a deleterious variant for one or more autosomal recessive conditions. Family history is of limited value as the majority of children with a genetic disease have no family history of the condition. However, the failure of a male partner to undergo screening if the woman is found to carry a pathogenic variant for at least one autosomal recessive condition precludes the obtaining of meaningful and actionable risk information for this and future pregnancies. In this study we sought to assess the frequency of completed carrier screening risk assessment in two prenatal screening programs staffed by genetic counselors and geneticists.

Materials and Methods: We reviewed the carrier screening outcomes (Myriad Women's Health, S. San Francisco, CA) of preconception and prenatal patients who chose to undergo carrier screening and who were seen at the Division of Clinical Genetics at Northwestern Medicine and at Insight Medical Genetics from 2016 through 2018. All counseling performed at the two programs was provided by certified genetic counselors and supervised by three board-certified Ob-Gyn/clinical geneticists (LPS,JSD,AFW). All patients received counseling prior to screening, and were contacted by genetic counselors after screening outcomes were available to communicate those results. The counselors also scheduled follow-up visits for partners if the initial results showed a pathogenic variant for at least one autosomal recessive condition and if the partner had not been previously screened for that specific gene.
**Results:** 6,098 women underwent carrier screening during the study time period. 2,877 (47.2%) were positive for at least one pathogenic variant. Of these, 2,855 (99%) were in genes associated with autosomal recessive conditions. A total of 2,313 males underwent screening (81.0%); 1,045 (45.2%) were found to be positive for at least one pathogenic variant.

**Conclusions:** Despite formal genetic counseling prior to carrier screening and after the detection of a pathogenic variant, only 4 of 5 male partners underwent carrier screening. This precludes the obtaining of actionable risk information for 1 of 5 couples in which the female partner chose to undergo preconception or prenatal carrier screening and was found to carry a pathogenic variant for at least one autosomal recessive condition. As all women and at-risk couples underwent pre- and post-test counseling by certified genetic counselors, it is indeed possible that the frequency of couples who do not obtain complete and meaningful screening information could be even higher when carrier screening is provided in its typical clinical venue, the obstetrical provider's office, a setting in which carrier screening is usually offered without the assistance of certified genetic counselors or subspecialty physicians (e.g., geneticists, maternal-fetal specialists). Providers must endeavor to ensure that women who choose to undergo carrier screening understand that meaningful risk information for that couple is only obtained when male partners undergo screening if the female partner is found to be a carrier for a pathogenic variant for at least one autosomal recessive condition. Accordingly, a process by which patients are appropriately informed about the necessary testing to obtain actionable information should be incorporated into routine obstetrical care and offered prior to consideration of carrier screening. Alternatively, new testing algorithms such as screening for fetal Mendelian disorders with cell-free nucleic acid technologies may eventually allow for obtaining actionable information in cases characterized by no information concerning paternal carrier status. Regardless, an effective process is needed to provide information to women prior to their consideration of carrier screening so that a truly informed decision can be made that recognizes and communicates the critical importance of partner testing in cases of positive carrier results in women. In this way, women and couples who seek "information to optimize outcomes based on their personal values and preferences" will be able to obtain the information they sought when they chose to undergo carrier screening.
Impact of Robotic Surgery on Hysterectomy in a Community Institution: A 10-Year Review

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Purpose: To compare outcomes of different surgical approaches for benign hysterectomy after introduction of robotic-assistance over a 10-year period in a community institution.

Methods: The electronic health records (EHRs) of women aged 18 years and older who underwent hysterectomy from November 2008 through December 2018 at Gundersen Health System were retrospectively reviewed. Patients diagnosed with malignant gynecological disease outside of the uterus or who underwent major concurrent procedures on the day of hysterectomy were excluded from this study. Patient characteristics and outcomes were analyzed by surgical approach: abdominal, vaginal, laparoscopic, or robotic-assisted.

Data regarding patient characteristics including age, body mass index (BMI), prior cesarean delivery and other prior abdominal surgeries were collected for all eligible patients. Prior abdominal surgeries were categorized as laparoscopic, laparotomy or tubal ligation. Medical history and co-morbidities at the time of hysterectomy were also collected including heart disease, stroke, anemia, cancer, colon polyps, hypertension, diabetes mellitus, blood clots, depression, hyperlipidemia, liver disease, thyroid disease and migraines. Operative data included total operative time, procedure conversion, and length of hospital stay. Estimated blood loss and pain scores were not analyzed owing to inconsistent documentation.

Patient EHRs were reviewed for documentation of 30-day post-operative complications: surgical site infection (SSI), delayed healing, urinary tract infection (UTI), vaginal duff dehiscence (VCD), ileus, pulmonary embolism (PE), deep vein thrombosis (DVT), atrial fibrillation, and transfusion. Patient characteristics, operative data and post-operative complication rates were compared by surgical approach. Analyses of trends over time include data from 2009 through 2018 when full calendar years of data were available.
Results: The total number of hysterectomies performed per year at our institution declined slightly over the study period, from 380 cases in 2009 to 360 in 2018. Of 3378 patient hysterectomies, 2173 met eligibility criteria: 420 (19.3%) laparoscopic, 1094 (50.3%) robotic-assisted, 200 (9.2%) abdominal, and 459 (21.1%) vaginal. Rates of robotic-assisted cases increased from 32% to 62% over the 10-year period, while rates of vaginal and abdominal surgical approaches decreased (19% to 13%, and 29% to 2%, respectively). Rates of laparoscopic hysterectomy remained relatively constant from 19% to 21%.

Patients were similar in age and parity across all surgical approach categories. Mean patient BMI was significantly different across approaches with robotic-assisted having the largest BMI (34.4), followed by abdominal (32.3), vaginal (30.1), and laparoscopic (29.3) (p<0.0001). Prevalence of medical co-morbidities was significantly higher in the robotic-assisted and abdominal cohorts than in the laparoscopic and vaginal, including heart disease (p=0.0007), cancer (0.0004), hypertension (p<0.0001), diabetes mellitus (p<0.0001), liver disease (p=0.009), and colon polyps (p=0.0002). Rates of prior cesarean delivery were also significantly higher in the robotic-assisted and abdominal cohorts (p<0.0001). Abdominal hysterectomy patients were significantly more likely than laparoscopic, robotic-assisted, and vaginal patients to have anemia (p=0.003). Prevalence of prior stroke, blood clots, depression and thyroid disease was similar among the cohorts. The abdominal approach had the highest rate of prior abdominal laparotomies (7%) and lowest rate of prior abdominal laparoscopic procedures (10%) while these rates among the laparoscopic, robotic and vaginal hysterectomy routes were similar.

Mean aggregate uterine weight was significantly different across surgical approaches with weights of 452.5 grams in abdominal and 222.4, 162.4 and 143.1 grams in robotic-assisted, laparoscopic and vaginal, respectively (p<0.0001). Total operative time was shortest in the vaginal cohort (68 minutes) compared with 124, 117, and 107 minutes in the abdominal, robotic-assisted and laparoscopic cohorts, respectively (p<0.0001). Length of stay was similar in laparoscopic, robotic-assisted and vaginal approaches and significantly longer in the abdominal cohort (p<0.0001). Seventeen cases were converted to laparotomy (3 robotic-assisted, 13 laparoscopic, and 1 vaginal); 60% of conversions were due to severity of adhesions, and 24% were due to specimen size.

Patients in the abdominal cohort were significantly more likely than those in the robotic-assisted, laparoscopic, and vaginal cohorts to experience any post-operative complication(s) (p=0.001). There were significantly fewer 30-
day post-operative transfusions in robotic-assisted (0.46%), laparoscopic (0.95%), and vaginal (1.09%) hysterectomy patients compared with abdominal (4.5%) (p<0.0001). Patients who underwent abdominal hysterectomy were significantly more likely to develop an SSI compared with other surgical approaches (p<0.0001). One patient died within 30 days owning to hemorrhage into the pelvis and hemoperitoneum. There were no significant differences in UTI, atrial fibrillation, non-healing wound, VCD, ileus, DVT, or PE across the surgical approaches.

Conclusions: Patients undergoing a robotic-assisted hysterectomy tended to have higher BMI and more comorbid conditions compared with laparoscopic and vaginal hysterectomy patients, but they had similar operative and post-operative outcomes. This study suggests that robotic-assisted hysterectomy is a safe and effective approach for patients with benign and malignant gynecologic indications in a community hospital setting and offers more women access to minimally invasive surgical care.
Poster #23
Prevalence of Mycoplasma Genitalium Collected from Pregnant Women with Pelvic Complaints in Houston, Texas

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Objectives: Mycoplasma genitalium has been the focus of considerable clinical research as an emerging sexually transmitted infection (STI) pathogen linked to female genital tract pathology. To date, there have been no published studies concerning prevalence data among symptomatic compared to asymptomatic pregnant women. The objective of this study was to determine these rates within a cohort of pregnant women in Houston, TX.

Methods: Remnant genital samples collected from pregnant women between June 2018 and January 2019 were tested for M. genitalium by transcription-mediated amplification. Demographic, visit type and STI co-infection [Neisseria gonorrhoeae, Chlamydia trachomatis, herpes simplex virus, human immunodeficiency virus, Trichomonas vaginalis and human papillomavirus (types 16,18)] data were recorded. Chi square analysis was used to determine differences in demographic variables for women with and without M. genitalium infection.

Results: 319 samples were collected from pregnant women attending various prenatal clinics. Twenty-seven samples (8.5%) were positive for M. genitalium. Of the 34 women who presented with pelvic complaints, 5 (15%) were infected with M. genitalium compared to 8% in asymptomatic women (p =.17). Rates of M. genitalium detection did not differ across race or ethnicity. However, there was a difference in rates across women according to age, with younger women more likely to be infected (p =.01). M. genitalium infection was significantly associated with women co-infected with N. gonorrhoeae (p = .03) or human immunodeficiency virus (p = .001).
Conclusions: This study is the first to evaluate prevalence rates of *M. genitalium* for both symptomatic and asymptomatic pregnant women in a large tertiary center. We demonstrate that *M. genitalium* infection may manifest with similar symptomatology in pregnant women as it does in non-gravid patients.
The Use of Suspected or Proven Neonatal Sepsis as a Predictor for Postpartum Endometritis

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Background: Many risk factors for endometritis have been identified. Aside from particular maternal and intrapartum risk factors, no studies have described using the newborn as a predictor for maternal disease. While intrapartum infections such as chorioamnionitis have been linked to neonatal sepsis, there is no established link between newborn sepsis and postpartum infection. Endometritis affects approximately 2% of women with spontaneous vaginal deliveries and rates after cesarean delivery range from 6 to 18%. The estimated incidence of sepsis (both early- and late-onset) in term neonates is one to two cases per 1000 live births. The aim of this study is to establish association between suspected or proven newborn sepsis and diagnosis of postpartum endometritis.

Methods/Materials: After Baylor College of Medicine IRB was obtained, charts of women with endometritis between January 1, 2011 to January 1, 2018 at Ben Taub General Hospital and Texas Children’s Hospital - Pavilion for Women were reviewed. Women with diabetes mellitus, hypertensive disorders of pregnancy, and placenta accreta were excluded. A total of 7799 charts were abstracted with a total of 29 cases of postpartum endometritis. All demographic, intrapartum and postpartum variables were recorded, and corresponding neonatal charts were reviewed for the diagnosis of sepsis.

Results: Of the women with postpartum endometritis, 31.0% (9/29) had neonates with either suspected or proven sepsis, compared with 4.49% (349/7770) in women without endometritis (p<.001). 11.3% of women required readmission for their infection, 41.2% of whom had newborns with suspected or proven sepsis.

