Northwestern Medicine®

Obstetrics and Gynecology

Fiscal Year 2022 Annual Report

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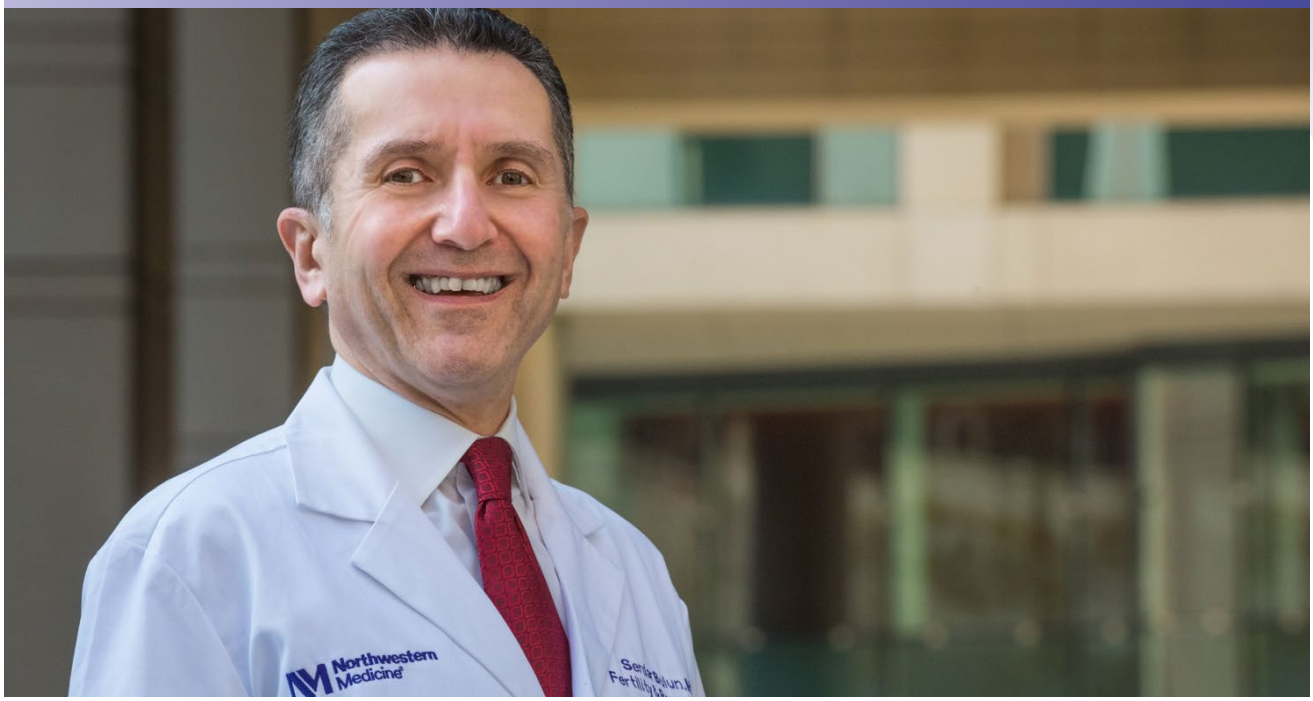
Cover photo by Ann & Robert H. Lurie Children's Hospital of Chicago



Letter From the Chair

The vision of the Northwestern Medicine Department of Obstetrics and Gynecology is to serve as a global leader in obstetrics, gynecology, women's health and healthcare delivery through innovations in person-centered care, research and education. This report is a summary of our accomplishments over the last fiscal year, September 2021 to August 2022.

On June 24, 2022, the Supreme Court issued a ruling that overturned Roe v. Wade, impacting access to reproductive care in many states. Our department remains committed to reproductive autonomy and providing safe and legal abortion care.

We are proud of the highlighted success stories of our faculty, trainees, students and staff. We underscore our extraordinarily high inpatient and outpatient volumes, which reflect a large number of surgical procedures, outstanding training programs and leading-edge research in core areas of obstetrics and gynecology.

Thank you for taking the time to review this report.

Serdar E. Bulun

Serdar E. Bulun, MD (he/him)
Chair, Department of Obstetrics and Gynecology
John J. Sciarra Professor
Northwestern University Feinberg School of Medicine

Chief, Department of Obstetrics and Gynecology
Prentice Women's Hospital at Northwestern Memorial Hospital

Department Mission and Inclusivity Statement

Mission

We are a diverse community of healthcare professionals who:

- Partner with our patients to deliver world-class, comprehensive, and equitable obstetric and gynecologic care across the lifespan
- Lead groundbreaking research
- Drive women's health policy change
- Educate the healthcare leaders of tomorrow
- Champion reproductive and sexual health and well-being in a highly collaborative culture that values and promotes diversity, equity and inclusion

Diversity, Equity and Inclusion Statement

In the Department of Obstetrics and Gynecology at Northwestern University Feinberg School of Medicine, we believe that diversity, equity and inclusion enrich our department and strengthen our ability to better serve our patients and our community.

We acknowledge the role of medicine in the pervasive history of racism and inequity that contributes to ongoing healthcare disparities in our society. We recognize that science owes its development and advances to a long history of oppression and experimentation on people of color, and we honor individuals such as Anarcha, Lucy, Betsey and Henrietta.

We are committed to confronting these inequities by challenging ourselves to work towards an inclusive and just department and healthcare system through education, research, leadership and excellence in patient care. We celebrate diversity of race, ethnicity, culture, sex, sexual orientation, gender identity, disability, age, education and socioeconomic background.

Prentice Women's Hospital

Prentice Women's Hospital of Northwestern Memorial Hospital is a freestanding building and serves as the clinical and academic home for the Department of Obstetrics and Gynecology and its eight divisions.

Through its collaboration with Ann & Robert H. Lurie Children's Hospital of Chicago, Prentice provides uniquely tailored medical care and academic opportunities as the largest birthing center in the Midwest. In 2018, this collaboration also fostered the creation of the Chicago Institute for Fetal Health, which allows specialists from our Maternal-Fetal Medicine Division to participate in fetal surgery cases jointly performed at both hospitals.

