



COLUMBIA

OBSTETRICS AND
GYNECOLOGY

The Department of Obstetrics and
Gynecology
presents our

Annual Sloane Academic Assembly

2020 PGY-3 Residents and Graduating Fellows

Faculty

Chair	Mary E. D'Alton, MD
Program Director	Rini B. Ratan, MD
Associate Program Director	Richard Berkowitz, MD

Division Chiefs

<i>General Obstetrics and Gynecology</i>	Katarina Eisinger, MD
<i>Maternal-Fetal Medicine</i>	Lynn Simpson, MD
<i>Family Planning and Preventive Services</i>	Carolyn Westhoff, MD
<i>Reproductive Endocrinology and Infertility</i>	Zev Williams, MD, PhD
<i>Gynecologic Oncology</i>	Jason D. Wright, MD
<i>Gynecologic Specialty Surgery</i>	Arnold P. Advincula, MD
<i>Allen Hospital</i>	Anita Holman, MD
<i>Hudson Valley Hospital</i>	Meera Garcia, MD
<i>Lawrence Hospital</i>	Anna Burgansky, MD

Fellowship Directors

<i>Maternal-Fetal Medicine</i>	Cynthia Gyamfi-Bannerman, MD
<i>Family Planning and Preventive Services</i>	Anne Davis, MD
<i>Reproductive Endocrinology and Infertility</i>	Roger Lobo, MD
<i>Gynecologic Oncology</i>	Jason D. Wright, MD
<i>Minimally Invasive Gynecologic Surgery</i>	Jeannie Kim, MD

Session 1

7:30am Welcome and Introduction
Mary E. D'Alton, MD, Willard C. Rappleye Professor of Obstetrics and Gynecology and Chair, Department of Obstetrics & Gynecology

Resident Presentations

7:35am Introduction
Rini B. Ratan, MD, Residency Program Director
Richard L. Berkowitz, MD, Associate Residency Program Director

7:40am *Telehealth Uptake into Prenatal Care and Provider Attitudes During Covid-19 Pandemic in New York City: A Quantitative and Qualitative Analysis*
Presenter: Nigel Madden, MD | **Preceptors:** Cynthia Gyamfi-Bannerman, MD, MSc; Alex Friedman, MD

7:55am *Using Machine Learning to Create Prognostic Systems for Endometrial Cancer*
Presenter: Aaron Praiss, MD | **Preceptor:** Jason D. Wright MD

8:10am *Trends in Use and Effect on Survival of Simple Hysterectomy for Early-Stage Cervical Cancer*
Presenter: Tiffany Sia, MD | **Preceptors:** Jason D. Wright, MD

8:25am *Barriers to Timely Surgical Management and Risk of Oophorectomy for Ovarian Torsion in a National Sample*
Presenter: Emily Spurlin, MD | **Preceptor:** Eric Forman, MD

8:40am *Shared Decision Making: OB/GYN Resident Teaching Model for Second Trimester Abortions*
Presenter: Conrad Stern-Ascher, MD | **Preceptor:** Rini B. Ratan, MD; Jennifer Kerns, MD

8:55am *Postpartum Cardiac Readmissions among Women without a Cardiac Diagnosis at Delivery*
Presenter: Sbaa Syeda, MD | **Preceptor:** Cynthia Gyamfi-Bannerman, MD; Alex Friedman, MD

Reproductive Endocrinology and Infertility Fellow Presentation

9:10am Introduction
Roger Lobo, MD, Fellowship Director, Division of Reproductive Endocrinology & Infertility

9:15am *Mitotic DNA Breakage in the Human Preimplantation Embryo*
Presenter: Selma Amrane, MD | **Preceptors:** Dieter Egli, PhD

Family Planning Fellow Presentation

9:30am Introduction
Carolyn Westhoff, MD, MSc, Chief, Division of Family Planning & Preventive Services

9:35am *Auricular Acupressure and Acupuncture as an Adjunct for Pain Management during First Trimester Abortion: A Randomized, Double-Blinded, Three Arm Trial*
Presenter: Johana Oviedo, MD | **Preceptor:** Melanie A. Gold, DO, DABMA, DMQ ; Carolyn L. Westhoff, MD, MSc

Session 2

Gynecologic Oncology Fellow Presentation

- 9:50am** | Introduction
Jason Wright, MD, Chief, Division of Gynecologic Oncology
- 9:55am** | *Outcomes of Hysterectomy Performed by Very Low-Volume Surgeons*
Presenter: Maria Ruiz, DO, MS | **Preceptor:** Jason D. Wright, MD

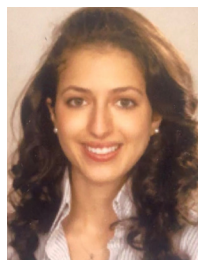
Maternal-Fetal Medicine Fellows Presentations

- 10:10am** | Introduction
Cynthia Gyamfi-Bannerman, MD, MSc, Fellowship Director, Division of Maternal-Fetal Medicine
- 10:15am** | *Maternal Outcomes by Race During Postpartum Readmissions*
Presenter: Aleha Aziz, MD | **Preceptor:** Alex Friedman, MD
- 10:30am** | *Remote Postpartum Blood Pressure Surveillance for Hypertensive Disorders of Pregnancy: A Randomized Clinical Trial*
Presenter: Jessica Spiegelman, MD | **Preceptors:** Leslie Moroz, MD