Conclusion: Since women who suffered from postpartum endometritis were significantly more likely to have neonates with proven or suspected sepsis, it is plausible that these newborns with disease serve as a nidus for postpartum maternal infection. Furthermore, even higher percentages of newborn sepsis were noted in those women requiring re-
admission for their infection indicating that not only is there a possible correlation between neonatal sepsis and postpartum endometritis, but also a link between newborn infection and severity of maternal disease.
Poster #25
Contraception Planning in a Designated Obstetrical Opioid Use Disorder Clinic

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Background: Opioid use disorder (OUD) is currently a major problem facing the medical profession in the United States and this has extended into obstetrics. Research has shown that most of these pregnant patients are multiparous with numerous prior deliveries of newborns treated for neonatal abstinence syndrome (NAS). We developed a dedicated obstetrical OUD clinic at our institution in late 2016 that included an extensive evaluation regarding past obstetrical history. Most reported that no "formal plan" for birth control postdelivery occurred in any of their prior pregnancies and that long acting reversible contraception (LARC) was not discussed. Patients stated they were either provided oral contraceptive pills, administered a hormonal injection, or no contraception was provided. Oral contraceptive pills, hormonal vaginal rings, and hormonal injections require daily pill consumption, monthly removal with reinsertion, or every 3-month injections, respectively. In theory, LARC would provide longer periods of contraception and less chance for failure due to a lack of needing to remember to perform a daily, monthly, or every 3-month task.

Objective: To report the first 18 months outcome data for a designated obstetric OUD clinic regarding an antenatal formal plan for postdelivery contraception, focusing on the option of LARC.

Study Design: Prospective cohort study reporting outcome data on the predelivery decision plan for postdelivery contraception and success in providing and/or completing the chosen plan. Data collection included demographics, parity, choice of postdelivery contraception, success in fulfilling the chosen form of contraception, and barriers to providing the intended form of contraception. Simple statistics were performed. The study was reviewed and approved by the institutional review board.

Results: A total of 332 patients were managed during the study period and 321 (97%) reported that the current pregnancy was unplanned. Regarding parity, 72 (21%) were primiparous and 266 (79%) were multiparous. The mean
maternal age was 28.3 (+/- 5.8) years; 96% were Caucasian; and 93% had public - Medicaid Insurance. All patients in this designated clinic were provided a one-on-one discussion prior to delivery that covered the pros and cons of all the options for birth control postdelivery from no contraception through tubal ligation. During the study period, our institution also began a program of IUD insertion immediately after delivery. Overall, 121 (36%) chose tubal ligation antenatally but 11 declined at delivery of which 5 received LARC (1 IUD and 4 hormonal implants). Of the remaining 110 that desired tubal ligation at delivery, 84 (76%) successfully had a tubal ligation performed. For the 26 not performed (all following vaginal delivery), 16 were not felt to be possible because of concern over BMI and 10 were not performed due to hospital constraints. There were 93 that chose the hormonal implant and 66 (71%) were placed. There were 77 that desired an IUD and 48 (62%) were placed. Excluding those that desired a tubal ligation through to delivery (n=110), 170 (75%) of the remaining 228 patients chose LARC and for 114 (67%), placement of the hormonal implant or IUD was accomplished. There were 82 patients (26 that desired tubal ligation, 27 that desired a hormonal implant, and 29 that desired an IUD) that did not receive the decided upon form of contraception prior to hospital discharge and the plan was to perform an interval procedure 6 to 8 weeks postpartum. However, only 13 (16%) of these returned. In total, 198 (59%) of 332 patients received a tubal ligation or LARC through this "formal plan" process.

Conclusions: This is the first prospective study reporting outcome data regarding a formal plan for contraception to be administered postdelivery in obstetrical patients with OUD. Most of these patients were multiparous, had delivered prior children treated for NAS, and reported that the current pregnancy was unplanned. These data demonstrate that a formal plan for postdelivery contraception can result in a majority receiving tubal ligation or LARC. If not performed during the delivery hospitalization, follow-up postdelivery is poor and mechanisms to improve performing the procedure while still admitted or improving follow-up after discharge are greatly needed.
Poster #26
Placental Surface Cysts and Fetal Outcome

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Background: The prevalence of cysts arising from the placental surface is unknown. The etiology of placental surface cyst and the clinical significance is an area of controversy.

Cases: A 25yo G4P3003 presented for first ultrasound visit at 31w0d. She was late to prenatal care and this was the first ultrasound. Obstetric history significant for 3 prior cesarean deliveries. A single live female intrauterine pregnancy was seen measuring consistent with dates with no apparent anomalies. The placenta was anterior and not a previa. A cyst measuring 1.8x 1.7cm was seen on the surface of the placenta abutting the placental cord insertion. The patient was followed with serial growth scans and weekly antenatal testing and delivered at 39 weeks without complications.

A 29yo G3P2002 presented at 18w1d for routine anatomy ultrasound and found to have mono-di twins. Both babies were female, nonanomalous, and consistent with dates. The placenta was anterior with multiple lakes. The patient had serial screening for twin twin transfusion and monthly growth ultrasounds. At 26w1, two cysts were noted on the surface of the placenta nearest to twin A cord insertion measuring 2.9cm x 1.6cm and 2.5cm x2.8cm. At 29w1d the right cyst, now with septations, measured 2.7 x 3.3cm. The left cyst measured 3.9 x 2.47cm (increased) with new appearance of debris and septations. A new 3rd smaller cyst measuring 1.3x 2.05cm was seen. The cysts remained stable and the patient was delivered at 37 weeks without complications.

Immediate postpartum evaluation of both placentas was performed. Cysts were not identified on either placenta and it was theorized that they ruptured at some time prior to delivery of the placenta.

Discussion: Placental surface cysts are believed to occur as trophoblasts secrete fluid into the surrounding space but the cause is unclear. The significance of placental surface cysts is an area of controversy. In our patients they had no clinical significance though there are reports that placental cysts larger than 4.5cm in maximal diameter or when there are 3 or more cysts may be associated with fetal growth restriction.
Poster #27
Micropenis: What is Normal?

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Background: Newborns with micropenis have been assigned to either male or female gender depending on the prevailing policy of management at the time of birth. This has often been based more on preconceived ideas of masculinity than on science. Binary notions of gender have demonstrated limited congruence with actual gender identity. Concepts of maleness have significant impact on the lives of babies with disorders of sex development and their families.

Case: A 30 yo G1P0 presented initially at 21w5 for a routine anatomy evaluation. At that time no anomalies were identified and gender was recorded as not visualized. The patient returned at 31w after having an entertainment ultrasound for 3D images during which she was told the baby might have ambiguous genitalia. A scrotum with descended testes was identified. A penis was not visualized.

The patient was followed with serial growth scans. The penis was never definitely visualized.

The father was reluctant to attend ultrasound appointments. The mother was tearful at each visit but very receptive to discussions of potential treatments.

She was delivered at 40w6d. At birth a microphallus was noted. On examination the baby had a stretched penis length of 2.0cm. (normal). Pituitary function was normal.

Discussion: Micropenis may be caused by a defect anywhere along the hypothalamic-pituitary-gonadal axis, a defect in peripheral androgen action, isolated growth hormone deficiency, a primary structural anomaly, or may be part of a genetic syndrome. The most common cause of micropenis is abnormal hypothalamic or pituitary function. In the absence of normal hypothalamic or pituitary function, a normally shaped penis may develop due to maternal hCG effect on fetal testosterone production, but adequate penile growth does not occur after 14 weeks' gestation when testosterone production depends on intact fetal pituitary LH secretion. Failure of adequate testosterone production toward the end of gestation due to a primary testicular disorder can also result in inadequate penis growth.

Micropenis is defined as a completely differentiated penis, no hypospadias and a stretched penile length <2.5 SD below the mean for age in a patient with a 46 XY karyotype. For a term infant a micropenis is ≤1.9cm in stretched length.
To record penile length the foreskin is retracted, the glans penis is held and fully stretched until resistance is reached. Measurement is taken from the pubic ramus to the distal tip of the glans penis over the dorsal side.
Poster #28
Assessment of Obstetric and Gynecologic Device Recalls and the FDA Approval Processes

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Purpose: To evaluate and compare the recall rates of Obstetric and Gynecologic devices approved via the Food and Drug Administration's 510(k) and PMA approval processes

Methods: In this retrospective observational study, the FDA Medical Device Recalls online database was accessed to identify Obstetric and Gynecological device recalls from November 1, 2002 to July 31, 2017. The class of device, class of recall, date of recall, and original approval process were obtained for each device. These were compared against total number of approved devices during this time period in the PMA and 510(k) processes. Recall rates of each process were calculated and compared.

Results: A total of 685 devices were approved via the PMA process and 1,564 devices were approved via the 510(k) process in the observed time period. Of these, 1.17% of the PMA devices and 15.98% of the 510(k) devices were recalled (p<0.0001). There was an overall increase in absolute device recall numbers over time in the 510(k) process, while the number of recalls in the PMA process did not change with time.

Conclusion: The recall event rate for the 510(k) approval process is 13.6 times the rate for PMA approval process for Obstetric and Gynecological devices. Analysis of the results suggests improper device risk classification, inappropriate assignment of approval process, increased device malfunctions and recalls by the 510(k) process, and therefore increased risk to patients by these devices. This warrants a call for improvement and increased scrutiny in the 510(k) approval process for devices used in Obstetrics and Gynecology.
Purpose: To measure the impact of a standardized laparoscopic curriculum on knowledge and simulation skills assessment in Ob/Gyn residents

Methods: A standardized laparoscopic curriculum was developed in accordance with FLS training guidelines. The educational program consisted of a didactic lecture with a written pre and post test and laparoscopic simulation training. Residents from three residency programs in Chicago were trained in peg transfer and precision pattern cutting skills. A skills assessment was administered pre and post simulation training. This skills assessment measured time to completion of peg transfer and time to completion of precision cutting. Data points were assessed using a repeated measures analysis of variance.

Results: Twenty-four residents from three programs were evaluated with a significant improvement in knowledge score from 66.7% to 84.4% (p<0.001). Time to complete peg transfer improved from 363 to 207 seconds (p=0.004). Time to complete precision pattern cutting improved from 426 to 219 seconds (p=0.006).

Conclusions: Implementing a standardized curriculum improved resident knowledge and simulation skills in laparoscopic techniques. The program demonstrated an improvement in residency learning and could be applied to improve resident training in laparoscopy and FLS training.
New-Onset Postpartum Preeclampsia in Women Without Prior History of Hypertensive Disorders

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Objective: Hypertensive disorders are the most common reason for postpartum readmission. While these readmissions are generally associated with pre-existing disease, e.g. chronic hypertension, gestational hypertension, or preeclampsia, many reports now identify postpartum preeclampsia in patients without prior hypertension of any form. Research addressing this de novo presentation is limited. The objective of this study is to evaluate the demographics and risk factors of new-onset postpartum preeclampsia in order to screen, prevent or treat this condition.

Methods: We conducted a retrospective cohort study of patients at Touro Infirmary in New Orleans, Louisiana, who delivered between October 1, 2012, and December 31, 2018, were discharged, and later readmitted with the diagnosis of preeclampsia. Demographics and risks factors were identified including age, BMI, parity, gestational age at delivery, and other co-morbidities. IRB approval was obtained.

Results: Between October 2012 and December 2018 there were 5,864 deliveries, with 1,226 cases (20.9%) of antenatal hypertensive disorders, which is double that of the general population. We identified 64 patients readmitted with preeclampsia: 44 readmissions with pre-existing hypertension (3.6% of all deliveries), and 20 readmissions (0.4% of all deliveries) with new onset postpartum preeclampsia. 31.3% of our hypertensive readmissions were new-onset postpartum preeclampsia. Regional demographics are about 60% black, 30% white, 6% Hispanic. Of our patients readmitted with preeclampsia, 90% were black. 100% of the 20 patients readmitted with no pre-existing hypertensive disease were black, but there were no identified characteristics to distinguish from other readmissions with pre-existing disease.