A truly comprehensive hospital for female patients, Prentice also offers inpatient and outpatient breast care and a state-of-the-art breast imaging unit. The Northwestern Medicine Maggie Daley Center for Women's Cancer Care is an outpatient facility where our Gynecologic Oncology Division runs a patient-focused clinic with an adjacent infusion suite and procedure rooms. They work collaboratively with breast surgery, clinical genetics, and hematology and oncology to deliver comprehensive care for patients with gynecologic and breast cancers.

Prentice Hospital by the Numbers
(September 2021 to August 2022)

32
Labor and Delivery rooms

4 cesarean delivery rooms

8
pre-/post-operation rooms

11,000
deliveries annually

10 operating rooms for female reproductive tissue procedures, including minimally invasive gynecologic surgery, urogynecology, gynecologic oncology, breast surgery and fetal surgery

More than
5,100
gynecologic surgeries annually, including more than
2,000
major procedures

Prentice Hospital by the Numbers
(September 2021 to August 2022)

Total Deliveries	11,641
Vaginal Deliveries	8,403
Operative Vaginal Deliveries	348
Operative Vaginal Delivery Rate	4.1%
Vaginal Birth After Cesarean (VBAC) Rate	19.8%
Cesarean Deliveries	3,238
Cesarean Delivery Rate	27.8%

Total Hysterectomies	910
Laparoscopic	464
Robotic	271
Abdominal	107
Vaginal	68

Total IVF Cycles	**3,071**
Egg Retrievals	1,695
Frozen Embryo Transfers	1,376

Total Gynecologic Procedures: 5,103

Benign Gynecologic Surgeries	2,897
Minimally Invasive Gynecologic Surgeries	924
Gynecologic Oncology Procedures	669
Urogynecologic Procedures	612

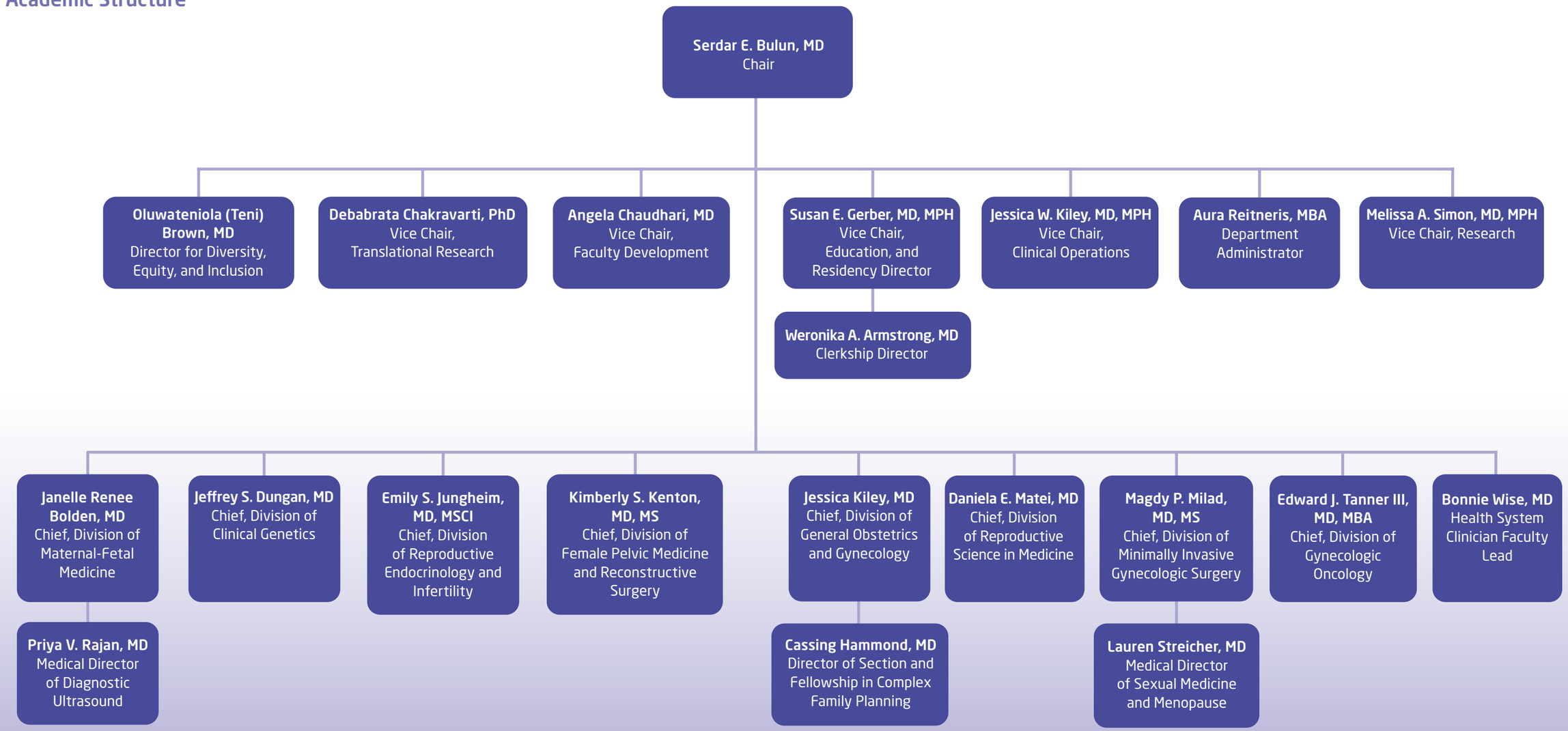
Intrauterine Inseminations
1,548

Cycles of Chemotherapy in Gynecological Malignancies
2,300+

Obstetric and Gynecologic Ultrasound Studies
55,000+

Organizational Chart

Department of Obstetrics and Gynecology Academic Structure



Highlights

Family planning efforts in 2022

In January 2022, Cassing Hammond, MD, played a leadership role in the Illinois Coalition of Abortion Providers (ICAP), which began as an informal listserv of Illinois abortion clinicians to address changes in service volume and provision resulting from an anticipated overturning of Roe v. Wade.