Minimally Invasive Gynecologic Surgery Fellow Presentation

- 10:45am** | Introduction
Arnold P. Advincula, MD, Chief, Division of Gynecologic Specialty Surgery
- 10:50am** | *Comparing Surgical Experience and Skill Using a High-Fidelity Total Laparoscopic Hysterectomy Model*
Presenter: Chetna Arora, MD | **Preceptors:** Arnold P. Advincula, MD; Jeannie Kim, MD

Selma Amrane, MD



Selma Amrane was born in Washington, D.C. and raised in Bethesda, Maryland. She initiated her relationship with New York City at the time of her undergraduate schooling, which she obtained at New York University. She then returned to Maryland to obtain her medical degree at the University of Maryland School of Medicine. She was thrilled to return for residency in Obstetrics and Gynecology at New York Presbyterian – Cornell. While a resident, Dr Amrane solidified a preexisting interest in Reproductive Endocrinology and Infertility. During REI fellowship at New York Presbyterian – Columbia, she has developed an interest in the genetics of the human preimplantation embryo, which she has studied for her thesis work. Fellowship has

been a dream come true for Dr. Amrane, and she will very much miss the mentors and attendings who have taught her so much. Following graduation, she will be moving back to Maryland to join Shady Grove Fertility, a large “privademic” practice.

Mitotic DNA Breakage in the Human Preimplantation Embryo

Mentor: Dietrich Egli

Authors: Selma Amrane, Alejandro de los Angeles, Timour Baslan, Sara Goodwin, Dietrich Egli

Background: Mitotic errors in the human preimplantation embryo are poorly understood, especially when compared to meiotic errors in gametes. However, they likely contribute to a lower embryo implantation potential, which may be especially relevant in those women who generate few embryos.

Materials/Methods: Donated cleavage stage embryos, or embryos created by ICSI (intracytoplasmic sperm injection) with donor sperm or activation of donor oocytes, were analyzed. Embryos generated from donor oocytes were allowed to arrest spontaneously in standard culture, or taken out of culture and analyzed at the blastocyst stage. A subset of embryos were treated with aphidicolin to induce DNA breakage at timepoints late in DNA replication. Individual embryo cells or nuclei were isolated. Genome amplification and library preparation were performed, followed by next generation sequencing and bioinformatic analysis of sequencing data to generate chromosome plots. Break points on chromosome plots were annotated and analyzed using the UCSC genome browser. Break points were assessed for recurrence within the same embryo, and between embryos.

Results: Next generation sequencing was performed on 169 samples from 21 cleavage stage embryos and 58 samples from aphidicolin-treated parthenogenetic samples. Samples included whole cells and individually isolated nuclei, including micronuclei. Segmental errors were the most common error in micronuclei and thawed blastomeres, whereas aphidicolin-treated zygotes most commonly featured whole chromosome errors. Recurrent break points were found on all chromosomes except 19 and 22, and more common on larger chromosomes. Break points induced by treatment of aphidicolin late in DNA replication were found to overlap with recurrent break points. Recurrent break points occurred in gene poor regions (44/48 recurrent break points, 91.7%), and involved genes implicated in neurodevelopmental disease, including autism, attention deficit hyperactivity disorder, and schizophrenia (29/48 recurrent break points, 60.4%). Centromeres were also commonly involved in breakage (13/48 break points, 27.1%).

Conclusions: The pattern of occurrence of mitotic errors in the human preimplantation embryo is distinct from that of meiotic errors, highlighting a different pathophysiology. Mitotic errors in gene-poor, late-replicating areas of the genome, and may be implicated in disease states, such as viable Turner syndrome and neurodevelopmental disease.

Chetna Arora, MD



Chetna Arora was born in Akron, Ohio and completed her Bachelor's and Medical Degree in an accelerated and combined six-year program at the University of Missouri-Kansas City School of Medicine. She then completed her residency at Mayo Clinic in Rochester, MN. She fell in love with Ob-Gyn immediately. It was not long after she got a taste of benign gyn surgery that she knew MIGS was the perfect fit for her. She will be starting on as GSS faculty here at Columbia University and recently became a new mom to a beautiful baby boy.

Comparing Surgical Experience and Skill Using a High-Fidelity Total Laparoscopic Hysterectomy Model

Mentors: Arnold P. Advincula, Jin Hee Kim

Authors: Chetna Arora, MD, Anya Menzies, MD, Esther S. Han, MD, Minyi Lee, BS, Jacob K. Lauer, MD, Hye-Chun Hur, MD, Jin Hee Kim, MD, Arnold P. Advincula, MD

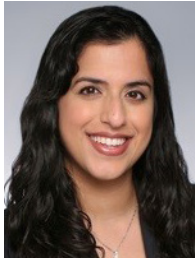
Objective: To evaluate differences in standardized scores and surgical confidence in the completion of a standardized total laparoscopic hysterectomy and bilateral salpingo-oophorectomy (TLH-BSO) among obstetrician-gynecologists (ob-gyns) with different levels of training, and to assess a TLH-BSO model for validity.

Methods: A prospective cohort study of 68 participants within four categories of ob-gyns: 1) graduating or recently graduated residents (n=18), 2) minimally invasive gynecologic surgery (MIGS) graduating or recently graduated fellows (n=16), 3) specialists in general obstetrics and gynecology (n=15), and 4) fellowship-trained minimally invasive gynecologic surgery subspecialists (n=19) completed a TLH-BSO simulation. Participants completed pre-simulation questionnaires assessing laparoscopic confidence. Participants performed a video-recorded TLH-BSO and contained specimen removal on a standardized 250-gram biologic model in a simulated operating room and completed a post-simulation questionnaire.