Conclusions: Hypertension is very common in our population, double that of national data. Not surprisingly, most of our readmissions are due to hypertensive disorders. New-onset postpartum preeclampsia was found in 20 of the 64 patients readmitted with hypertensive disease. Our patients should receive universal counseling of signs/symptoms of postpartum hypertensive disease, regardless of risk. Further wide-scale research needs to occur to further identify potential inciting factors and possibly prevent this condition.
Poster #31
Tranexamic Acid (TXA) Use in Patients Among Gynecologist and Obstetricians

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Purpose: We aim to better understand practice patterns and utilization of Tranexamic Acid for benign gynecologic surgery and obstetrical hemorrhage by surveying members of the Central Association of Obstetricians and Gynecologists (CAOG).

Methods: This is a cross-sectional study. A Survey Monkey Questionnaire was developed and sent to members of CAOG by email. The survey was designed to assess the use of TXA in obstetrical hemorrhage and gynecological surgeries. The responses were analyzed by percentage and reported as such. The questions aimed to answer 1) overall use of TXA 2) situations in which TXA was utilized 3) concern with TXA 4) demographics of responders 5) current hospital protocols with TXA use.

Results: The overall response rate was 27%. During an obstetrical hemorrhage 21% of responders used TXA > 50% during obstetrical hemorrhage, 33% of responders used TXA < 10%. 16% of responders used TXA during cesarean sections and of those 51% used it < 10% of the time. Half of all participants reported using TXA for heavy cyclic bleeding. Less than one tenth of responders reported using TXA during hysterectomies. Three fourths of participants had TXA as part of their hospitals obstetrical hemorrhage protocol. The largest concern 48% of participants with using TXA was thromboembolic events. Two thirds of participants would be comfortable incorporating TXA into their hospitals protocol. The majority, 54%, of participants worked for an academic medical center and were a generalist.

Conclusion: The majority of responders were aware that TXA was part of their hospital protocol for postpartum hemorrhage, even so the majority of clinicians still only utilized TXA <10% of the time during postpartum hemorrhage. The second most common use of TXA was for heavy cyclic bleeding. TXA was used the least during gynecological surgery, and the largest concern was fear of thromboembolic events. Our findings might be explained by a higher awareness of the recent WOMAN trial which showed
beneficial evidence for TXA use during postpartum hemorrhage. However, there may be less awareness of the benefits TXA use during benign hysterectomy. Although responders were concerned with thromboembolic events, the majority of responders had a favorable view of TXA and supported its incorporation into hospital protocols.
Poster #32
Obstetrician-Gynecologists in General Practice in New Mexico: A Comparison Between Rural and Metropolitan Settings

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Purpose of Study: New Mexico is one of the most rural states. The greatest women's health need is for access to physicians who practice both obstetrics and gynecology (generalists). Despite increases in the ob-gyn workforce between 1990 and 2014 some rural counties remain far behind metropolitan counties in number of ob-gyn per 1,000 women. This study compares the distribution and demographics of ob-gyns in general practice between rural and metropolitan counties.

Methods: In this retrospective observational study, we used data gathered from a mandated survey completed by every ob-gyn at the time of relicensure every three years. Survey items include demographics, type of practice, practice size, hours worked weekly and weeks worked per year. These data were compared with the ACOG New Mexico Section Membership data and the ACGME graduating residents’ survey for the single ob-gyn training program in the state. Metropolitan counties were those which included a U.S. census-designated Metropolitan Area, and the sample included all ob-gyn's with current New Mexico license and practice address during 2016 or 2017. Student t-tests, chi-square tests and logit regression were used for analysis. The significance threshold was set at p<0.005 to correct for multiple comparisons.

Key Findings: Three hundred on-gyns were licensed and practiced in New Mexico during 2016 and 2017. Of those practicing in general ob-gyn, more than one in four practice in rural areas (28.2%). All of the state's board approved ob-gyn specialists (n=30) practiced in metropolitan counties. Practice group sizes of general ob-gyns were slightly smaller in rural counties (p<0.001). Although those in rural settings tended to be older (mean age: 56.8 vs. 52.8, p=0.011), there was not a statistically significant relationship with this or with sex, race, ethnicity, or hours per week. Residency graduates practiced in the largest metropolitan area (Albuquerque), moved to another state, or pursued fellowship training.
Implications: The combination of data from a state-specific, mandatory survey with data from a specialty professional board offered a unique opportunity to observe that rural counties are largely served by on-gyns in general practice, and they constitute over one-fourth of the state's ob-gyn's in general practice. Workforce data for a specific medical specialty at the county level should enable policy makers and health system administrators to better address community health needs and effects from changes in health care delivery. Financial aid programs and loan repayment programs are important for recruitment. Efforts at telementoring or telemedicine and outreach by subspecialists from metropolitan counties need to be evaluated in determining their value in satisfying and retaining general ob-gyns in rural communities. As long as surgeries are available for training, resident physicians should be offered electives to better understand the fulfillment and limitations of general practice in a rural setting.
Poster #33
Comparison of Cytology and Visual Inspection with Acetic Acid Triage of Human Papilloma Virus DNA Positive Women for Detection of CIN

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Aim: To compare Cytology and VIA triage prior to colposcopy and detection of CIN in women detected positive by Human Papilloma Virus (HPV) DNA testing for primary screening.

Methodology: A cross-sectional study was carried out in pre-menopausal women ≥30 years coming to gynecology clinic. A cervical swab sample for HPV DNA was taken during routine gynecological examination after informed consent and tested for HPV DNA by conventional PCR. Women with a positive HPV test were called for colposcopy. Prior to colposcopy, a conventional Pap smear was taken and VIA performed with 5% acetic acid. Cervical biopsy was taken if Swede score ≥ 1 on colposcopy. The sensitivity and specificity of cytology and VIA for detecting ≥ CIN 2 in HPV positive women was compared with the gold standard of histopathology.

Results: Among 1100 women screened, 75 were HPV DNA positive. VIA positivity was seen in 58 women, 18 had ASCUS or more on cytology. Colposcopy Swede score was >5 in 37; 28 had ≥ CIN 2 on histopathology. Sensitivity & specificity of VIA was 100% and 33.33% whereas that of cytology was 55.56% and 91.43% respectively.

Conclusion: VIA was found to be more sensitive but less specific than cytology for triaging HPV DNA positive women detected on primary screening.
Poster #34  
Incidentally Found Luteoma at Time of Cesarean Section

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Background: Pregnancy luteomas are rare neoplasm of the ovary. Since its description by Sternberg and Barclay in 1966, there are only 200 cases reported in the literature. They are benign in nature which will spontaneously resolve postpartum but may clinically imitate malignant neoplasms. Often asymptomatic, clinical presentation may also be virilization of the mother, as well as the fetus, pain from ovarian torsion; however most commonly they are found incidentally on ultrasound or at cesarean section. Because the appearance of a luteoma is similar to a malignant neoplasm, in addition to its rarity, the clinical management of these tumors is challenging.

Case Report: A 25 year old G4P1112 presented for scheduled cesarean section and bilateral tubal ligation at 36 6/7 weeks secondary to history of classical cesarean section. Her obstetrical history was complicated by preterm delivery at 24 weeks requiring a classical Cesarean Section for malpresentation. Her next delivery was a scheduled repeat Cesarean Section at 37 weeks. This pregnancy was largely uncomplicated, with no evidence of maternal virilization. She had sonograms at 20 and 28 weeks, as well as serial cervical lengths. Ultrasounds revealed an anatomically normal female fetus, normal cervical lengths and adnexa.

At time of tubal ligation the left adnexa was normal appearing however a 10x10cm right ovarian mass was noted. The gross appearance of the mass was smooth walled, solid in nature and without excrescences. Although there was minimal concern for cancer, this could not be excluded. An intraoperative discussion was held with the patient and verbal consent was obtained for a Right salpingoopherectomy (RSO). The RSO was performed without difficulty. The patient's postoperative course was uncomplicated with discharge on POD # 3.

Pathology report was significant for: Benign luteoma of pregnancy (nodular theca-lutein hyperplasia). Gross description notable for nearly spherical, well circumscribed mass weighing 351 g and measuring 9 x 10 x 8 cm. Mass has a smooth, tan-red surface and intact capsule. Residual ovarian cortex is not recognizable on gross inspection. There was also small thin walled 1 cm cyst at inferior aspect attached to main ovarian mass by 1.5cm fibrous stalk.
Discussion: Ovarian tumors during pregnancy are rare, with an incidence of 1/81 to 1/2000 and a malignant potential of 0.8% to 10%. Most common incidentally found adnexal masses in pregnancy include the following: corpus luteum cysts, mature cystic teratomas, serous and mucinous cystadenomas. Testosterone secreting tumors include granulosa cell tumors, thecomas and Sertoli-Leydig tumors. However, the most common cause of virilization in pregnancy is still luteoma.

Pregnancy luteomas are benign masses of the ovary that grow during pregnancy and may mimic malignant tumors. Their growth is due to the influence of hormones during pregnancy, particularly response by luteinized ovarian stromal cells to human chorionic gonadotropin. These stromal cells produce androgens and often maternal serum testosterone is significantly elevated. Clinically maternal characteristics may include hirsutism, clitoromegaly, and deepened voice with the potential concern for virilization of the female fetus. Luteomas are generally bilateral, incidentally found on sonogram and resolve within months postpartum. There are no good evidence based guidelines to base management decisions.

Current recommendations for management include expectant or surgical. Expectant management is warranted if an incidental ovarian mass is discovered during prenatal care. If discovered during this time a work up could be performed which would include serum androgen measurements, in particular total testosterone and Dehydroepiandrosterone (DHEAS), as well as serial ultrasound to evaluate for growth and potential for malignancy. In addition an interdisciplinary group, consisting of Maternal Fetal Medicine, Gynecological Oncology and General Obstetrics could determine the optimal treatment plan.

Surgical management is warranted for cases of ovarian torsion, increasing size of ovarian mass or suspicion for malignancy. Because the risk of second trimester preterm labor is low, the ideal time for surgery is between 14-18 weeks.

This case illustrates the difficult management decisions which occur when an asymptomatic, large, previously undiagnosed ovarian mass is discovered at the time of a cesarean section. Our patient had multiple ultrasounds throughout pregnancy with no ovarian masses noted; she was asymptomatic and had no evidence of virilization. However when found intraoperatively, a unilateral large ovarian mass, with an unclear diagnosis and concern for potential torsion; a decision to remove the mass for pathologic evaluation seemed prudent.
Poster #35
Case Presentation of a Desmoid Tumor in Pregnancy with a Review of the Literature

Alexandra Christie, DO, Fred Fumia, MD, Debra Gussman, MD, Rebecca Levine, BA

Hackensack Meridian Health, Jersey Shore University Medical Center, Neptune, NJ

Learning Objectives: The goal of this case report is to present a case of a desmoid tumor complicating pregnancy and to review the literature.

Case Presentation: A 21-year-old G2P1 presented for prenatal care at 8 weeks gestation. Initial prenatal labs and physical exam were normal. At 13 weeks gestation, she reported tenderness in her right upper quadrant. She described dull pain that was worse with palpation and movement. There was no vaginal bleeding, gastrointestinal, or urinary symptoms. Over three weeks, she developed an egg-sized mass in the right upper quadrant at the costal margin. She described pain that was worse with palpation and movement. There was no vaginal bleeding, gastrointestinal, or urinary symptoms. Over three weeks, she developed an egg-sized mass in the right upper quadrant at the costal margin. An ultrasound showed an 8 x 4 x 6 cm mass with diminished echogenicity. It was described as a liver mass with characteristics of a hematoma. There was no history of trauma or evidence of coagulopathy. Magnetic Resonance Imaging showed a 9 x 4 x 5 cm mass separate from the liver.