Since January, ICAP has met monthly and now includes clinicians from all major hospital and community-based providers in Illinois, as well as:

- Clinicians from Missouri, Tennessee and Indiana
- Maternal-fetal medicine specialists
- Emergency medicine clinicians
- Advanced practice providers
- Representatives of:
  - The Illinois Department of Public Health (IDPH)
  - The Illinois Perinatal Quality Collaborative (ILPQC)
  - Illinois Department of Healthcare and Family Services (HFS)
  - Office of the Illinois Attorney General
  - The American Civil Liberties Union (ACLU)
  - National and regional abortion funds
- A consultant medical ethicist

Center for Health Equity Transformation

The Center for Health Equity Transformation (CHET) aims to improve health for all by exposing root causes of health inequities and serving as a hub that pushes boundaries in research, education, workforce development and community engagement.

CHET defines health equity as the prioritization of historically marginalized and disenfranchised groups to extend and provide the fair and just opportunity for access and use of quality health and non-health social services, such as housing and education, without discrimination, racism and additional undue burdens that create and sustain obstacles to health.

CHET's research addresses many racial disparities, especially in maternal health. Black and Latin American pregnant people have the highest risk of maternal mortality and severe maternal morbidity compared to any other group in the United States. The *OPTIMIZE* research study, funded by the National Institute on Minority Health and Health Disparities, is an evaluation of a comprehensive perinatal care checklist to mitigate maternal health disparities.

Similarly, the *Navigating Wellness* project uses library partnerships to improve health equity by increasing accessible health information for people who have been historically medically underserved. The supplemental module, WellMama, addresses structural racism by creating accessible information and resources tailored to pregnant people in racial and ethnic minority groups. Both projects aim to increase health equity in maternal health through improved care quality and accessibility.

Guiding principles

We continue to strive for progress in every aspect of health, from access to quality, affordable care to dismantling distrust between biomedical researchers and people from communities that have historically been medically underserved.

The concept of health autonomy — the right to make informed decisions about your body and wellness — is of paramount importance.

Health autonomy affords every individual the opportunity to achieve their optimal health. That includes making informed decisions about their health care with their care team. Equitable access is also essential for every person to achieve their optimal health. Factors influencing access include health literacy, social determinants of health, experiences of racism and distrust, financial toxicity and a diverse workforce.

Defending health autonomy and healthcare access is critical to our goal of realizing health equity for every individual. At the Center for Health Equity Transformation, we advocate for health justice and health autonomy, and we will continue to advance and support efforts toward the protection of these fundamental human rights.

Diversity, Equity and Inclusion Committee

The Department of Obstetrics and Gynecology is committed to prioritizing diversity, advancing equity, and cultivating inclusion as we serve our patients and community.

Over the last year, we have made strides to establish an infrastructure for sustainable and impactful efforts for our faculty, trainees, staff and patients. Department leaders commissioned an OB-GYN Diversity, Equity and Inclusion (DEI) Committee with faculty, trainees, nursing, staff and research personnel representation. The committee will lead change and examine our practices and programming with an equity lens.

In the past year, the committee has:

- Published a report to share the findings from the department's climate survey, as well as the targeted recommendations for the department's advancement
- Increased faculty and trainee engagement in department DEI efforts, as evidenced by 60 faculty, staff members and trainees serving on the DEI committee
- Established four working groups to oversee and implement DEI programming
- Implemented structured interviews into residency interviews to mitigate bias
- Sent departmental representation to key conferences to recruit individuals from populations that are underrepresented in medicine
- Partnered with the leadership of our Mortality and Morbidity conferences to incorporate a quality and equity/bias examination checklist that will be used during all future conferences
- Executed the first Health Equity Rounds in our department, a multidisciplinary conference to discuss instances where bias and racism impacted patient care and identify follow-up action items to manage change
- Curated two active bystander trainings for the whole department and trained more than 80 people

Reproductive and fertility care for LGBTQ patients

In 2023, Northwestern Medicine employees will no longer be required to prove infertility for insurance coverage — this will help those seeking to be a single parent and those looking to use reproductive technology to grow their families in same sex relationships.

Several Reproductive Endocrinology and Infertility (REI) physicians and (past and present) leaders worked with Northwestern Medicine benefits administrators to implement this change. The Division of REI continues to make commitments for our LGBTQ population.

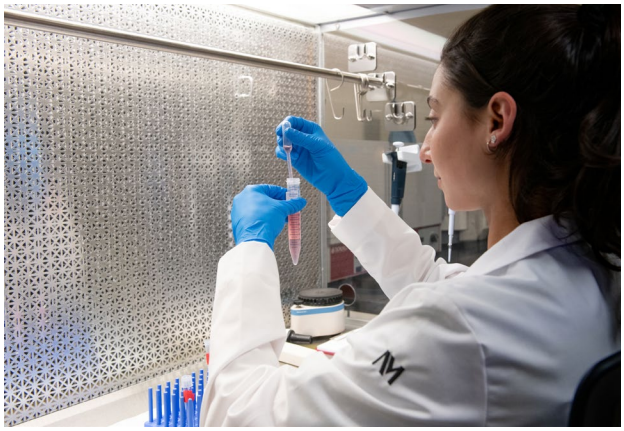
For patients who need to preserve their gametes before starting gender-affirming hormones, the Northwestern Medicine Fertility Preservation Program offers guidance and support in making informed decisions throughout their care. Kara Goldman, MD, the program's medical director, and Kristin Smith, the program manager, serve patients from across Chicagoland.

Research on gender-affirming care

Dana Sullivan, DNP, a nurse in the Fertility Preservation Program, focused her doctorate research project on education programs for all REI staff members to ensure we care for transgender patients appropriately and respectfully. Below is Dana's Challenge and Opportunity statement and Purpose statement.

Challenge and Opportunity statement

There has been an increase in transgender individuals seeking fertility care, with the staff at Northwestern Memorial Hospital's Fertility and Reproductive Medicine clinic (FRM) encountering a 1,200% growth in their transgender patient population. Among the FRM staff, 87.7% have treated a transgender patient seeking fertility treatment. However, due to the current lack of formalized education on caring for transgender individuals, many staff members felt limited self-efficacy, as evidenced by 42.2% identifying the need to be better educated about transgender patients to provide appropriate care.