Results: Randomized videos were scored by blinded experts using the validated Objective Structured Assessment of Technical Skills (OSATS). The surgery was divided into 5 standardized segments: 1) adnexa, 2) dissection and pedicles, 3) colpotomy, 4) cuff closure, and 5) tissue extraction. MIGS subspecialists averaging 8.9 years in practice scored highest in all categories (overall median score 91%, [p<0.001]), followed by fellows (64%, p<0.001), specialists in obstetrics and gynecology averaging 19.7 years in practice (63%, p<0.001), and residents (56%, p<0.001). Residents, fellows and specialists in obstetrics and gynecology were comparable overall. Fellows scored higher on cuff closure (63% vs. 50%, p<0.03) and tissue extraction (77% vs. 60%, p<0.009) compared to specialists in obstetrics and gynecology. MIGS subspecialists were fastest overall and on each individual component. Residents were slowest in almost all categories.

Conclusions: When performing a TLH-BSO of a standardized 250g uterus on a simulation model, fellowship-trained MIGS subspecialists achieved higher OSATS in all areas and completed all components faster. Similar performances were noted between residents, fellows, and specialists in obstetrics and gynecology in practice an average of 19.7 years.

Aleha Aziz, MD



Aleha Aziz was born in Toronto, Ontario, Canada and completed her undergraduate degree in music and international relations at Williams College. She completed a public health qualitative research internship in rural Gujarat, India for a year and then moved to New York City for medical school at Mount Sinai School of Medicine. With the exception of a brief stint in Boston at the Harvard School of Public Health for her MPH in Global Health & Populations, she has remained in New York, completing residency at Albert Einstein College of Medicine and Maternal-Fetal Medicine fellowship at Columbia.

Maternal Outcomes by Race During Postpartum Readmissions

Mentor: Alexander Friedman

Authors: Aleha Aziz, Cynthia Gyamfi-Bannerman, Zainab Siddiq, Jason Wright, Dena Goffman, Jean-Ju Sheen, Mary D'Alton, Alexander Friedman

Background: Maternal race may be an important risk factor for postpartum readmissions and associated adverse outcomes. The objective of this study was to determine the association of race with serious complications during postpartum readmissions.

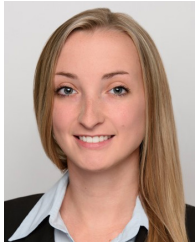
Methods: This repeated cross-sectional analysis used the National (Nationwide) Inpatient Sample from the Healthcare Cost and Utilization Project from 2012 to 2014. Women ages 15 - 54 readmitted postpartum after a delivery hospitalization were identified by Centers for Disease Control and Prevention criteria. Race and ethnicity were characterized as non-Hispanic white, non-Hispanic black, Hispanic, Asian or Pacific islander, Native American, other, and unknown. Overall risk for readmission by race was determined. Risk for severe maternal morbidity during readmissions by race was analyzed. Individual outcomes including pulmonary edema/acute heart failure and stroke also were analyzed by race. Log-linear regression models including demographics, hospital factors, and comorbid risk were used to analyze risk for severe maternal morbidity during postpartum readmissions.

Results: Of 11.3 million births, 207,730 (1.8%) women admitted postpartum from 2012 to 2014 were analyzed, including 96,670 white, 47,015 black, and 33,410 Hispanic women. Compared with non-His-

panic white women, non-Hispanic black women were at 80% greater risk of postpartum readmission (95% confidence interval, 79% - 82%) whereas Hispanic women were at 11% lower risk of readmission (95% confidence interval, 10% - 12%). In unadjusted analysis, compared with non-Hispanic white women, non-Hispanic black women admitted postpartum were at 27% greater risk of severe maternal morbidity (95% confidence interval, 24% - 30%) whereas Hispanic women were at 10% lower risk (95% confidence interval, 7% - 13%). In the adjusted model, non-Hispanic black women were at 16% greater risk for severe maternal morbidity during readmission than non-Hispanic white women (95% confidence interval, 10% - 22%), whereas Hispanic women were at 7% lower risk (95% confidence interval, 1% - 12%). Differences in severe maternal morbidity risk between other racial groups and non-Hispanic white women were not significant. In addition to overall morbidity, non-Hispanic black women were at significantly greater risk for eclampsia, acute respiratory distress syndrome, and renal failure than other racial groups ($P < .05$ all). Black women were at 126% greater risk for pulmonary edema/acute heart failure than white women (95% confidence interval, 117% - 136%).

Conclusions: Black women were more likely (1) to be readmitted postpartum, (2) to suffer severe maternal morbidity during readmission, and (3) to suffer life threatening complications such as pulmonary edema/acute heart failure. At-risk women including black women with cardiovascular risk factors may benefit from short-term postpartum follow-up.

Nigel Madden, MD



Nigel Madden was born in Troy, NY and completed her undergraduate degrees in biology and psychology at the George Washington University. She then moved to New York City to complete her medical school training at the New York University School of Medicine and remained in New York City where she continues to work to complete her residency-training program in OB/GYN at the Columbia University Irving Medical Center. Throughout her residency training, she has come to love high-risk obstetrics and has applied to fellowship in Maternal-Fetal Medicine.