Percutaneous biopsy revealed a desmoid tumor with Ki67 proliferation <10 and negative estrogen and progesterone receptors. The patient underwent a surgical resection at 22 weeks gestation. Mesh was needed to close the large defect in the abdominal wall. The patient's postoperative and remaining antenatal course was uncomplicated. Final pathology confirmed a desmoid tumor with positive margins. At term, she had a spontaneous vaginal delivery of a live 2700 gm male infant with apgars 9/9. Two years later, she had another successful pregnancy. At 6 years, there is no evidence of recurrence.

Methodology: A literature search was performed in OVID, PUB MED, Google Scholar, and CINAHL using search terms "desmoid" and "pregnancy" keywords. Articles were limited to English. Reports were analyzed for content. References were used to identify additional case reports.

Results: Key word search and reference review resulted in 109 possible case reports. Forty-six case reports describing 49 cases of desmoid tumors related to pregnancy from 1955-2018 were confirmed. The mean age of the patients was 31.3 years old. Age range was 18-42. Most patients were
multiparous with only 9 primigravidas. Desmoid tumors were reported in all trimesters of pregnancy. The most common presenting symptoms were a mass (21) or abdominal pain and tenderness (9). Four cases were found incidentally at the time of cesarean section. Tumor locations involved the abdominal wall (28), pelvic or genital region (8), prior cesarean scar (5), uterus (3), intra-abdominal (2), thorax (1), larynx (1) and calf muscle (1). The reported desmoid tumors ranged in size from 1.2 cm to 33 cm. Twenty-five were less than 10 cm. Four were greater than 20 cm. More than 25 differential diagnoses were considered prior to desmoid tumor confirmation. The most common pre-biopsy diagnoses were uterine fibroids (7), hematoma (4), and endometriosis (4). Twenty-five patients had pre-operative evaluation with percutaneous biopsy and aspiration. Surgery was performed on 45 patients. Information on mode of delivery and pregnancy outcomes was limited. There were 19 vaginal deliveries, 11 cesarean sections and 4 premature or low birth weight infants. No maternal or fetal deaths were reported. Follow-up data was limited: 4 patients had recurrences and 29 remained tumor-free.

Conclusions: This paper examines anecdotal observations of desmoid tumors associated with pregnancy.

Desmoid tumors are rare low-grade sarcomas that arise from myofibroblasts. They have been found in connective tissue throughout the body. Mutations in the CTNNB1 gene account for 85% if the desmoid tumors. The remaining are associated with the APC gene mutations seen in familial adenomatous polyposis (FAP). These somatically mutated genes allow faulty regulation leading to excess accumulation of protein beta-catenin that promotes uncontrolled cell growth and division. The prevalence is 2-4 per million people per year. The gender ratio is 2:1 for females to males. Tumors occur more commonly after childbirth. The age of presentation is 10-40. There is no racial or ethnic specificity. The tumors can be indolent or aggressive. Tumors infiltrate locally and can recur after resection. Recurrence rates are 25-40%. They do not metastasize but cause serious illness by compressing nearby structures. Surgery is the primary treatment. The infiltration of the tumors along fascial planes and the tenacious adherence to surrounding structures makes complete tumor removal difficult. Recurrent disease treatment options include surgery, chemotherapy, anti-estrogens, prostaglandin inhibitors, and radiation therapy. Desmoid tumors in the female pelvis are often misdiagnosed as uterine leiomyoma or endometriosis. In pregnancy, they can cause an unstable fetal lie, obstructed labor, or interfere with fetal growth. Pregnancy can lead to a delay in diagnosis and treatment. At present, multidisciplinary teams can provide individualized planning and management while minimizing
treatment related morbidities. Referral to a high volume multidisciplinary institution should be considered. Patients and physicians should consider participation in The Desmoid Tumor Research Foundation Patient Registry a collaborative effort with the National Organization for Rare Disorders and the U.S. Food and Drug Administration.
Poster #36
Implications of Recreational Genetic Testing

Sarah E Goodheart, DO, Erin Curcio, DO, Jonathan D Baum, MD, Fred D Fumia, MD
Jersey Shore University Medical Center, Neptune, NJ

Purpose: To define recreational genetic testing, recognize the potential harms of recreational genetic testing, and understand that non-invasive testing does not mean risk-free testing.

Methods: This is an individual case study.

Results: A 34-year-old primigravida with normal first and second trimester aneuploidy screening requested non-invasive prenatal testing (NIPT), even though she was clear that she would not terminate her pregnancy regardless of antenatal diagnosis. NIPT showed a "borderline positive result for trisomy 18," and further testing was recommended, including amniocentesis, fluorescence in situ hybridization (FISH), chromosomal microarray analysis, and karyotyping for both patient and partner. A "terminal deletion of unknown significance" was detected in chromosome 8p, which led to additional obstetric visits, ultrasounds, and antenatal testing. She spontaneously delivered a phenotypically normal infant at 32 weeks.

Conclusion: Genetic testing holds the promise of personalized risk prediction, which has implications for current and future health. Recreational genetic testing is testing without a medical indication and is being promoted by industry to satisfy that curiosity. The decreased cost and ease of access has made this technology accessible to everyone, and clinicians face pressure to perform these seemingly "risk free" genetic tests. Screening low risk pregnancies can have the same unintended consequence of recreational genetic testing. Before agreeing to genetic testing in low risk women, clinicians must clearly differentiate non-invasive versus risk-free testing. We present a case of a patient whose risk profile did not warrant NIPT, and its borderline result lead to unnecessary patient anxiety and invasive testing which did not benefit her pregnancy. This case should serve as a caution to both clinicians and patients who pursue testing without medical indication or the intent to act on the result. It is the responsibility of the clinician to counsel patients on the options, implications, and limitations of genetic testing. This onus will increase as genetic testing becomes more integrated into our screening algorithms.
Poster #37
Early Identification of High Risk Pregnancies in a Medicaid Population

Larry P. Griffin, MD¹, Kevin Bramer², Matthew Stull²

Evolent Health/Passport Health, Louisville, KY¹, Lucina Health, Louisville, KY²

Many myths exist regarding the obstetrical care of medically indigent patients who are at high risk for obstetrical complications. One such myth is that because of the very nature of this population, the early identification of such patients is not possible. Since proper care management/coordination of care is shown to improve outcomes, early identification and enrollment is critical to success.

Utilizing an algorithm developed for this purpose, we have been able to effectively shift identification of these patients from late pregnancy to the late first or early second trimester, enabling engagement of these patients into appropriate care and coordination of care programs at an early stage of pregnancy.

Such early identification and enrollment results in significant improvements in outcome in terms of lengths of gestation, low birth rate, and NICU stays, with a corollary reduction in expenditures.
Central Prize Award

2005
“Impact of Chromic Catgut Versus Polyglactin 910 Versus Fast-Absorbing Polyglactin 910 Sutures for Perineal Repairs: A Randomized Control Trial”
Emmanuel Bujold, M.D.
Sainte-Justine Hospital, University Montreal
Montreal, Quebec

2006
“Comparison of the Adequacy of the Conventional Smears to Liquid-Based Preparations on Vaginal Cuffs”
Kory A. Harward, D.O.
Aultman Health Foundation/NEOUCOM
Canton, Ohio

2007
“Triggering Receptors of Myeloid Cells (TREM)-1: A Novel Marker of Infection Associated Spontaneous Preterm Birth”
Stephen J. Fortunato, M.D.
Centennial Women's Hospital
Nashville, Tennessee

2008
“Yolk Sac on Transvaginal Ultrasound as a Prognostic Indicator in the Treatment of Ectopic Pregnancy with Single-Dose Methotrexate”
Gary H. Lipscomb, M.D.
University of Tennessee
Memphis, Tennessee

2009
“Soluble Fms-Like Tyrosine-1 (sFlt-1) Production is Enhanced During Hypertension in Response to Tumor Necrosis Factor-alpha (TNF-α) and Agonistic Autoantibodies to the Angiotension II Type I Receptor (ATI-AA)”
Marc R. Parrish, D.O.
University of Mississippi Medical Center
Jackson, Mississippi
Central Prize Award

2010
“The Impact of Genotype on Nifedipine Pharmacokinetics When Used as a Tocolytic”
David M. Haas, M.D.
Indiana University School of Medicine
Indianapolis, Indiana

2011
“Reducing Postpartum Hemorrhage with Removal of Placenta at 10 vs 15 Minutes: A Randomized Clinical Trial”
Everett F. Magann, M.D.
University of Arkansas for Medical Sciences
Little Rock, Arkansas

2012
“Harnessing the Electronic Health Record for the Provision of Population-Based Preconception Care”
Heather L. Straub, M.D.
Northshore University HealthSystem
Evanston, Illinois

2013
"Cost Effectiveness and Clinical Utility of Repeated Syphilis Screening in the Third Trimester in a High-Risk Population”
Linda-Dalal J. Shiber, M.D.
MetroHealth/Case Western Reserve University
Cleveland, Ohio

2014
“A Study of Preterm Neonates: Delayed Cord Clamping vs. Delayed Cord Clamping plus Cord Stripping, a Prospective Randomized Trial. Is Cord Stripping Beneficial?”
Margaret S. Krueger, D.O.
Univ. South Alabama Children's and Women's Hospital
Mobile, Alabama
Central Prize Award

2015
“Randomized Clinical Trial of Medical Therapy vs. Radiofrequency Endometrial Ablation in the Initial Treatment of Heavy Menstrual Bleeding: Treatment Outcomes and Life Quality Assessment”
Sherif A. Shazly, M.B., B.Ch.
Mayo Clinic
Rochester, Minnesota

2016
Gustavo Vilchez, M.D.
University of Missouri - Kansas City
Kansas City, Missouri

2017
“Association Between Gestational Weight Gain Adequacy and Composite Maternal and Neonatal Morbidity”
Han-Yang Chen, Ph.D.
The University of Texas Health Science Center
Houston, Texas

2018
“A Comparison of Vaginal Versus Buccal Misoprostol for Term Cervical Ripening in Women for Labor Induction at Term (the IMPROVE Trial): A Triple Masked Randomized Controlled Trial”
David M. Haas, M.D.
Indiana University School of Medicine
Indianapolis, Indiana

2019
“The Relationship Between Glucose Testing in an Index Pregnancy and Outcomes in a Subsequent Pregnancy: Implications for Testing Guidelines”
Emmet Hirsch, M.D.
NorthShore University HealthSystem
Evanston, Illinois
President’s Certificate of Merit Award

2005
“Detection of Gestational Diabetes Mellitus by Homeostatic Indices of Insulin Sensitivity: A Preliminary Study”
Robert P. Kauffman, M.D.
Texas Tech University School Medicine
Amarillo, Texas

2006
“The Clinical Utility of Maternal Depression Screening Before and After Delivery”
Trent E.J. Gordon, M.S.
Evanston Northwestern Healthcare
Evanston, Illinois

2007
“In Vitro Chemotaxis of Human Bone Marrow-Derived Mesenchymal Stem Cells Following Exposure to Soluble Factors from Epithelial Ovarian Carcinoma Cell Lines”
Neelima Vegesna, M.D.
Southern Illinois University School of Medicine
Springfield, Illinois

2008
“In Vitro Vascular Reactivity in a Mouse Model of Preeclampsia Induced by Over-Expression of sFlt-1”
Fangxian Lu, M.D.
University of Texas Medical Branch
Galveston, Texas

2009
“Mild Preeclampsia Near Term: Deliver or Deliberate? The Prospective Randomized PreNaTe Trial”
Michelle Y. Owens, M.D.
University of Mississippi Medical Center
Jackson, Mississippi
President’s Certificate of Merit Award

2010
“Cervical Ripening for Induction of Labor: A Prospective Randomized Trial of Misoprostol versus Oxytocin in Conjunction with Foley Balloon”
**Erica R. Downey, M.D.**
Aultman Hospital
Canton, Ohio