Our purpose

This quality improvement project aims to increase the knowledge and self-efficacy of the FRM staff caring for transgender individuals. The project aims to train the FRM staff on four domains supported by the World Professional Association for Transgender Health Standards of Care Guidelines by implementing an evidence-based educational program.

A special thanks to Dr. Angela Lawson, chair of the American Society for Reproductive Medicine (ASRM) LGBTQ Special Interest Group. This group ensures that relevant clinical, research and educational efforts are being pushed to the forefront of ASRM's efforts to improve reproductive care for this population. She not only helps staff and patients at Northwestern Medicine but is working diligently to ensure LGBTQ patients have the best care nationally as well.

Chicago Institute for Fetal Health

The Chicago Institute for Fetal Health is a regional leader in complex fetal surgery. The institute is a collaboration between Ann & Robert H. Lurie Children's Hospital of Chicago and Northwestern Medicine, and provides antenatal counseling and care, plus intervention and management. The multidisciplinary team approach allows for both the pregnant patient and fetus to receive the best possible care.

In FY22, 3,126 multidisciplinary consultations were performed for conditions such as:

- Bladder outlet obstruction
- Various neurological abnormalities
- Complicated twin pregnancies
- Complex cardiac conditions

In FY22, a total of 45 procedures were performed, including:

- Open and fetoscopic myelomeningocele repairs
- Selective fetoscopic laser photocoagulation for complex twin pregnancies
- EXIT procedures for various chest masses
- Bladder shunt procedures

Gynecologic Oncology team
Left to right: Raanan Y. Alter, MD; Emma L. Barber, MD, MS; Jenna Z. Marcus, MD; Edward J. Tanner, III, MD, MBA; Emily M. Hinchcliff, MD, MPH; Dario R. Roque, MD

Patient outcome research in gynecologic cancer

The Division of Gynecologic Oncology continues to advance oncology care through research that aims to mitigate the toxicity of cancer treatments to help our patients live longer and with a better quality of life.

Our ongoing NIH-funded Fit4Surgery study, led by Emma L. Barber, MD, MS, uses physical activity as a new form of prehabilitation for ovarian cancer patients undergoing chemotherapy before planned surgery. By increasing physical fitness before surgery, we hypothesize that patients will experience few surgical complications, fewer chemotherapy delays and better survival.

Consistent with our mission to provide leading-edge clinical trials to patients across Northwestern Medicine, we enrolled patients from Chicago and the north, northwest and west suburbs. We also partnered with the Northwestern Medicine Department of Preventive Medicine to complete enrollment of the NCI-funded MyActivity study which enrolled more than 165 breast and endometrial cancer survivors.

We also highlighted patient voices in our Fit4Treatment interview study. This study enrolled 30 gynecologic cancer patients and examined patient beliefs and preferences about physical activity during chemotherapy.

Other areas of research for the division include sleep and nutrition. The FAST study, led by Jenna Z. Marcus, MD, recently received funding from the Friends of Prentice foundation. This study will examine if intermittent fasting improves chemotherapy symptoms among gynecologic cancer patients.

Dr. Barber is also leading a study of sleep before and after surgery using a wearable ring to understand how sleep patterns change with surgery and what we can do to improve surgery-associated sleep disorders.

In addition, a divisional quality improvement project, Iron Women, was selected for the Academy for Quality and Safety Improvement program at Northwestern Memorial Hospital. In this project, we will address nutritional causes of anemia among patients with gynecologic cancers receiving chemotherapy to see if we can improve anemia rates, reduce fatigue and decrease blood transfusions. Together, these innovative programs highlight our division's commitment to advancing cancer care through research.

Faculty spotlight: Oluwateniola "Teni" Brown, MD

Assistant Professor of Obstetrics and Gynecology, Division of Female Pelvic Medicine and Reconstructive Surgery
Director for Diversity, Equity, and Inclusion, Department of Obstetrics and Gynecology
Assistant Director of McGaw Diversity and Inclusion, McGaw Medical Center of Northwestern University

Oluwateniola "Teni" Brown, MD, started at Northwestern Medicine in 2014 as an OB-GYN resident at McGaw Medical Center of Northwestern University. She continued at Northwestern University for her post-graduate education as a fellow in the Division of Female Pelvic Medicine and Reconstructive Surgery.

During her time at Northwestern Medicine, Dr. Brown has earned several awards and honors highlighting her commitment to academic excellence and professionalism. Some of Dr. Brown's local and national contributions include being the vice chair of the American Urogynecologic Society (AUGS) Health Disparities special interest group and a member on the AUGS Education Committee. She was also a member of the AUGS Diversity and Inclusion Presidential Task Force, as well as a member of the Feinberg School of Medicine Advisory Group on the use of race in lectures, clinical presentations and lab algorithms.

Dr. Brown's research interests focus on investigating health disparities for pelvic floor disorders and bias in medical education. She also works on several projects within McGaw Medical Center, such as implementing a curriculum on health disparities.

Faculty spotlight: Lynn M. Yee, MD, MPH

Associate Chief of Maternal-Fetal Medicine for Research, Department of Obstetrics and Gynecology

Lynn M. Yee, MD, MPH, runs a large NIH-funded obstetrics research program that performs clinical trials, cohort studies, patient-centered outcomes studies and qualitative research. Her goal is to improve the health of pregnant people and promote health equity through conducting clinical and health services research.

Dr. Yee is the Northwestern Medicine principal investigator (PI) of the following:

- NICHD Maternal-Fetal Medicine Units (MFMU) Network, which performs multicenter studies of leading-edge obstetric research questions
- NIDDK-funded GO MOMS study, a large multisite study that aims to better understand maternal metabolism during pregnancy
- NHLBI-funded nuMoM2b Heart Health Study, which is studying the long-term health of women a decade after their first birth

Dr. Yee's research program also investigates interventions designed to address social determinants of health among diverse medically underserved pregnant people.