Telehealth uptake into prenatal care and provider attitudes during the COVID-19 pandemic in New York City: a quantitative and qualitative analysis

Mentors: Cynthia Gyamfi-Bannerman, Alexander Friedman

Authors: Nigel Madden, Ukachi Emeruwa, Alexander Friedman, Janice Aubey, Aleha Aziz, Caitlin Baptiste, Jaclyn Coletta, Mary D'Alton, Karin Fuchs, Dena Goffman, Cynthia Gyamfi-Bannerman, Sneha Kondragunta, Nicole Krenitsky, Russell Miller, Chia-Ling Nhan-Chang, Ashanda Saint Jean, Hemangi Shukla, Lynn Simpson, Erica Spiegel, Hope Yates, Noelia Zork, Samsiya Ona

Objectives: To (i) determine to what degree prenatal care was able to be transitioned to telehealth at prenatal practices associated with two affiliated hospitals in New York City during the COVID-19 pandemic and (ii) describe providers' experience with this transition.

Methods: Trends in whether prenatal care visits were conducted in-person or via telehealth were analyzed by week for a five-week period from March 9 to April 12 at Columbia University Irving Medical Center (CUIMC)-affiliated prenatal practices in New York City during the COVID-19 pandemic. Visits were analyzed for maternal-fetal medicine (MFM) and general obstetrical faculty practices as well as a clinic system serving patients with public insurance. The proportion of visits that were conducted by telehealth was analyzed by visit type by week. A survey and semi-structured interviews of

providers were conducted evaluating resources and obstacles in the uptake of telehealth.

Results: During the study period there were 4,248 visits, of which approximately one-third were performed by telehealth (n=1,352, 31.8%). By the fifth week, 56.1% of generalist visits, 61.5% of MFM visits, and 41.5% of clinic visits were performed via telehealth. Thirty-six providers completed surveys and 11 were interviewed. Accessing technology and performing visits, documentation, and follow-up using the telehealth electronic medical record were all viewed favorably by providers. In transitioning to telehealth, operational challenges were more significant for the public clinics than for MFM and generalist faculty practices with patients receiving public insurance experiencing greater difficulties and barriers to care. Additional resources on the patient and operational level were required to optimize attendance at in-person and video visits for clinic patients.

Conclusions: Telehealth was rapidly implemented in the setting of the COVID-19 pandemic and was viewed favorably by providers. Limited barriers to care were observed for practices serving patients with commercial insurance. However, to optimize access for patients with public insurance, additional patient-level and operational support was required.

Johana D. Oviedo, MD, MPH



Johana Oviedo was born in Barranquilla, Colombia and moved to Miami, Florida when she was 9 years old. She completed her undergraduate degree in Biology and Community Health at Tufts University. She completed medical school at Stanford University. Between her 2nd and 3rd year of medical school, she completed her Master of Public Health at Columbia University's Mailman School of Public Health. She returned to NYC to complete her residency at New York University. Dr. Oviedo has had an interest in women's health and reproductive rights since a very young age and naturally gravitated towards OB/GYN and subsequently Family Planning. Dr. Oviedo will be joining the faculty at NYU/Bellevue Hospital this summer.

Auricular acupressure and acupuncture as an adjunct for pain management during first trimester abortion: a randomized, double-blinded, three arm trial

Mentors: Carolyn Westhoff, Melanie Gold

Authors: Johana Oviedo, Emma Marquez, Melanie Gold, Carolyn Westhoff

Background: Adequate pain management is essential in the provision of safe and high-quality abortion care and the National Academy of Medicine highlighted the existing need for optimizing pain management during aspiration procedures. Many first trimester vacuum aspirations are performed with a paracervical block (PCB) and non-steroidal anti-inflammatory drugs (NSAIDs) because moderate sedation and general anesthesia may be too expensive or not readily available. Other pharmacologic agents have not been shown to improve pain management. A prior study showed that auricular acupuncture, as an adjunct to PCB and ibuprofen lowered pain and anxiety scores during first trimester vacuum aspiration. Acupuncture, however, is greatly regulated in many states. Therefore, acupressure may be a useful alternative.

Methods: This randomized, double-blinded, three-arm trial enrolled patients undergoing aspiration for spontaneous or induced abortion. Trial participants received auricular acupressure, auricular acupuncture, or placebo immediately prior to their procedures. The study started with 1:1:1 randomization, but later overenrolled into the acupressure group after providing retraining

for greater fidelity to that intervention. All participants received ibuprofen and paracervical block. Participants reported pain via visual analog scores. Our primary analysis compared pain scores of those receiving acupressure versus placebo. Secondarily, we compared pain scores of participants receiving acupuncture versus placebo. Finally, we compared anxiety scores across groups.

Results: We randomized 177 participants over nine months, and analyzed 70 participants who received acupressure, 51 who received acupuncture, and 52 who received placebo. The groups had similar baseline characteristics, including baseline pain and anxiety. For acupressure, acupuncture, and placebo groups, respectively, median post-procedure pain scores were 50, 55, 47.50; median maximum pain scores during the procedure were 77, 79, 79.5; median post-procedure anxiety scores were 26, 28, and 21. The acupressure group results were similar before and after retraining.

Conclusions: Administering auricular acupressure or acupuncture did not result in lower pain or anxiety scores among women undergoing vacuum aspiration compared to a placebo group. These results differ from our previous randomized trial, which showed a benefit from acupuncture.

Aaron Praiss, MD



Aaron Praiss was born in St. Louis, Missouri and completed his undergraduate degree in Violin Performance and Biological Sciences at Northwestern University. He then received his medical degree from Albert Einstein College of Medicine in Bronx, New York. While in medical school he immediately felt at home in the operating room and enjoyed his time spent on different surgical services. In pursuit of a career that combines longevity of care, complex surgery, and cancer care, Dr. Praiss was drawn to the field of Gynecologic Oncology. In residency, he has been fortunate to work on a variety of research projects with a focus on improving surgical outcomes and prognostication systems for gynecologic cancers.