2011
**Suneet P. Chauhan, M.D.**
Eastern Virginia Medical School
Norfolk, Virginia

2012
“Peripartum Complications with Cesarean Delivery: A Review of Maternal-Fetal Medicine Unit Publications”
**Ibrahim A.I. Hammad, M.D.**
Eastern Virginia Medical School
Norfolk, Virginia

2013
"Obstetric Recommendations in ACOG Practice Bulletins vs UpToDate: A Comparison”
**Emily N. Myer, M.D.**
Eastern Virginia Medical School
Norfolk, Virginia

2014
“The Effects of Metformin on Postpartum Weight Retention in Women with Gestational Diabetes: A Randomized, Placebo-Controlled Trial”
**Jerrie S. Refuerzo, M.D.**
University of Texas Health Science Center
Houston, Texas
President’s Certificate of Merit Award

2015
“Acute Fetal Behavioral Response to Prenatal Yoga: A Single Blinded, Randomized Controlled Trial (TRY Yoga Study)”
Shilpa Babbar, M.D.
University of Missouri Kansas City
Kansas City, Missouri

2016
“Assessment of Twin Fetal Growth: Use of Singleton versus Twin-Specific Nomograms”
Hector Mendez-Figueroa, M.D.
University of Texas Health Science Center
Houston, Texas

2017
“Preoperative Cesarean Section Intravenous Acetaminophen Treatment for Postoperative Pain Control: A Randomized Double-Blinded Placebo Control Trial”
Sarah K. Shelton, M.D.
University of Tennessee Medical Center
Knoxville, Tennessee

2018
“Intention to Treat: Obstetrical Management at the Threshold of Viability”
Tiffany R. Tonismae, M.D.
Indiana University School of Medicine
Indianapolis, Indiana

2019
“Increases in Albumin-Adjusted Serum Calcium Over Time Predict Ovarian Cancer”
Gary G. Schwartz, Ph.D., MPH, Ph.D.
UND School of Med. & Health Sciences
Grand Forks, North Dakota
Community Hospital Award

2005
“Multilocus Interactions as Maternal TNF-α, IL-6 and IL-6R Genes Predict Spontaneous Preterm Labor in European-American Women”
Stephen F. Fortunato, M.D.
Centennial Women's Hospital
Nashville, Tennessee

2006
“Amniotic Fluid Interleukin (IL)-1 and IL-8 Concentrations: Racial Disparity in Spontaneous Preterm Birth”
Stephen J. Fortunato, M.D.
Centennial Women's Hospital
Nashville, Tennessee

2007
“Racial Disparity in Maternal-Fetal Genetic Epistasis in Spontaneous Preterm Birth”
Stephen J. Fortunato, M.D.
Centennial Women's Hospital
Nashville, Tennessee

2008
“Distinct Pathophysiologic Pathways Induced by In Vitro Infection and Cigarette Smoke in Normal Human Fetal Membranes”
Stephen J. Fortunato, M.D.
Centennial Women's Hospital
Nashville, Tennessee

2009
“C-Reactive Protein and the Outcome of Emergency Cerclage”
Sogol Jahedi, M.D.
Advocate Lutheran General Hospital
Park Ridge, Illinois

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Community Hospital Award

2010
“Aberrant Fetal Growth and Mortality
(Early, Late, and Postneonatal):
An Analysis of Milwaukee Births, 1996-2007”
Suneet P. Chauhan, M.D.
University of Wisconsin School of Medicine
Milwaukee, Wisconsin

2011
“Group B Streptococcus Colonization
Leads to Early-Term Births”
Stephen J. Fortunato, M.D.
The Perinatal Research Center
Nashville, Tennessee

2012
“Development of an OB Dashboard: Measuring
What Matters in Perinatal Quality and Safety”
Gregory L. Goyert, M.D.
Henry Ford Health System
Detroit, Michigan

2013
"Human Lysophosphatidylcholine Acyl-transferase 1 mRNA is Found in Amniotic Fluid and Maternal Serum”
Robert A. Welch, M.D.
Providence Hospital & Medical Centers
Southfield, Michigan

2014
“Prospective Comparison of Efficacy, Outcomes,
and Cost of Laparoscopic, Vaginal,
and Robotic Approaches to Hysterectomy
in a Community Institution”
Dana M. Benden, M.D.
Gundersen Health System
La Crosse, Wisconsin
Community Hospital Award

2015
“A Randomized Control Trial of Foley Catheter Placement for Induction of Labor: Stylette vs. No Stylette”
Marie M. Forgie, D.O.
Aurora Sinai Medical Center
Milwaukee, Wisconsin

2016
“Severe Maternal Morbidity and Hospital Cost Among Hospitalized Deliveries in the United States”
Han-Yang Chen, Ph.D.
Aurora Health Care
Milwaukee, Wisconsin

2017
“Management of the Third Stage of Labor in Second Trimester Deliveries: How Long is Too Long?”
Jessica A. Behrens, D.O.
Aurora Sinai Medical Center
Milwaukee, Wisconsin

2018
“Newborn Birth Weight or Body Mass Index: Predictors of the Duration of Neonatal Brachial Plexus Palsy”
Leen Al-Hafez, M.D.
Houston Methodist Hospital
Houston, Texas

2019
“To Treat or Not to Treat: Effect of One Elevated Glucose Tolerance Test Value”
Leah A. Hong, M.D.
Henry Ford Health System
Detroit, Michigan
Young Investigator Award

2005
“Pregnancy Loss After First Trimester Viability in Patients with Sickle Cell Trait: Time for A Reappraisal?”
Michelle Y. Taylor, M.D.
University of Mississippi Medical Center
Jackson, Mississippi

2006
“An Evaluation of Health Care Providers' Sexual Violence Screening Practices”
Heather L. Littleton, Ph.D.
University of Texas Medical Branch
Galveston, Texas

2007
“Autologous Platelet Gel in Reduction of Pfannenstiel Cesarean Incision Drainage in Obese Women: A Randomized Controlled Trial”
Alexis G. Johnston, D.O.
Aultman Hospital
Canton, Ohio

2008
“Vascular Function in the Offspring Later in Life in a Mouse Model of Maternal Obesity and Preeclampsia”
Egle Bytautiene, M.D.
University of Texas Medical Branch
Galveston, Texas

2009
“Extended Antibiotic Prophylaxis for Prevention of Surgical Site Infections in Morbidly Obese Women Undergoing Combined Hysterectomy and Medically Indicated Panniculectomy: A Cohort Study”
Sherif A. El-Nashar, M.D.
Mayo Clinic
Rochester, Minnesota
Young Investigator Award

2010
“Phenazopyridine Does Not Improve Catheter-Associated Discomfort Following Gynecologic Surgery: Results of a Randomized Controlled Trial”

Charles K. Anderson, M.D.
Loyola Univ. Medical Center
Maywood, Illinois

2011
“Racial Difference in Gestational Age Specific Neonatal Morbidity: Further Evidence for Different Gestational Lengths”

Ryan W. Loftin, M.D.
University of Cincinnati
Cincinnati, Ohio

2012
“Knowledge of Nutrition During Pregnancy: A Survey of CAOG Members”

Stephanie T. Trexler, M.D.
Eastern Virginia Medical School
Norfolk, Virginia

2013
"When is the Optimal Time to Deliver Women with Stable Placenta Previa?”

Laura A. Hart, M.D.
UT Health - University of Texas Medical School
Houston, Texas

2014
“Differential Morbidity Among Preterm Small versus Appropriate for Gestational Age: Perhaps Unverifiable”

Caroline C. Marrs, M.D.
University of Texas Health Science Center at Houston
Houston, Texas
Young Investigator Award

2015
“Body Mass Index and Magnesium Sulfate Neuroprotection: A Secondary Analysis From a Multicenter Randomized Control Trial”
Gustavo Vilchez, M.D.
Wayne State Univ./Detroit Med. Center
Detroit, Michigan

2016
“Diabetes During Pregnancy: Influence of Body Mass Index on Composite Morbidity”
Amy E. O’Neil Dudley, M.D., MPH
McGovern Medical School- UTHealth
Houston, Texas

2017
Among Diabetics Sonographic Estimated Fetal Weight and Composite Neonatal Morbidity: Suspected Appropriate versus Large for Gestational Age
Leen Al-hafez, M.D.
Houston Methodist Hospital
Houston, Texas

2018
“Hypertension Among Women of Reproductive Age: Impact of 2017 American College of Cardiology/American Heart Association High Blood Pressure Guideline”
Han-Yang Chen, Ph.D.
University of Texas Health Science Center
Houston, Texas

2019
“The Influence of Insufficient Prenatal Care on Severe Maternal Morbidity.”
Michael William DeGrandis, BA
University of Cincinnati Medical School
Cincinnati, Ohio
Dr. George Morley was one of America’s most distinguished gynecologic oncology surgeons and truly a memorable leader in the specialty. He spent his entire academic career at The University of Michigan, Ann Arbor where he was revered by students, house staff, colleagues and patients. Although Dr. Morley was widely published, it was in the operating room where he is fondly remembered for being a patient and effective teacher who inspired and motivated through talent and effervescent enthusiasm. Many of the principles he held most dear he collected in his beloved “Morleyisms,” a booklet of sayings he used to help with his mentoring and philosophy of living life to the fullest. Dr. Morley often said “I got to treat, and to train to treat – what more could anyone ask for:” a fitting epitaph for this great physician and humanitarian.
DR. GEORGE W. MORLEY
MEMORIAL PAPER

2006
“Endometrial Cells Identified in Cervical Cytology in Women ≥ 40 Years of Age: Criteria for Appropriate Endometrial Evaluation”
Heather N. Beal, M.D.
Southern Illinois University School of Medicine Springfield, Illinois

2007
“Family History as a Risk Factor for Pelvic Organ Prolapse”
Mary T. McLennan, M.D.
St. Louis University
St. Louis, Missouri

2008
“Laparoscopically-Assisted Uterine Fibroid Cryoablation (UFC)”
Harriette L. Hampton, M.D.
University of Mississippi
Jackson, Mississippi

2009
“Activity of Dasatinib a Novel Small Molecule Kinase Inhibitor of Both the SRC and ABL Proteins in Human Endometrial Cancer Cells Along With SRC Expression in a Large Cohort of Surgically Staged Nonendometroid (Type II) Endometrial Cancers”
Boris J.N. Winterhoff, M.D.
Mayo Clinic
Rochester, Minnesota

2010
“Radical Parametrectomy for Cervical Cancer Found on Pathological Examination of Extrafascial Hysterectomy: A Cohort Study & A Systemic Review of the Literature”
Sherif A. El-Nashar, M.D.
Mayo Clinic
Rochester, Minnesota
DR. GEORGE W. MORLEY MEMORIAL PAPER

2011
“The Impact of the Mismanagement of Atypical Glandular Cell Pap Tests”
Jessica J. Shank, M.D.
University of Michigan
Ann Arbor, Michigan

2012
“Hysterectomy Trends Since 2003: The Impact of Technology on Traditional Routes”
Katherine E. Kowalczyk, D.O.
Grand Rapids Medical Education Partners
Grand Rapids, Michigan

2013
"Utilization of an Ex Vivo Human Placental Perfusion Model to Predict Potential Fetal Exposure to Carboplatin During Pregnancy”
Judith A. Smith, Pharm.D.
UT MD Anderson Cancer Center
Houston, Texas

2014
“A Prospective Study on the Incidence of Post-Operative Lymphedema in Women with Endometrial Cancer”
Elizabeth E. Hopp, M.D.
Medical College of Wisconsin
Milwaukee, Wisconsin

2015
“Tumor Diameter as a Predictor of Lymphatic Dissemination in Endometrioid Endometrial Cancer”
Danielle M. Greer, Ph.D.
Center for Urban Population Health
Aurora UW Medical Group
Milwaukee, Wisconsin
DR. GEORGE W. MORLEY
MEMORIAL PAPER

2016
“Outcomes of Vaginal Hysterectomy With and Without Perceived Contraindications to Vaginal Surgery”
Jennifer J. Schmitt, D.O.
Mayo Clinic
Rochester, Minnesota

2017
“Initial Impact of a Cervical Cancer Screening and Tracking Program Within a Community Health System's Electronic Health Record”
Alexa R. Lowry, B.S.
Univ. of Wisconsin School of Medicine & Public Health
La Crosse, Wisconsin

2018
“Chronic Diseases, Self-Reported Health Status and Prescription Opioid Analgesic Use Among Women of Reproductive Age”
Han-Yang Chen, Ph.D.
University of Texas Health Science Center
Houston, Texas

2019
“A System-Level Approach to Improving Cervical Cancer Screening Rates & Surveillance: Implementation of an Electronic Health Record Tracking System in a Community Health System”
Courtney K. Pfeuti, B.A.
Univ. of Wisconsin School of Medicine & Public Health
Madison, Wisconsin
Distinguished Professor Lectureship Honoring

Jack A. Pritchard, M.D.