Faculty spotlight:
Francesca E. Duncan, PhD

Co-Director, Center for Reproductive Science

Director, Graduate Studies, Master of Science in Reproductive Science and Medicine Program

Ji-Yong Julie Kim, PhD

Co-Director, Center for Reproductive Science

Principal Investigator, T32 Predoctoral Training Program in Reproductive Science, Medicine, and Technology

As co-directors of the Center for Reproductive Science (CRS) at Northwestern University, Francesca E. Duncan, PhD, and Ji-Yong Julie Kim, PhD, oversee the educational portfolio of the center. This includes the:

- Master of Science in Reproductive Science and Medicine (MS-RSM) Program

This year, the MS-RSM Program celebrated over 60 alums and welcomed its seventh cohort of students. A total of eight students have now participated in the T32 program, including four alumni and four current trainees. The educational programs in the Center for Reproductive Services offer rigorous reproductive science training with a unique focus on human reproductive health for the next generation of leaders in the field.

These programs are all housed within the center, which was established over 30 years ago by Neena B. Schwartz, PhD. The Center for Reproductive Science is a long-standing academic and research center at Northwestern University serving to develop a community of reproductive scientists and provide member support through collaborative grants, networking events, data clubs, seminars and trainee professional development activities.

To learn more about the MS-RSM Program, please read:
Bold names denote Northwestern Medicine Department of Obstetrics and Gynecology faculty, trainees and staff at the time of publication.
Ataman-Millhouse LM, Monahan P, Willingham R, Vigone G, Soulakis M, Gadea J, Jiménez-Movilla M, Romar R, Cánovas S, **Woodruff TK, Duncan FE**. Broadening the educational pipeline: the global landscape of master of science programs in reproductive science and medicine. *Biol Reprod*. 2022;107(3):664-675.

Faculty spotlight:
Kara N. Goldman, MD

Associate Professor of Obstetrics and Gynecology, Division of Reproductive Endocrinology and Infertility
Medical Director of Fertility Preservation,
Northwestern Medicine Center for Fertility and Reproductive Medicine
Associate Program Director, Fellowship in Reproductive Endocrinology and Infertility

Kara N. Goldman, MD, is a leader in fertility preservation and ovarian aging, having received funding from the ASRM and two generous Friends of Prentice awards in support of this work. Her research focuses on the role of the PI3K/AKT/mTOR pathway in iatrogenic and physiologic ovarian aging, with a two-fold goal of identifying:

- Pharmacologic fertoprotective agents to preserve fertility and ovarian function during gonadotoxic chemotherapy and radiation
- Druggable molecular pathways involved in ovarian aging to promote reproductive longevity and maintain endogenous ovarian function

Dr. Goldman works closely with Dr. Duncan, an esteemed ovarian biologist and co-director of the Center for Reproductive Science. She also serves on the editorial board of *Fertility and Sterility* and the *Journal of Assisted Reproduction and Genetics* with the goal of contributing to the scientific growth of the field.

Dr. Goldman directs the Northwestern Medicine Fertility Preservation Program, caring for patients with cancer and other fertility-threatening medical conditions, as well as those seeking gamete and embryo cryopreservation before gender-affirming therapy. She is the incoming chair of the ASRM Fertility Preservation Special Interest Group and the co-director of the Oncofertility Consortium Systems Optimization, Advocacy, and Resource (SOAR) Committee.

Faculty expansions

Elnur Babayev, MD, MSCI
Assistant Professor of Obstetrics and Gynecology, Division of Reproductive Endocrinology and Infertility
September 2022
Medical School: Istanbul University Cerrahpasa Faculty of Medicine, Turkey
Residency: McGaw Medical Center of Northwestern University
Fellowship: McGaw Medical Center of Northwestern University
Clinical Interests: Infertility care and reproductive system disorders with a particular focus on reproductive aging, premature ovarian failure and fertility preservation in pediatric patients with various diseases

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Oluwateniola "Teni" Brown, MD
Assistant Professor of Obstetrics and Gynecology, Division of Female Pelvic Medicine and Reconstructive Surgery
Director for Diversity, Equity, and Inclusion, Department of Obstetrics and Gynecology
Assistant Director of McGaw Diversity and Inclusion, McGaw Medical Center of Northwestern University
September 2021
Medical School: University of Rochester School of Medicine and Dentistry
Residency: McGaw Medical Center of Northwestern University
Fellowship: McGaw Medical Center of Northwestern University
Clinical Interests: Minimally invasive (laparoscopic, robotic and vaginal) surgical and non-surgical treatment of pelvic floor disorders, including pelvic organ prolapse, urinary and fecal incontinence, and genitourinary fistulas

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Emily M. Hinchcliff, MD, MPH
Assistant Professor of Obstetrics and Gynecology, Division of Gynecologic Oncology
Obstetrics and Gynecology Associate Residency Program Director
September 2021
Medical School: Harvard Medical School
Residency: Brigham and Women's Hospital/Massachusetts General Hospital Integrated Residency Program
Fellowship: University of Texas MD Anderson Cancer Center
Clinical Interests: Clinical trials with a particular focus on immunotherapy, minimally invasive radical surgery, medical education

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Katerina (Kat) R. Hoyt, MD
Instructor of Obstetrics and Gynecology, Division of General Obstetrics and Gynecology
September 2022
Medical School: Johns Hopkins School of Medicine
Residency: John Hopkins Hospital
Clinical Interests: General obstetrics and gynecology, prenatal care, lactation medicine, minimally invasive gynecologic surgery, abnormal uterine bleeding, colposcopy

Elsa M. Isak, MD
Health System Clinician, Department of Obstetrics and Gynecology
September 2021
Medical School: University of North Carolina at Chapel Hill
Residency: McGaw Medical Center of Northwestern University
Clinical Interests: Prenatal care, gynecologic surgery

Rebecca S. Keith, MD
Health System Clinician, Department of Obstetrics and Gynecology
June 2021
Medical School: Indiana University School of Medicine
Residency: St. Vincent Hospital
Additional Current Role: Prentice Hospital OB Triage Unit Educator
Clinical Interests: Obstetric emergency department care, robotic gynecological surgery