Using machine learning to create prognostic systems for endometrial cancer

Mentor: Jason Wright

Authors: Aaron M. Praiss, Yongmei Huang, Caryn St. Clair, Ana Tergas, Alexander Melamed, Fady Khoury-Collado, June Hou, Jianhua Hu, Chin Hur, Dawn Hershman, Jason Wright

Objective: We used a novel machine learning algorithm to develop a precision prognostication system for endometrial cancer.

Methods: The Ensemble Algorithm for Clustering Cancer Data (EACCD) unsupervised machine learning algorithm was applied to women with endometrioid endometrial cancer in the Surveillance, Epidemiology, and End Results (SEER) database from 2004-2015. The prognostic system was created based on TNM stage, grade, and age. The EACCD algorithm utilizes a number of steps including computation of dissimilarity and 2-phase Partitioning Around Medoids (PAM). The concordance (C-index) was used to cut dendrograms and create prognostic groups. Kaplan-Meier cancer-specific survival was employed to visualize the survival function of EACCD-based prognostic groups and AJCC groups.

Results: A total of 46,773 women with endometrial cancer were identified. Using the EACCD machine learning algorithm with TNM stage, grade, and three age groups, eleven prognostic groups were generated with a C-index of 0.8380. The five-year survival rates for the eleven groups ranged from 37.9% to 99.8%. To simplify the classification system further, using visual inspection of the data we created a modified EACCD grouping from the original eleven prognostic groups, and combined the top six survival groups into three new prognostic groups. The new five-year survival rates for these eight modified prognostic groups included: 99.1% for group 1, 96.5% for group 2, 92.2% for group 3, 84.8% for group 4, 72.7% for group 5, 61.1% for group 6, 52.6% for group 7, and 37.9% for group 8. The C-index for the modified eight prognostic groups was 0.8313.

Conclusions: This novel machine learning algorithm demonstrates improved prognostic prediction for patients with endometrial cancer. Using machine learning for endometrial cancer allows for the integration of multiple factors to develop a precision prognostication system.

Maria Ruiz, DO, MS



Maria Ruiz was born in Bogota Colombia, she then moved with her family to St Paul Minnesota where she completed her undergraduate degree in biology at the University of Minnesota. She worked at the 3M headquarters in medical toxicology research for a year prior to moving to Des Moines IA for graduate and medical school, where she received her masters degree and osteopathic medical degree. She completed her Obstetrics and Gynecology residency training at the University of Missouri Kansas City prior to moving to NYC for Gynecologic Oncology Fellowship training. She will be joining the Gainesville Gynecologic Oncology practice at North Florida Regional Medical Center where she will be teaching the University of Central Florida Ob/Gyn residents.

Outcomes of hysterectomy performed by very low-volume surgeons

Mentor: Jason Wright

Authors: Maria Ruiz , Ling Chen, June Hou, Ana Tergas, Caryn St. Clair, Cande Ananth, Alfred Neugut, Dawn Hershman, Jason Wright

Background: Trends in gynecologic surgery have changed over the last decade. Fewer numbers of hysterectomies are being performed, and these are being concentrated to sub-specialist surgeons. These trends have likely altered the practice patterns for many gynecologic surgeons. The impact of these changes in surgical volume and outcomes of hysterectomy need further investigation. We performed a population-based analysis to first examine the changes in surgeon and hospital procedural volume for hysterectomy over time and then to explore the association between very low surgeon procedural volume and outcomes.

Methods: All women who underwent hysterectomy in New York State from 2000 to 2014 were examined. Surgeons were classified based on the average annual procedural volume as very low-volume surgeons if they performed one procedure per year. We used multivariable models to examine the association between very low-volume surgeon status and morbidity, mortality, transfusion, length of stay, and cost.

Results: Among 434,125 women who underwent hysterectomy, very low-volume surgeons accounted for 3,197 (41.0%) of the surgeons performing the procedures and operated on 4,488 (1.0%) of the patients. The overall complication rates were 32.0% for patients treated by very low-volume surgeons compared with 9.9% for those treated by other surgeons ($P < .001$) (adjusted relative risk 1.97, 95% CI 1.86-2.09). Specifically, the rates of intraoperative (11.3% vs 3.1%), surgical site (15.1% vs 4.1%) and medical complications (19.5% vs 4.8%), and transfusion (38.5% vs 11.8%) were higher for very low-volume compared with higher volume surgeons ($P < .001$ for all). Patients treated by very low-volume surgeons were also more likely to have a prolonged length of stay (62.0% vs 22.0%) and excessive hospital charges (59.8% vs 24.6%) compared with higher volume surgeons ($P < .001$ for both). Mortality rate was 2.5% for very low-volume surgeons compared with 0.2% for higher volume surgeons ($P < .001$) (adjusted relative risk 2.89, 95% CI 2.32-3.61).

Conclusions: A substantial number of surgeons performing hysterectomy are very low-volume surgeons. Performance of hysterectomy by very low-volume surgeons is associated with increased morbidity, mortality, and resource utilization.

Tiffany Y. Sia, MD



Tiffany Sia was born in Fremont, California and completed her undergraduate degree at the University of Southern California, where she graduated summa cum laude with a degree in Neuroscience and a Minor in Medical Anthropology. She then traveled across the country to attend medical school at the Columbia University College of Physicians & Surgeons, where she fell in love with the depth and breadth of obstetrics and gynecology, and stayed to pursue residency there. Over the course of her training she has enjoyed taking care of medically complex patients and participating in equally complex surgeries. She plans to apply to fellowship in Gynecologic Oncology.