“Dr. Pritchard: The Man and His Legacy”
Introduction by
Norman F. Gant, Jr., M.D.
Presented by
Larry C. Gilstrap, III, M.D.

American Board of Obstetrics and Gynecology
Dallas, Texas
October 17, 2006

JACK A. PRITCHARD, M.D.
(1921 – 2002)

Dr. Jack Pritchard is considered by many to be the “father of modern obstetrics.” At age 33 Dr. Pritchard became Chair of Ob-Gyn at the University of Texas Southwestern and Chief of Ob-Gyn at Parkland Hospital in Dallas, where he dedicated his career to being a relentless champion of patient care as the classic “triple threat:” teacher, researcher and clinician. As a pioneer in evidence-based medicine, the most important member of his life-long research team was his wife, Signe. In 1969 Dr. Pritchard became the editor of the 14th Edition of Williams Obstetrics, crafting this century old classic to remain as relevant today as in the past. Jack Pritchard’s greatest legacy “lies in the countless thousands of ob-gyn’s, those trained and those to follow, and in the countless millions of women and infants, some yet unborn, who will be enriched by his priceless contributions to the art and science of ob-gyn.”
DR. JACK A. PRITCHARD MEMORIAL PAPER

2006
“Expectant Management of Preterm Premature Rupture of Membranes and Non-Vertex Presentations: What Are the Risks?”
David F. Lewis, Jr., M.D.
Louisiana State University Health Science Center
Shreveport, Louisiana

2007
“Comparison of Intracervical Foley Bulb Methodologist for Cervical Ripening: A Randomized Clinical Trial”
Jason M. Hoppe, D.O.
Aultman Hospital
Canton, Ohio

2008
“Overestimation of Fetal Weight by Ultrasound: Does It Increase Cesarean Delivery for Labor Arrest?”
Jerrie S. Refuerzo, M.D.
University Texas Health Science Center
Houston, Texas

2009
“Randomized Clinical Trial Evaluating the Frequency of Membrane Sweeping with an Unfavorable Cervix at 39 Weeks”
Everett F. Magann, M.D.
Naval Medical Center - Portsmouth
Portsmouth, Virginia

2010
“Study of Obstetric Foley Techniques (The SOFT Trial): A Randomized Controlled Trial”
Megan J. Dejong, M.D.
Loyola Univ. Medical Center
Maywood, Illinois
DR. JACK A. PRITCHARD
MEMORIAL PAPER

2011
“Cost-Effectiveness of Routine Third Trimester Antibody Screening in Rh Negative Pregnancies”
Jill E. Minger, M.D.
MetroHealth Medical Center
South Euclid, Ohio

2012
“Outcomes in Cephalic versus Non-cephalic Fetuses in the Setting of Preterm Premature Rupture of Membranes”
Jean R. Goodman, M.D.
Univ. Oklahoma Health Sciences Center
Oklahoma City, Oklahoma

2013
"Circulating Cell-Free Nucleic Acid (CCFNA) Screening for Fetal Aneuploidy: Changing the Landscape of Prenatal Screening and Diagnosis”
Lee P. Shulman, MD
Feinberg School Medicine/Northwestern University
Chicago, Illinois

2014
“Maternal and Cord Blood Levels of Docosahexaenoic Acid (DHA) After Commercially Available Supplementation”
Steffen A. Brown, M.D.
University of New Mexico School of Medicine
Albuquerque, New Mexico

2015
“UltraSound Examinations to Improve Detection of Fetal Growth Restriction in Uncomplicated Pregnancies: A Pilot, Multi-Center Randomized Clinical Trial (USE RCT)”
Ibrahim A. Hammad, M.D.
Eastern Virginia Medical School
Norfolk, Virginia

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DR. JACK A. PRITCHARD MEMORIAL PAPER

2016
“Racial/Ethnic Disparity in Magnesium Sulfate Adverse Effects: A Sub-Group Analysis of a Multicenter Randomized Controlled Trial”
Gustavo Vilchez, M.D.
University of Missouri - Kansas City
Kansas City, Missouri

2017
“Risk of Neonatal and Infant Mortality in Twins andSingletons by Gestational Age in the United States”
Han-Yang Chen, Ph.D.
The University of Texas Health Science Center
Houston, Texas

2018
“Persistence and Extent of Neonatal Brachial Plexus Palsy: Association with Number of Maneuvers and Duration of Shoulder Dystocia”
Morgen S. Doty, D.O.
University of Texas Health Science Center
Houston, Texas

2019
“Adverse Outcomes Among Low-Risk Pregnancies at 39 to 41 Weeks: Stratified by Fetal Growth “
Hector Mendez-Figueroa, M.D.
Baylor College of Medicine
Houston, Texas
Dr. Kermit Krantz was the world-renowned forefather of urogynecology and pelvic reconstructive surgery who is best known as the co-developer of the Marshall-Marchetti-Krantz (MMK) procedure for urinary stress incontinence. Trained as an anatomist, Dr. Krantz also invented the expandable women’s tampon still used today. An identical twin who was orphaned by age 13, Kermit Krantz spent 31 years as Chairman of Ob-Gyn at The University of Kansas Medical Center in Kansas City where he championed patient rights above all else. At the University Hospital he is credited with desegregating labor, delivery and the nursery. A brilliant diagnostician and devoted researcher who is fondly remembered for his irrepresible personality, Dr. Krantz was equally esteemed by the clinicians he trained and the countless patients he cared for.
DR. KERMIT E. KRANTZ MEMORIAL PAPER

2008
“Glycine Absorption in Operative Hysteroscopy: The Impact of Anesthesia.”
Marie-Eve Bergeron, M.D.
Centre Hospitalier Universitaire de Quebec
Quebec, Canada

2009
William J. Todia, M.D.
MetroHealth/Case Western Reserve University
Cleveland, Ohio

2010
“Resolution of Chronic Pelvic Pain After Hysterectomy and Alternative Treatments: Does Depression Make a Difference?”
Lee A. Learman, M.D., Ph.D.
Indiana University School of Medicine
Indianapolis, Indiana

2011
“Cervical Cancer Screening in the United States 1993-2010: Characteristics of Women Who are Never Screened”
Suneet P. Chauhan, M.D.
Eastern Virginia Medical School
Norfolk, Virginia

2012
“Burnout Among the Alumni from the University of Kansas Obstetrics and Gynecology Residency Programs”
Kimberly A. Brey, M.D.
University of Kansas School of Medicine
Kansas City, Kansas
DR. KERMIT E. KRANTZ
MEMORIAL PAPER

2013
“Cervical Cytology and Histology in Women Following Solid Organ Transplant, A Longitudinal Cohort”
Margaret E. Long, M.D.
Mayo Clinic
Rochester, Minnesota

2014
“Evaluation of Ethics Education in Obstetrics & Gynecology Residency Programs: A Survey of Ob/Gyn Residency Program Directors”
John J. Byrne, M.D., MPH
University of Chicago
Chicago, Illinois

2015
“Molecular Evaluation of Fetal and Newborn Skeletal Dysplasia: Applying Next Generation Sequencing (NGS) to Providing Accurate Diagnostic Information”
Lee P. Shulman, M.D.
Feinberg School of Medicine/ Northwestern University
Chicago, Illinois

2016
“Correlates of Long-Acting Reversible Contraception versus Sterilization Use in Advanced Maternal Age”
Shelby N. Apodaca, M.D.
Texas Tech University - El Paso
El Paso, Texas

2017
“Randomized Clinical Trial: Diathermy versus Scalpel in Abdominal Wall Incisions During Repeat Cesarean Delivery”
Martin J. Caliendo, M.D.
Women and Children's Hosp. of Buffalo
Buffalo, New York
2018
“How Long is Too Long? Intraoperative Time Intervals and Umbilical Artery pH Depression at Scheduled Cesarean”
Rebecca R. Rimsza, M.D.
Saint Louis University School of Medicine
St. Louis, Missouri

2019
“Increasing Selection of Preconception Expanded Carrier Screening and Its Impact on Preimplantation Genetic Diagnosis (PGT-M)”
Lee P. Shulman, M.D.
Feinberg School of Medicine
Chicago, Illinois
Dr. Bryan D. Cowan
FAR (Fellows and Residents)
Research Network Award

INAUGURATED 2012
Suneet P. Chauhan, M.D., P.I.

BRYAN D. COWAN, M.D.
(1949 – 2011)

Dr. Bryan Cowan was President of the Central Association of Obstetricians and Gynecologists at its 75th Annual Meeting in 2008. His distinguished career in reproductive endocrinology culminated as Chair of the Department of Obstetrics and Gynecology at the University of Mississippi Medical Center in Jackson. A lifelong dedication to mentoring and scholarship instilled a respect for research in all the residents and fellows he trained. Following Dr. Cowan’s premature death, the CAOG and his wife, Dr. Harriette Hampton, have jointly established this research network to honor his legacy and to encourage future women’s health care research.
Dr. Bryan D. Cowan
FAR (Fellows and Residents)
Research Network Award

2012
“Neonatal Brachial Plexus Palsy with Vaginal Birth After Cesarean: A Case Control Study”
Ibrahim A.I. Hammad, M.D.
Eastern Virginia Medical School
Norfolk, Virginia

2013
"Shoulder Dystocia is Strongly Associated With a Large Fetal Abdominal-Head Circumference Size Difference”
Theresa M. Conyac, M.D.
NorthShore University HealthSystem
Evanston, Illinois

2014
“Tocolysis in Patients with Advanced Preterm Labor: A Randomized Clinical Trail”
Ann R. Tucker, M.S.
University Mississippi Medical Center
Jackson, Mississippi

2015
“Use of Scoring Systems to Predict Prolonged Hospitalization and Severity of Acute Pyelonephritis in Pregnancy”
Amy M. Valent, D.O.
University of Cincinnati
Cincinnati, Ohio

2016
“Histologic Chorioamnionitis with Funisitis and Likelihood of Suspected Triple I at Term: A Case-Control Study”
Morgen S. Doty, D.O.
Saint Peter's University Hospital
New Brunswick, New Jersey
Dr. Bryan D. Cowan
FAR (Fellows and Residents) Research Network Award

2017 and 2018
No Candidate Research Papers

2019
“Cesarean Section Does Not Improve Survival Outcomes Less Than 25 Weeks Gestational Age”

Tiffany R. Tonismae, M.D.
Indiana University School of Medicine
Indianapolis, Indiana
Central Poster Awards

2005

“Variation in Expression of VEGF and VEGF Receptors in Ovarian Cancer Cell Lines”
Lisa M. Little, M.D.
Southern Illinois University School of Medicine
Springfield, Illinois