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Jenna Z. Marcus, MD
Assistant Professor of Obstetrics and Gynecology, Division of Gynecologic Oncology
December 2021
Medical School: Wayne State University
Residency: New York University Medical Center
Fellowship: Albert Einstein College of Medicine/Montefiore Medical Center
Clinical Interests: Complex pelvic surgery; management of vulvar, vaginal and cervical dysplasia; surgical management and chemotherapeutic treatment of gynecologic malignancies, including cancers of the ovary, uterus, cervix, vulva, vagina and those with gestational trophoblastic disease

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Ismely F. Minaya, MD
Assistant Professor of Obstetrics and Gynecology, Division of General Obstetrics and Gynecology
Director of Clerkship Assessment, Department of Obstetrics and Gynecology
September 2021
Medical School: Icahn School of Medicine at Mount Sinai
Residency: Albert Einstein College of Medicine/Montefiore Medical Center
Clinical Interests: Well-woman care, benign gynecologic conditions, abnormal uterine bleeding, menstrual irregularities, colposcopy, pregnancy, childbirth, the postpartum period

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Rajal C. Patel, MD
Instructor of Obstetrics and Gynecology, Northwestern Medicine Center for Sexual Medicine and Menopause
December 2020
Medical School: Northwestern University Feinberg School of Medicine
Residency: University of Wisconsin Hospitals and Clinics
Fellowship: University of Michigan Health System
Clinical Interests: Comprehensive evaluations and treatment plans that combine the expertise of gynecologists, pelvic floor physical therapists and other specialties to treat sexual pain disorders, vulvodynia, infections, menopause therapy and dermatologic conditions that affect the vulva and the vagina

Joan K. Riley, PhD
Associate Professor of Obstetrics and Gynecology, Division of Reproductive Endocrinology and Infertility
Laboratory Director of the Embryology and Andrology Laboratories at the Center for Fertility and Reproductive Medicine
March 2021
Graduate Education: Washington University School of Medicine
Clinical Interests: Improving IVF outcomes through data-driven optimization of embryology and andrology laboratory processes

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Ashley M. Turner, MD, MSCI
Assistant Professor of Obstetrics and Gynecology, Division of General Obstetrics and Gynecology
Director for the Ryan Program in the Section of Complex Family Planning
August 2020
Medical School: Michigan State University College of Human Medicine
Residency: University of Wisconsin
Fellowship: McGaw Medical Center of Northwestern University
Clinical Interests: Complex family planning, including contraception and abortion care; general obstetrics and gynecology, including prenatal care, and medical and surgical treatment of gynecologic concerns, such as abnormal uterine bleeding, fibroids and adnexal masses; health care for LGBTQ patients

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Kristen R. Venuti, MD
Instructor of Obstetrics and Gynecology, Division of General Obstetrics and Gynecology
Obstetrics and Gynecology Associate Residency Program Director
August 2020
Medical School: Medical College of Georgia
Residency: University of Pennsylvania Medical Center Magee-Womens Hospital
Clinical Interests: Laparoscopic gynecologic surgery, obstetrics, vulvar disease, medical education

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Jessica R. Walter, MD, MSCE
Assistant Professor of Obstetrics and Gynecology, Division of Reproductive Endocrinology and Infertility
September 2021
Medical School: Harvard Medical School
Residency: McGaw Medical Center of Northwestern University
Fellowship: University of Pennsylvania
Clinical Interests: The development and validation of wireless wearable and digital technologies to deepen the understanding of the physiology and pathology of pregnancy and infertility

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Linda C. Yang, MD, MS
Associate Professor of Obstetrics and Gynecology, Division of Minimally Invasive Gynecologic Surgery
September 2021
Medical School: University of Michigan
Residency: Beth Israel Deaconess Medical Center
Fellowship: University of Pennsylvania Medical Center Magee-Women's Hospital
Clinical Interests: Uterine fibroids, endometriosis, abnormal menstrual bleeding, complex gynecologic surgery

Research

Our Impact on Research*

- **No. 2 among all OB-GYN departments in the U.S. in NIH funding for 2021****
- **$18,176,554 in NIH funding**
- **$25,365,451 in total grant funding**
- **92 proposals submitted, totaling $167,601,205**
- **More than $350,000 in grants from Friends of Prentice**

NIH Ranking by Total Funding

Source: Blue Ridge Institute for Medical Research

*Data for FY22

**The most recent available ranking at the time of writing (source: Blue Ridge Institute for Medical Research).

Education

Ranked No. 6 in Best Medical Schools for OB-GYN

Northwestern University Feinberg School of Medicine by U.S. News and World Report, *2022*

Residency

Ranked **No. 3** by Doximity Residency Navigator

Fellowships

Complex Family Planning
2 fellows

Female Pelvic Medicine and Reproductive Surgery
3 fellows

Gynecologic Oncology
3 fellows

Maternal-Fetal Medicine
3 fellows

Minimally Invasive Gynecologic Surgery
2 fellows

Reproductive Endocrinology and Infertility
3 fellows

Significant growth in gynecological surgical volume for trainees over the past five years.

Residency program facts:

1,015
total applications for 12 PGY-1 positions

48
residents

100% board pass rate
for qualifying exam for the past 5+ years

97% board pass rate
for certifying exam for the past 5+ years

Approximately 75%
of graduating residents apply and successfully match for competitive subspecialty fellowships

42%
of residents identify as belonging to a group of people underrepresented in medicine

Advanced clerkship

For fourth-year medical students in the Department of Obstetrics and Gynecology, Feinberg School of Medicine offers many rotation options.

To fulfill the sub-internship requirement, Feinberg students can complete this with our department either in Maternal-Fetal Medicine or Gynecologic Oncology. Each month, we can accept up to four sub-internship students.

The sub-internship differs from a fourth-year elective by expecting students to behave like interns — taking ownership over admitted patients, practicing order writing, rounding and even taking overnight calls. Additionally, our students have access to electives in:

- Complex Family Planning
- Reproductive Endocrinology and Infertility
- Reproductive Genetics
- Urogynecology
- Minimally Invasive Gynecology
- Office Practice

Division Updates

The divisions within the Northwestern Medicine Department of Obstetrics and Gynecology provide specialized education and training programs, conduct research and provide patient care through our affiliated hospitals and care sites.