Trends in Use and Effect on Survival of Simple Hysterectomy for Early-Stage Cervical Cancer

Mentor: Jason Wright

Authors: Tiffany Sia, Ling Chen, Alexander Melamed, Ana Tergas, Fady Khoury-Collado, June Hou, Caryn St. Clair, Cande Ananth, Alfred I. Neugut, Dawn Hershman, Jason Wright

Objective: To identify use and outcomes of simple hysterectomy compared with radical hysterectomy for women with early-stage cervical cancer.

Methods: The National Cancer Database was used to review the cases of women with stage IA2 and IB1 (2 cm or less) cervical cancer from 2004 to 2015. Patients were classified based on whether they underwent simple or radical hysterectomy. Survival was examined after propensity score weighting.

Results: Simple hysterectomy was performed in 44.6% of women with stage IA2 (n=1,530) and 35.3% of those with stage IB1 (n=3,931) tumors. Rates of simple hysterectomy increased from 37.8% to 52.7% from 2004 to 2014 for stage IA2 cancers and from 29.7% to 43.8% between 2004 and 2013 for stage IB1 cancers. For stage IA2 can-

cers, younger women and those treated at an academic medical center were less likely to undergo simple hysterectomy. For stage IB1 cancers, black women were more likely to undergo simple hysterectomy, and those treated at an academic medical center were less likely to undergo simple hysterectomy. After propensity score weighting, there was no association between route of hysterectomy and survival for stage IA2 cancers (hazard ratio [HR] 0.70, 95% CI 0.41–1.20, 5-year survival 95.1% for radical hysterectomy vs 97.6% for simple hysterectomy). For stage IB1 cancers, patients who underwent simple hysterectomy were at 55% increased risk of death (HR 1.55, 95% CI 1.18–2.03, and 5-year survival was 95.3% for radical hysterectomy vs 92.4% for simple hysterectomy).

Conclusions: Although there was no association between surgical radicality and survival for women with stage IA2 tumors, there was a 55% increase in mortality for women with stage IB1 neoplasms who underwent simple compared with radical hysterectomy. Radical hysterectomy is the treatment of choice for women with stage IB1 cervical cancer.

Jessica Spiegelman, MD



Jessica Spiegelman was born in New York, New York and completed her undergraduate degrees in English and neuroscience at the University of Pennsylvania. She then completed medical school at UMDNJ-New Jersey Medical School in Newark, New Jersey and her residency at Mount Sinai before becoming a Maternal-Fetal Medicine Fellow at Columbia. She is so excited to continue making her rounds of New York City hospitals with her upcoming faculty position at New York University, the hospital where she was born!

Remote postpartum blood pressure surveillance for hypertensive disorders of pregnancy: A randomized clinical trial

Mentor: Leslie Moroz

Authors: Jessica Spiegelman, Rachel Topp, Fernanda da Graca Polubriaginof, Afzal Hossein, Kui Tang, Natalie Bello, Kirsten Cleary, Mary D'Alton, Leslie Moroz

Background: Remote patient monitoring (RPM) is a promising technology, but few randomized trials have studied whether this method improves postpartum (PP) blood pressure (BP) surveillance. Our objective was to assess whether RPM improves adherence to PP BP surveillance recommendations for women with hypertensive disorders of pregnancy (HDP).

Methods: We enrolled PP women with HDP at a single institution between November 2018 and July 2019. Women were randomized by computer-generated random allocation sequence to an RPM system (Bluetooth-enabled BP cuff that transmits readings to off-site nurses according to a pre-specified escalation pathway) or usual care (standard BP cuff and paper log with instructions to contact provider). Twice-daily measurements were recommended for each group. The primary outcome was adherence, defined as a patient's percentage of recommended measurements reported by first outpatient assessment or 14 days

post-discharge, whichever came first. Secondary outcomes were systems-related as well as clinical. The study was powered to detect a 20% increase in adherence, with 101 patients needed per group. Analysis was by intent to treat.

Results: 213 patients were randomized, 101 (47.4%) to the study group and 112 (52.6%) to the control group. Marital status differed between the groups; otherwise, baseline characteristics were similar. There was a significant difference in adherence, with a median of 63.9% of recommended measurements reported per patient in the RPM group and 0% in the usual care group. The RPM group had significantly more medication adjustments and readmissions for preeclampsia. Although not powered to determine significance, there was more preeclampsia-associated morbidity detected in the RPM group and more treatments administered.

Conclusions: RPM is a feasible way to improve adherence to BP monitoring in the PP period, and may improve detection of patients who require further evaluation and management. Future studies should evaluate optimal implementation of RPM to minimize healthcare burden and improve maternal health outcome.

Emily Spurlin, MD



Emily Spurlin was born in Tuscaloosa, Alabama and completed her undergraduate degree in biology at Wake Forest University. She then worked for a year as a clinical research coordinator in the laboratory of Dr. Anthony Fauci at the National Institutes of Health assisting in HIV and HCV translational research. Returning home, she completed her medical degree at the University of South Alabama. She was ecstatic to match at Columbia for her OB/GYN training and plans to pursue a career in Reproductive Endocrinology and Infertility dedicated to helping women achieve their reproductive goals.