“Inquiry Into Shoulder Pain Following Laparoscopy”
David J. Mitchell, M.D.
Aultman Health Foundation
Canton, Ohio

2006

“The Impact of Combined Antibiotic Prophylaxis in Twin Pregnancies Complicated by Preterm Premature Rupture of Membranes”
Amy Farrell, M.D.
St. Louis University School of Medicine
St. Louis, Missouri

“Findings in Patients With an HCG Below 2000 mIU/ml Undergoing D&C to Exclude Ectopic Pregnancy”
Gary H. Lipscomb, M.D.
University of Tennessee Health Science Center
Memphis, Tennessee

2007

“The Impact of Maternal Obesity on Satisfactory Detailed Anatomic Ultrasound Image Acquisition”
Fadi R. Khoury, M.D.
CASE-MetroHealth Medical Center
Cleveland, Ohio

“Thrombotic Thrombocytopenic Purpura (TTP) in the Pregnant or Puerperal Patient 1955-2006: Primary of Recurrent Disease Sometimes Associated with Preeclampsia/HELLP Syndrome”
James N. Martin, Jr., M.D.
University of Mississippi Medical Center
Jackson, Mississippi

201
Central Poster Awards

2008

“The Neonatologist in Alleged Perinatal Asphyxia: The Obstetrician’s Best Friend”
Jonathan K. Muraskas, M.D.
Loyola University Medical Center
Maywood, Illinois

“Utilization of Delayed Umbilical Cord Clamping Among SMFM Membership”
Jessica L. Nyholm, M.D.
University of Minnesota
Minneapolis, Minnesota

2009

Non-Gynecologic Disease Detected at the Time of Gynecologic Surgery: A Continuing Diagnostic Challenge”
Allan A. Adajar, M.D.
St. Francis Hospital
Evanston, Illinois

"Early Return of Bowel Function After Gynecologic Surgery Using Chewing Gum”
James M. Clark, M.D.
Aultman Health Foundation
Canton, Ohio

"Vaginal Cleansing Before Cesarean Delivery to Reduce Postoperative Infectious Morbidities: A Randomized Controlled Trial”
David M. Haas, M.D.
Indiana University School of Medicine
Indianapolis, Indiana

"Fetal Gastroschisis: Epidemiological Characteristics and Maternal-Fetal Outcomes”
Kiran B. Tam Tam, M.D.
University of Mississippi Medical Center
Jackson, Mississippi

202
Outcomes Study: A Prospective/Observational Study of 2,331 Pubic Bone Stabilization Sling Procedures for Stress Urinary Incontinence. Is This Procedure Equal to other Anti-Incontinent Procedures?

Stephen H. Cruikshank, M.D.
West Va. Univ. School of Med. (Charleston Campus)
Charleston, West Virginia

Absence of the Fourth Ventricle in First-Trimester Fetuses: The Intracranial Translucency (IT) as a Potential Screening Tool for Fetal Neural Tube Defects in the Late First Trimester

Norman A. Ginsberg, M.D.
Feinberg School of Medicine of Northwestern University Chicago, Illinois

The Effect of Antenatal Corticosteroids on Maternal Serum Glucose Values in Women with Gestational and Pre-gestational Diabetes

Allison E. Kreiner, M.D.
Akron General Medical Center
Akron, Ohio

Unaffected Women with BRCA 1/2 Mutations and Their Use of Family History in Making Decisions Concerning Prophylactic Surgery

Carly J. Stewart, B.A.
Feinberg School of Medicine of Northwestern University Chicago, Illinois
Central Poster Awards

2011

"Diagnostic Accuracy of Saline Infusion Sonohysterography in Patients with Endometrial Polyps”

Riva N. Branch, M.D.
Advocate Illinois Masonic Medical Center
Chicago, Illinois

"Birth Attendant and Neonatal Mortality in Newborns Delivered at 37 Weeks or Later: United States, 2000-2004”

Han-Yang Chen, M.S.
Center for Urban Population Health and University of Wisconsin Madison, School of Medicine and Public Health Madison, Wisconsin

Cesarean Section and the Effect on Bladder Capacity”

Jessica Fischetti-Galvin, D.O.
Jersey Shore University Medical Center
Neptune, New Jersey

"Uterine Rupture and Perinatal Morbidity and Mortality Associated with Oxytocin Use in a Trial of Labor with a Prior Uterine Scar”

Elliot M. Levine, M.D.
Illinois Masonic Medical Center
Chicago, Illinois
Central Poster Awards

2012

“An Unusual and Rare Presentation of Problems in a Community Hospital Can Place a Patient at Significant Risk: A Report of a Ten Year Old Female with a Pelvic Mass and Pain with Subsequent Surgery, Discharge, and an Acute Abdomen Three Weeks Later”

Michael G. Flax, M.D.
University of New Mexico
Albuquerque, New Mexico

“Gestational Length: How Long is too Long?”

Norman A. Ginsberg, M.D.
Northwestern Feinberg School of Medicine
Chicago, Illinois

“What Prevents Eligible Patients from Receiving Progesterone Therapy to Prevent Recurrent Preterm Birth”

Amanda Meyer, M.D.
Advocate Lutheran General Hospital
Park Ridge, Illinois

“Outcomes of Different Routes of Hysterectomy by Uterine Weight in Overweight and Obese Patients”

Danish S. Siddiqui, M.D.
Aurora Sinai Medical Center
Milwaukee Wisconsin

205
Central Poster Awards

2013

"The Impact of Diminished Ovarian Reserve on IVF Delivery Rates"
Tamara A. Adducci, M.D.
Medical College of Wisconsin
Milwaukee, Wisconsin

“Decreasing the Abdominal Approach with Evolution of Robotic Surgery Program for Treatment of Endometrial Cancer Patients in a Community Institution”
Dana M. Benden, M.D.
Gundersen Lutheran Medical Center
La Crosse, Wisconsin

“Retained Products of Conception in Patients with a Negative Urine hCG: A Case Series Report”
Carlos Fernandez, M.D.
Advocate Illinois Masonic Medical Center
Chicago, Illinois

"Neonatal Brachial Plexus Palsy in Cesarean Section”
Gloria T. Too, M.D.
Eastern Virginia Medical School
Norfolk, Virginia
Central Poster Awards

2014

“Clinico-Pathological Findings of Hysterectomy Specimens in Women with Abnormal Uterine Bleeding: Are We Taking Full Advantage of Minimally Invasive Techniques?”

Morgan A. Morton, M.D.
University of Nebraska Medical Center
Omaha, Nebraska

“Variation in Management Strategies and Outcomes Between Sterilized and Non-Sterilized Patients with Abnormal Uterine Bleeding”

Steven J. Radtke, M.D.
Southern Illinois Univ. School of Medicine
Springfield, Illinois

“The Use of Prostaglandin E1 in Peripartum Patients with Asthma”

Megan C. Rooney Thompson, M.D.
University of Tennessee Medical Center
Knoxville, Tennessee

“Cervical Length Screening: Are Cervical Portio Measurements Acceptable for Screening?”

Melissa L. Verchio, M.D.
Aultman Hospital
Canton, Ohio
Central Poster Awards

2015

“Management of a Live Cervical Ectopic Pregnancy”
Carlos M. Fernandez, M.D.
Advocate Illinois Masonic Medical Center
Chicago, Illinois

“Diagnosing Pulmonary Embolism in Pregnancy: Are Biomarkers and Clinical Prediction Models Useful?”
Rachel Fournogerakis, M.D.
Advocate Lutheran General Hospital
Park Ridge, Illinois

“Risk Stratification and Prophylaxis of Venous Thromboembolic Events in Obstetrics and Gynecology”
Elliot M. Levine, M.D.
Advocate Illinois Masonic Medical Center
Chicago, Illinois

“Incidence of Chorioamnionitis and Risk of Neonatal Infection”
Angela D. Yates, M.D.
University of Tennessee Medical Center
Knoxville, Tennessee
Central Poster Awards

2016

“Development of a Novel Antibody-Based Assay for Simultaneous Identification of a Pathogen and Determination of its Antimicrobial Susceptibility”
Jonathan P. Faro, M.D./Ph.D.
The Woman's Hospital of Texas
Houston, Texas

“Decidualized Endometrioma of Pregnancy: A Cause for Concern”
Carlos M. Fernandez, M.D.
Illinois Masonic Medical Center
Chicago, Illinois

“Decline in Frequency of Acute PID Following Preventative Screening”
Elliot M. Levine, M.D.
Illinois Masonic Medical Center
Chicago, Illinois

“Obstetric Triage: A Model for Analysis of an Acute Care Service”
Megan L. Smith, M.D.
Aultman Hospital
Canton, Ohio
Central Poster Awards

2017

“The Effects of Volume and Timing of Blood Loss on Cefazolin Adipose Concentrations Using a Validated Physiologic Model”

Avinash S. Patil, M.D.
Valley Perinatal Services
Phoenix, Arizona

“Clinical Variance of the NTSV Metric”

Melissa Dennis, M.D.
Advocate Illinois Masonic Medical Center
Chicago, Illinois

“Radiofrequency Volumetric Thermal Ablation of Uterine Leiomyomata: Comparison with Other Methods”

Elliot M. Levine, M.D.
Advocate Illinois Masonic Medical Center
Chicago, Illinois

“Maternal Complications Associated with Periviable Delivery”

Robert M. Rossi, M.D.
University of Cincinnati College of Medicine
Cincinnati, Ohio
Central Poster Awards

2018

“Ectopic Pregnancy: Consideration of Vascularity Index as a Novel Diagnostic Criterion”
**Carlos M. Fernandez, M.D.**
Advocate Illinois Masonic Medical Center
Chicago, Illinois

“Live Intraligamentous Pregnancy at 36 Weeks”
**Francesca Popper, M.D.**
Advocate Illinois Masonic Medical Center
Chicago, Illinois

“Obstetric Model of Induction of Labor: Does Time of Labor Induction Affect Patient Satisfaction?”
**Bryant L. Johnson, D.O.**
Aultman Hospital
Canton, Ohio

**Dennis J. Lutz, M.D.**
UND School of Medicine & Health Sciences
Minot, North Dakota
Annual Meetings & Presiding Presidents