Clinical Genetics

Division summary

The Division of Clinical Genetics is comprised of three physicians, all board-certified in clinical genetics and obstetrics and gynecology, and 10 genetic counselors. The division provides two distinct clinical services: reproductive genetics and cancer genetics. The division is closely integrated with the Graduate Program in Genetic Counseling at Northwestern University.

The team has an ongoing ovarian cancer detection and surveillance clinical program for patients at increased risk secondary to genetic predisposition or family history.

Faculty

Jeffrey S. Dungan, MD
(Division Chief)

Lee P. Shulman, MD

Andrew F. Wagner, MD

Innovation and highlights

- Grew the Early Detection in Genetics (EDGe) Program, a multidisciplinary clinical program for surveillance of people with hereditary cancer predisposition syndromes, funded by the Woman's Board of Northwestern Memorial Hospital
- Expanded cancer genetic services across multiple departments and Northwestern Medicine care centers

FY22 key achievements

Clinical

Successfully continued providing telehealth consultations during the COVID-19 pandemic

Initiated an EDGe clinic for patients with BRCA genetic mutations

Research

Active Grants	2
Publications	9

Reproductive decision-making among BRCA-positive patients

Impact of ovarian cancer detection and surveillance program

Initiation of multidisciplinary stillbirth programs

Education

Our division trains all Northwestern University third-year residents for one month.

We serve as a clinical training site for 16 to 20 genetic counseling graduate students every year.

We provide clinical training for fellows in breast surgery and molecular genetics/pathology, and physician assistant students.

Clinical Genetics team
Left to right: Jeffrey S. Dungan, MD; Lee P. Shulman, MD; Andrew F. Wagner, MD

Key faculty awards and honors

Brittany DeGreef, MS, CGC
Immediate Past President, Illinois Society of Genetic Professionals

Jeffrey S. Dungan, MD
Chair, American College of Medical Genetics and Genomics Professional Practice and Guidelines Committee

Andrew F. Wagner, MD
President-Elect, Central Association of Obstetricians and Gynecologists

Key division publications

Bold names denote Northwestern Medicine Department of Obstetrics and Gynecology faculty, trainees and staff at the time of publication.

Whitehead J, Hirsch J, Rosoklija I, Goetsch Weisman A, **Dungan J**, Finlayson C, Chen D, Johnson EK. Prenatal detection and evaluation of differences of sex development: a qualitative interview study of parental perspectives and unmet needs. *Prenat Diagn*. 2022;42(10):1332-1342.

Katalinic A, **Shulman LP**, Strauss JF, Garcia-Velasco JA, van den Anker JN. A critical appraisal of safety data on dydrogesterone for the support of early pregnancy: a scoping review and meta-analysis. *Reprod Biomed*. 2022;45(2):365-373.

Treff NR, Savulescu J, de Melo-Martin I, **Shulman LP, Feinberg EC**. Should preimplantation genetic testing be offered to all — or none? *Fertil Steril*. 2022;117(6):1162-1167.

Kiley J, Turner A, Nosal C, Beestrum M, **Dungan J**. Labour induction for termination of pregnancy with severe fetal anomalies after 24 weeks gestation: a case series and systematic review of the literature. *Eur J Contracept Reprod Health Care*. 2022. doi: 10.1080/13625187.2022.2102604.

Shulman LP, Dungan JS, Wagner AF. Techniques for prenatal diagnosis. In: *Emery and Rimoin's Principles and Practice of Medical Genetics and Genomics*, 7th ed. Elsevier; 2022.

Female Pelvic Medicine and Reconstructive Surgery

Division summary

The Division of Female Pelvic Medicine and Reconstructive Surgery includes seven board-certified subspecialty surgeon-scientists. The team members hold numerous local and national leadership positions, demonstrating a commitment to establishing standards for education, research and health equity in the field.

The division's Pelvic Health Program is a key clinical integration program within Northwestern Medicine Obstetrics and Gynecology. The goal of integration is to ensure that people with pelvic floor disorders have the same patient experience, outcomes and access to research participation at any location across Northwestern Medicine.

The division offers several innovative, nationally recognized clinical and research programs to provide comprehensive subspecialty care for patients before, during and after pregnancy, and for young people with complex genitourinary anomalies. To improve health equity, the division now offers the same high-quality clinical care and access to clinical trials in the Cook County Health System through John H. Stroger, Jr. Hospital.

Faculty

Kimberly S. Kenton, MD, MS
(Division Chief)

Carol Emi Bretschneider, MD, MST

Oluwateniola (Teni) E. Brown, MD
(Director for Diversity, Equity, and Inclusion)

Sarah A. Collins, MD, MS

Julia Geynisman-Tan, MD

Christina Lewicky-Gaupp, MD

Margaret G. Mueller, MD
(Fellowship Program Director)

FY22 key achievements

Clinical

In July 2022, the Northwestern Medicine Integrated Pelvic Health Program opened its fourth site in Mokena, Illinois.

Our team performed the first single-port robotic hysterectomies and reconstructive surgeries at Northwestern Medicine.

In partnership with pediatric surgeons and urologists from Ann & Robert H. Lurie Children's Hospital of Chicago and infertility specialists from Northwestern Medicine, a multidisciplinary team opened the Collaborative Advanced Reconstructive Evaluation (CARE) Clinic for Women with Congenital Anomalies to care for patients with complex genitourinary anomalies.

A multidisciplinary team of urogynecologists, physical therapists and sexual counselors make up the Peripartum Evaluation and Assessment of the Pelvic Floor Around Delivery (PEAPOD) Clinic. The PEAPOD Clinic offers comprehensive care to patients with birth injuries and has set the standard for high-impact research studies focused on preventing birth injuries and improving birth-related pelvic floor outcomes.

Female Pelvic Medicine and Reconstructive Surgery team
Left to right: Lisa Bednar, MSN, APRN, FNP-BC; Lisa Wehbe, MSN, APRN, FNP-BC, RNFA, CNOR; Margaret G. Mueller, MD; Oluwateniola E. Brown, MD; Kimberly S. Kenton, MD, MS; Christina E. Lewicky-Gaupp, MD; Julia Geynisman-Tan, MD; Maureen Sheetz, MS, APRN, WHNP-BC; Sarah A. Collins, MD, MS; Carol Emi Bretschneider, MD, MST

Research

Active Grants	8
Publications	45

All faculty members are engaged in clinical and translational research related to preventing and treating pelvic floor disorders.