Barriers to Timely Surgical Management and Risk of Oophorectomy for Ovarian Torsion in a National Sample

Mentor: Eric Forman

Authors: Emily Spurlin, Timothy Wen, Alexander Friedman, Zev Williams, Eric Forman

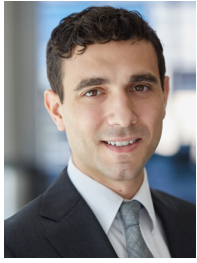
Background: Ovarian torsion is one of the true gynecologic emergencies requiring urgent surgical management. Prompt diagnosis and treatment are required to preserve future fertility and decrease morbidity. The objective of this study was to identify risk factors associated delayed surgical management of ovarian torsion and risk of oophorectomy.

Methods: We utilized data from the 2002-2014 Nationwide Inpatient Sample, identifying surgical cases of ovarian torsion using diagnosis and procedure ICD-9CM codes. Time to surgery was evaluated as the time from admission to surgery, quantified in days with the primary predictor of interest being day of admission (weekend versus weekday) as well as race, socioeconomic status, and other comorbidities. Multivariable log-linear regression models were fit to assess the outcomes of same-day surgery and risk of oophorectomy as the treatment for torsion. Models were adjusted by patient demographics and hospital risk factors. Risk for oophorectomy was further adjusted by time to surgery categorized as same-day, one day, or two or more days. Measures of association were expressed as adjusted risk ratios (aRR) with 95% confidence intervals (CI).

Results: From 2002 to 2014, 84,370 inpatient hospital admissions for surgical management of ovarian torsion were analyzed, of which 82% underwent an oophorectomy and 18% who underwent an ovarian preserving technique. 67% of cases were performed within the same day, 21% after one-day length of stay, and 12% performed after two or more days. In adjusted analysis, patients admitted on the weekend were 14% less likely to undergo same day surgical management of ovarian torsion (aRR 0.86, 95% CI: 0.84, 0.88) compared to those admitted on weekdays. Patients with multiple (>3) comorbidities (aRR 0.71, 96% CI: 0.68, 0.74), non-Hispanic Black (aRR 0.97, 95% CI: 0.94, 0.99), Medicare (aRR 0.95, 95% CI: 0.92, 0.99), Medicaid (aRR 0.97, 95% CI: 0.95, 0.99), and lower income quartile (aRR 0.96, 95% CI: 0.94, 0.99) patients were similarly less likely to undergo same day surgery. Ovarian torsion surgeries performed after two or more days were at 5% higher risk of oophorectomy compared to those with same-day management (aRR 1.05, 95% CI: 1.03, 1.07).

Conclusions: Our study noted significant barriers to timely management of ovarian torsion including weekend admission and comorbidities. These systemic barriers cause delays in care increasing the risk of non-fertility preserving management. Further research and initiatives are needed to decrease these barriers and standardize care to improve future fertility among ovarian torsion patients.

Conrad Stern-Ascher, MD



Conrad Stern-Ascher was born in Manhattan, New York and completed his undergraduate degree in neuroscience at Brown University. Prior to starting medical school he worked as a line cook, private chef, and professional keyboard-player in New York. He returned to neuroscience as a research assistant in a basic science lab at Columbia University before moving south to start his medical training at Duke University. He returned home to New York to complete his residency at Columbia University. He loves participating in the many diverse aspects of primary obstetric and gynecologic care and so plans to pursue a career as a generalist in Ob/Gyn after completing residency.

Shared Decision Making: Ob/Gyn Resident Teaching Model for Second Trimester Abortions

Mentors: Rini Ratan, Jennifer Kerns

Authors: Conrad Stern-Ascher, Nancy Fang, Rini Ratan

Background: Studies have shown that involving the patient in decision making results in positive psychological impacts for patients after second-trimester abortion for pregnancy complications. The purpose of this study is to create an educational simulation session for Obstetrics and Gynecology residents (PGY-1 to PGY-4) to model shared decision making in the context of second trimester abortion. The objectives of this study are for residents to recognize the benefits of shared decision making, understand the medical risk and benefits of D&E and induction of labor, and develop tools to manage and guide patients through difficult decisions.

Methods: This is an ongoing observational study involving 15 total participants at various levels of training, participating in an educational standardized patient simulated patient encounter with associated didactic and debrief sessions. Each participant received a pre-test survey evaluating base knowledge of second trimester abortions and concepts related to shared decision making, followed by an immediate post-survey evaluating knowledge gained as well as satisfaction with the session. This is being compared to ongoing three and six-month follow-up surveys to evaluate retention of skills gained and the extent that the educational program may have changed practice. Changes between pre- and post-surveys were analyzed using McNemar chi-square analyses for categorical survey variables. Free text responses were evaluated qualitatively.

Results: Fifteen residents participated in this educational program- five PGY-1, five PGY-2, four PGY-3, and two PGY-4 residents. At the time of this abstract, twelve of the fifteen participants completed their immediate post-test survey. The results presented in this abstract are preliminary as we are still in the analysis phase of this study. After the educational program, nine (75%) of the residents more comfortable counseling patients with the full range of medical options, six (50%) felt more comfortable eliciting a patient's personal value system and coping style, nine (75%) felt more comfortable minimizing provider bias and how it may affect patient care, five (42%) felt more comfortable managing difficult conversations, and nine (75%) felt more comfortably being able to identify inpatient and outpatient resources for patients undergoing a second trimester abortion. All twelve residents stated that the simulation was helpful in demonstrating the importance of shared decision making in practice.

Conclusions: This ongoing observational study demonstrates the benefit of a simulated session for resident education in shared decision making. In particular, this educational program highlighted the clinical importance of shared decision making in practice for a group without any previous formal training in the subject. The majority of participants in the study also felt that their skills and comfort in various aspects of shared decision making in the context of second trimester termination were improved by this 90-minute session. Further analysis after 3-month and 6-month surveys will help us to draw conclusions regarding retention and any qualitative improvements that might be made for this educational intervention.