1929
St. Louis, Missouri
Washington Univ-Barnes
Palmer Findley, M.D.* (Pro Tem)

1930
Excelsior Springs, Missouri
The Elms Hotel
Palmer Findley, M.D.*

1931
Chicago, Illinois
Shoreland Hotel
Fred J. Taussig, M.D.*

1932
Memphis, Tennessee
Peabody Hotel
Rudolph W. Holmes, M.D.*

1933
Milwaukee, Wisconsin
Hotel Schroeder
Norman F. Miller, M.D.*
Percy W. Toombs, M.D.*

1934
New Orleans, Louisiana
Roosevelt Hotel
Everett D. Plass, M.D.*

1935
Omaha, Nebraska
Fontenelle Hotel
Willard R Cooke, M.D.*

1936
Detroit, Michigan
Hotel Statler
Buford G. Hamilton, M.D.*

1937
Dallas, Texas
Adolphus Hotel
Jean P. Pratt, M.D.*

*Deceased
1938
Minneapolis, Minnesota
Radisson Hotel
Robert D. Mussey, M.D. *

1939
Kansas City, Missouri
Muehlenbach Hotel
Ralph A. Reis, M.D. *

1940
Indianapolis, Indiana
Lincoln Hotel
Jennings C. Litzenberg, M.D. *

1941
New Orleans, Louisiana
Roosevelt Hotel
Thomas B. Sellers, M.D. *

1942-1945
No Meetings, World War II

1946
Chicago, Illinois
Drake Hotel
John H. Moore, M.D. *

1947
Louisville, Kentucky
Brown Hotel
Earl C. Sage, M.D. *

1948
Denver, Colorado
Shirley Savoy Hotel
William Mengert, M.D. *

1949
Oklahoma City, Oklahoma
Hall of Mirrors, Municipal Auditorium
George Kamperman, M.D. *

1950
Milwaukee, Wisconsin
Hotel Schroeder
Lawrence M. Randall, M.D. *

*Deceased
1951
Detroit, Michigan
Hotel Statler
*Russell J. Moe, M.D.*

1952
Memphis, Tennessee
Peabody Hotel
*John I. Brewer, M.D.*

1953
Houston, Texas
Shamrock Hotel
*W. O. Johnson, M.D.*

1954
St. Louis, Missouri
Jefferson Hotel
*Harold C. Mack, M.D.*

1955
Columbus, Missouri
Deshler-Hilton
*Frank L. McPhail, M.D.*

1956
New Orleans, Louisiana
Roosevelt Hotel
*Harold L. Gainey, M.D.*

1957
Omaha, Nebraska
Sheraton-Fontanelle
*Arthur B. Hunt, M.D.*

1958
Minneapolis, Minnesota
Leamington Hotel
*Herbert E. Schmitz, M.D.*

1959
Chicago, Illinois
Drake Hotel
*Axel N. Arneson, M.D.*

*Deceased
1960
Kansas City, Missouri
Muehlenbach Hotel
*Isadore Dyer, M.D.*

1961
Cleveland, Ohio
Statler-Hilton
*Edwin J. DeCosta, M.D.*

1962
Dallas, Texas
Sheraton-Dallas
*Richard D. Bryant, M.D.*

1963
Denver, Colorado
Denver Hilton
*Zeph J.R. Hollenbeck, M.D.*

1964
Milwaukee, Wisconsin
Schroeder Hotel
*Kenneth E. Cox, M.D.*

1965
Cincinnati, Ohio
Netherland Hotel
*Herman L. Gardner, M.D.*

1966
Biloxi, Mississippi
Broadwater Beach Hotel
*William C. Keettel, M.D.*

1967
Detroit, Michigan
Sheraton-Cadillac
*C. Paul Hodgkinson, M.D.*

1968
Oklahoma City, Oklahoma
Skirvin Hotel
*C. Gordon Johnson, M.D.*

*Deceased
1969
Memphis, Tennessee
Sheraton-Peabody
Frederick J. Hofmeister, M.D.*

1970
Chicago, Illinois
Drake Hotel
George J.L. Wulff, Jr., M.D.*

1971
White Sulphur Springs, West Virginia
The Greenbrier
Thomas W. McElin, M.D.*

1972
St. Louis, Missouri
Stouffer's Riverfront Inn
James S. Krieger, M.D.*

1973
Scottsdale, Arizona
Camelback Inn/Mountain Shadows
David G. Decker, M.D.*

1974
New Orleans, Louisiana
Royal Sonesta
Russell J. Paalman, M.D.*

1975
Colorado Springs, Colorado
The Broadmoor
Brooks Ranney, M.D.*

1976
Houston, Texas
Shamrock Hilton
Raymond H. Kaufman, M.D.*

1977
Biloxi, Mississippi
Broadwater Beach Hotel
Clifford P. Goplerud, M.D.*

*Deceased
1978
Kansas City, Missouri
Crown Center
*William B. Goddard, M.D.*

1979
White Sulphur Springs, West Virginia
The Greenbrier
*John B. Nettles, M.D.*

1980
Minneapolis, Minnesota
Radisson South
*Tommy N. Evans, M.D.*

1981
Scottsdale, Arizona
Camelback Inn/Mountain Shadows
*David G. Anderson, M.D.*

1982
San Antonio, Texas
Hilton Palacio Del Rio
*Warren H. Pearse, M.D.*

1983
Colorado Springs, Colorado
The Broadmoor
*Sam P. Patterson, M.D.*

1984
Detroit, Michigan
Westin Renaissance Center
*Kenneth J. Vander Kolk, M.D.*

1985
New Orleans, Louisiana
Fairmont Hotel
*George D. Malkasian, Jr., M.D.*

1986
Milwaukee, Wisconsin
Hyatt Regency
*Joseph C. Scott, Jr., M.D.*

*Deceased
1987
Tarpon Springs, Florida
Innisbrook
Stacy R. Stephens, M.D.

1988
Salt Lake City, Utah
Marriott Hotel
Preston V. Dilts, Jr., M.D.

1989
Scottsdale, Arizona
Camelback Inn/Mountain Shadows
James H. Maxwell, M.D.*

1990
Louisville, Kentucky
The Galt House
L. Russell Malinak, M.D.

1991
Colorado Springs, Colorado
The Broadmoor
James P. Youngblood, M.D.*

1992
Chicago, Illinois
Westin Hotel
John J. Sciarra, M.D., PhD

1993
White Sulphur Springs, West Virginia
The Greenbrier
William R. Anderson, M.D.

1994
Memphis, Tennessee
Peabody Hotel
Bruce H. Drukker, M.D.

1995
Palm Desert, California
Marriott's Desert Springs
Melvin V. Gerbie, M.D.

*Deceased
1996
Houston, Texas
Lincoln Post Oak
James G. Blythe, M.D.

1997
Scottsdale, Arizona
The Scottsdale Princess
Karl C. Podratz, M.D., PhD

1998
Kansas City, Missouri
Westin Crown Center
Washington C. Hill, M.D.

1999
Maui, Hawaii
Ritz Carlton Kapalua
John C. Morrison, M.D.*

2000
Chicago, Illinois
Fairmont Hotel
Robert J. Sokol, M.D.

2001
No Meeting – Cancelled After 9/11

2002
Las Vegas, Nevada
Bally's Hotel & Casino
Paul G. Tomich, M.D.

2003
La Jolla, California
Torrey Pines - Hilton
Sherman Elias, M.D.*

2004
Washington, D.C.
Omni Shoreham Hotel
Abbey B. Berenson, M.D.

*Deceased
2005
Scottsdale, Arizona
Camelback Inn Resort
Stephen H. Cruikshank, M.D.

2006
Las Vegas, Nevada
The Venetian Resort
Jerry J. St. Pierre, M.D.

2007
Chicago, Illinois
The Drake Hotel
Mark I. Evans, M.D.

2008
New Orleans, Louisiana
The Ritz Carlton
Bryan D. Cowan, M.D.*

2009
Maui, Hawaii
The Grand Wailea
Dennis J. Lutz, M.D.

2010
Las Vegas, Nevada
The Venetian Resort
Christine H. Comstock, M.D.

2011
Nassau, Bahamas
The Atlantis Resort
Gayle L. Olson, M.D.

2012
Chicago, Illinois
The Drake Hotel
John W. Calkins, M.D.

2013
Napa, California
The Meritage Resort
Stephen J. Fortunato, M.D.

*Deceased
2014
Albuquerque, New Mexico
The Tamaya Resort
*Kirk D. Ramin, M.D.*

2015
Charleston, South Carolina
Charleston Marriott
*Barbara V. Parilla, M.D.*

2016
Las Vegas, Nevada
The Venetian Resort
*Roger P. Smith, M.D.*

2017
Scottsdale, Arizona
Scottsdale Plaza Resort
*David F. Lewis, M.D.*

2018
Minneapolis, Minnesota
Radisson Blu Mall of America
*Lee P. Shulman, M.D.*

2019
Cancun, Mexico
Pyramid at The Grand Oasis
*Vanessa M. Barnabei, M.D., Ph.D.*
Keynote Speaker

2005
“Aging is Everybody’s Business”
Suzanne R. Kunkel, Ph.D.
Oxford, Ohio

2006
“Ethnobotany: The Quest for New Cures”
Paul A. Cox, Ph.D.
Provo, Utah

2007
“Government and Politics in Women’s Healthcare”
Ruth S. Hanft, Ph.D.
Washington, D.C.

2008
No Designated Keynote Speaker

2009
“The Future of Women’s Health Care: I Once Was A Doctor”
Norman F. Gant, Jr., M.D.
Dallas, Texas

2010
“Counseling Patients for Cardiovascular Risk”
Barry A. Franklin, Ph.D.
William Beaumont Hospital Health Center
Royal Oak, Michigan

2011
“Obstetrical Trials that Changed Clinical Practice”
Catherine Y. Spong, M.D.
Bethesda, Maryland

2012
“Healthcare Disparities for Women Worldwide: Report from a Year as Jefferson Fellow”
Douglas W. Laube, M.D.
University of Wisconsin Medical School
Madison, Wisconsin

222
Keynote Speaker

2013
“Putting the ‘M’ Back in Maternal Fetal Medicine”
Larry C. Gilstrap, III, M.D.
American Board Ob-Gyn
Dallas, Texas

2014
“Future Changes in the Practice of Obstetrics and Gynecology”
William F. Rayburn, M.D.
University of New Mexico
Albuquerque, New Mexico

2015
“Cancer Survivorship: Navigating the Aftermath”
Sigrun Hallmeyer, M.D.
Oncology Specialists, SC
Park Ridge, Illinois

2016
“The Second Victim”
Patrice M. Weiss, M.D.
Virginia Tech Carilion School Medicine
Roanoke, Virginia

2017
“The New Labor Guidelines: Better or Not?”
Thomas J. Garite M.D.
E.J. Quilligan Professor Emeritus
University of California, Irvine
Littleton, Colorado

2018
“50 Years of Progress in Ob-Gyn Genetic Testing”
Joe Leigh Simpson, M.D.
Florida International Univ. College Med.
Miami, Florida
Keynote Speaker

2019
“Global Women’s Health Challenges”
John J. Sciarra, M.D., Ph.D.
Northwestern University
Chicago, Illinois
CAOG VISIONARY AWARD

Inaugurated in 2007 to recognize visionary leadership and “game changing” contributions which have fundamentally altered both the structure and the stature of the Central Association of Obstetricians & Gynecologists. By its very definition this award is bestowed infrequently with great admiration for exceptional dedication and service.

RECIPIENTS

Karl C. Podratz, M.D., Ph.D.
Awarded 2007
“As President in 1997 his vision introduced the CAOG to a professional management model as institutional support waned and he also promoted the current election process for officers and trustees.”

Mark I. Evans, M.D.
Awarded 2009
“As President in 2007 his vision championed both academic and community excellence which translated into and promoted the vigorous clinically oriented portion of the scientific program enjoyed annually.”

Dennis J. Lutz, M.D.
Awarded 2015
“As CAOG Managing Director since 2005 and as President in 2009 his vision firmly established today’s financial viability and operational templates while his prodigious corporate memory instilled an enduring legacy of tradition, academic rigor & collegiality.”
CAOG VISIONARY AWARD (cont)

Barbara V. Parilla, M.D.
Awarded 2018

“As President in 2015 and Vice President and Trustee before that, her vision and unwaivering leadership actively promoted mentoring and role modeling as essential to optimal training in the speciality of obstetrics, gynecology and women’s health care.”
“PTO Endowment Fund”

In 1994 the CAOG established the PTO Fund (Presidents-Trustees-Officers) and solicited voluntary contributions from all past presidents, past board members and past officers to supplement the operating funds. Since 1999 the serving officers and board members have also been annually asked to each contribute generously so the Fund continued to grow.

In 2005 the Board created a permanent “PTO Endowment Fund” with interest income providing stipends for the annual scientific awards. Donations are annually solicited to continue to grow that fund. All contributors are recognized in both the quarterly CAOG Newsletter and the Annual Program Book. Thanks again to these 2018 special supporters.

2019 PTO Fund Contributors

Karolina Adam, M.D.
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Lester A. Ballard, Jr., M.D.
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Joe E. Belew, M.D.
Dana M. Benden, M.D.
John W. Calkins, M.D.
Allan G. Charles, M.D.
Suneet P. Chauhan, M.D.
John W. Chisholm, M.D.
Christine H. Comstock, M.D.
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Location to be Announced
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