Sbaa Syeda, MD



Sbaa Syeda was raised in Ellicott City, MD and completed her undergraduate degree in neuroscience at Johns Hopkins University. She did not take time off between her undergraduate and medical school career, and remained at Johns Hopkins University for her medical school training. In an effort to expand her horizon and explore a city she loved, she moved to New York to complete her residency at Columbia University. She loves all aspects of Ob/Gyn and spent most of her residency planning to apply to Gynecologic Oncology, but ultimately decided to apply to Maternal-Fetal Medicine fellowship in the end.

Postpartum Cardiac Readmissions among Women without a Cardiac Diagnosis at Delivery

Mentors: Cynthia Gyamfi-Bannerman, Alexander Friedman

Authors: Sbaa Syeda, Timothy Wen, Jason Wright, Dena Goffman, Mary D'Alton, Alexander Friedman

Objective: To determine 9-month risk for cardiac readmissions among women without cardiac diagnoses present during delivery hospitalizations.

Methods: Delivery hospitalizations without cardiac diagnoses were identified from the 2010-2014 Nationwide Readmissions Database and linked with subsequent cardiac hospitalizations over the following 9 months. Temporality of new onset cardiac hospitalizations was calculated for each 30-day interval from delivery discharge up to 9 months postpartum. Multivariable log linear regression models were fit to identify risk factors for cardiac readmissions adjusting for patient, medical, obstetrical, and hospital factors with adjusted risk ratios as the measure of effect (aRR). A sensitivity analysis was repeated, restricted to readmissions where cardiac causes were the primary indication for readmission.

Results: Among 4.5 million women without a cardiac diagnosis at delivery, readmission for a

cardiac condition within 9 months occurred in 27 per 10,000 women. 46.1% within the first 30 days with readmission otherwise broadly distributed over the remaining eight months. Factors such as hypertensive diseases of pregnancy (aRR 2.17, 95% CI 2.07, 2.27), severe maternal morbidity at delivery (aRR 2.29, 95% CI 2.05, 2.57), chronic hypertension (aRR 2.49, 95% CI 2.29, 2.71), lupus (aRR 4.52, 95% CI 3.73, 5.46), and venous thromboembolism during delivery (aRR 3.04, 95% CI 2.27, 4.08) were all associated with increased for 9-month postpartum cardiac admissions as were Medicaid (aRR 1.60, 95% CI 1.53, 1.67) and Medicare insurance (aRR 3.17, 95% CI 2.80, 3.58) compared to commercial insurance and maternal ages 35 to 39 and 40 to 54 (aRR 1.24, 95% CI 1.17, 1.32, aRR 1.71, 95% CI 1.57, 1.87, respectively) compared to maternal age 25 to 29.

Conclusions: Among low risk patients, multiple medical factors and obstetrical complications are associated with development of new cardiac disease requiring readmission in the postpartum period. Given that pregnancy complications and comorbidities may be associated with relatively short term outcomes, these findings support the importance of continued health care access after six weeks postpartum.

Prior Resident and Fellow Research Publications

2019

Whitney Booker, MD	<i>Quantitative Activity Levels and Gestational Age at Delivery: A Prospective Cohort Study among Nulliparous Women</i>
Ama Buskwofie, MD	<i>Adoptive Dendritic Cell Transfer Following Platinum-based Chemotherapy Extends Overall Host Survival in a Pre-clinical Model of Metastatic Ovarian Cancer</i>
Surya Cooper, MD, MPH	<i>Claims-Based Contraceptive Performance Measures at New York Presbyterian Hospital 2016 to 2018</i>
Ariel Kate Dubin, MD	<i>A Model for Predicting the GEARS Score from Virtual Reality Surgical Simulator Metrics</i>
Cassandra Duffy, MD	<i>Effect of Chlorhexidine vs. Povidone Iodine vs. Saline Vaginal Preparation on Bacterial Colony Counts in Women Undergoing Elective Cesarean Delivery</i>
Eve Overton, MD	<i>The Association of Education and Race on Preterm Birth Risk in Women with Prior Preterm Birth</i>
Katherine Palmerola, MD	<i>Replication stress limits the developmental potential of human preimplantation embryos</i>
Stephanie Purisch, MD	<i>Impact of Delayed Cord Clamping on Maternal Blood Loss in Term Cesareans: A Randomized Trial</i>
Sierra J. Seaman, MD	<i>Use of Fundamentals of Laparoscopic Surgery (FLS) Testing to Assess Gynecologic Surgeons: 10 Years of Experience</i>
Jessica Selter, MD	<i>Epidemiology and Risk Factors for Life-Threatening Complications in Severe Ovarian Hyperstimulation Syndrome (OHSS) in a Nationwide Sample</i>
Claire Tobias, MD	<i>Use and Outcomes of Neoadjuvant Chemotherapy for Metastatic Endometrial Cancer</i>
Sally Vitez, MD	<i>Male Factor and Mosaicism: Assessing the Contribution of Abnormal Semen Parameters to Rate of Mosaicism in Next Generation Sequencing (NGS) Preimplantation Genetic Testing for Aneuploidy (PGT-A) Intracytoplasmic Sperm Injection (ICSI) Cycles</i>
Timothy Wen, MD	<i>Hypertensive Postpartum Admissions Among Women Without a History of Hypertension or Preeclampsia</i>