The division received two new large federally funded grants in addition to their existing R01 and two U01s, raising the number of their NIH-funded grants to five.

- Kimberly S. Kenton, MD, MS, is the PI on a U18 from the Agency for Healthcare Research and Quality to facilitate Northwestern Medicine primary care screening for urinary incontinence.
- Dr. Kenton is also the PI on the UG1 Pelvic Floor Disorders Network from NICHD. Only six sites in the U.S. are selected.

Education

Matches excellent Female Pelvic Medicine and Reconstructive Surgery fellow candidates who have all passed their certification exam, published their theses in respected journals and participate in academic medicine

Trains urology residents and obstetrics and gynecology residents in nonsurgical and surgical management of urinary incontinence and pelvic floor disorders

Engages in research mentorship of residents

Trains obstetrics and gynecology residents and urology residents at Prentice Women's Hospital, John H. Stroger, Jr. Hospital and regional Northwestern Medicine sites

The Division of Female Pelvic Medicine and Reconstructive Surgery in the news

Providing Comprehensive Care to Survivors of Human Trafficking (featuring Julia Geynisman-Tan, MD)

Key faculty awards and honors

Kimberly S. Kenton, MD, MS
Raymond A. Lee Endowment, American Urogynecologic Society
Arthur Curtis Hale Professorship in Obstetrics and Gynecology

Carol Emi Bretschneider, MD, MST
Pepper Scholar Award

Sarah A. Collins, MD, MS
American College of Surgeons/AUGS Health Policy Scholarship

Key division publications

Bold names denote Northwestern Medicine Department of Obstetrics and Gynecology faculty, trainees and staff at the time of publication.

Mueller MG, Das P, Andy U, Brennaman L, Dieter AA, Dwarica D, Kirby AC, Shepherd JP, Gregory WT, Amundsen CL. Longitudinal urinary microbiome characteristics in women with urgency urinary incontinence undergoing sacral neuromodulation. *Int Urogynecol J.* 2022. doi: 10.1007/s00192-022-05219-0.

Geynisman-Tan J, Mou T, Mueller MG, Kenton K. How does the urethra respond to bladder filling in continent and incontinent women? *Female Pelvic Med Recontr Surg.* 2022;28(5):321-4.

Lai HH, Wiseman JB, Helmuth ME, Smith AR, Amundsen CL, Cameron AP, Glaser AP, Hendrickson WK, Kirkali Z, **Kenton K**. Phenotyping of urinary urgency patients without urgency incontinence, and their comparisons to urgency incontinence patients: findings from the LURN Study. *J Urol.* 2022. doi: 10.1097/JU.0000000000002939.

Brown O, Mou T, Kenton K, Sheyn D, **Bretschneider CE**. Racial disparities in complications and costs after surgery for pelvic organ prolapse. *Int Urogynecol J.* 2022;33(2):385-95.

Das D, Geynisman-Tan J, Mueller M, Kenton K. The leadership landscape: the role of gender in current leadership positions in obstetrics and gynecology departments. *J Minim Invasive Gynecol.* 2022;29(8):952-960.

General Obstetrics and Gynecology

Division summary

The Division of General Obstetrics and Gynecology is made up of 14 clinical faculty members who practice high-volume, broad-scope gynecology and obstetrics. These faculty members support all aspects of medical education and training in the department and across the institution.

In FY22, the division performed 1,400 deliveries, and large volumes of inpatient and outpatient gynecologic procedures. The division also features distinct programs in:

- Pediatric gynecology
- Adolescent health
- Cancer screening and detection
- Transgender care
- Vulvar conditions
- Menopause
- Student health

Four faculty are fellowship-trained Complex Family Planning subspecialists. The Section of Complex Family Planning is within the division.

Division faculty are recognized leaders in the field, and many have received distinctive honors from professional societies. Each faculty member has important roles in our department, the local community and the national arena. They hold positions as:

- Medical society board members
- Elected officers of the American College of Obstetricians and Gynecologists (ACOG)
- Grant reviewers
- Medical directors of hospital service units
- Clerkship directors
- Editorial board members
- American Board of Obstetrics and Gynecology oral examiners
- Legislative advocacy leaders

Faculty

Jessica W. Kiley, MD, MPH
(Vice Chair of Clinical Operations and Division Chief)

Weronika A. Armstrong, MD

Arjeme D. Cavens, MD
(Medical Director of Prentice Ambulatory Care)

Cassing Hammond, MD
(Director of Section Complex Family Planning)

Katerina Hoyt, MD

Marybeth Lore, MD

Leanne R. McCloskey, MD, MPH
(Medical Director of Postpartum, Fellowship Director of Complex Family Planning)

Tacoma A. McKnight, MD

Ismely F. Minaya, MD

Catherine A. Nosal, MD

Maura P. Quinlan, MD, MPH

Melissa A. Simon, MD, MPH
(Vice Chair of Research)

Ashley M. Turner, MD, MSCI

Kristen R. Venuti, MD

Amber N. Watters, MD
(Medical Director of Labor and Delivery)

General Obstetrics and Gynecology team
Left to right, back row: Mary E. Vaikutis, RN, MSN, APN; Kristen R. Venuti, MD; Katerina R. Hoyt, MD; Catherine A. Nosal, MD; Arjeme D. Cavens, MD; Weronika A. Armstrong, MD; Jean Ramos, RN, MSN, APN
Left to right, front row: Ruth Michon, RN, MS, APN; Ashley M. Turner, MD, MSCI; Jessica W. Kiley, MD, MPH; Ismely F. Minaya, MD; Tacoma McKnight, MD; Maura P. Quinlan, MD, MPH; Amber N. Watters, MD [Missing: Marybeth Lore, MD; Leanne McCloskey, MD, MPH; Melissa A. Simon, MD, MPH]

Innovation and highlights

- Arjeme D. Cavens, MD, completed service on the SASGOG/ACOG Uterine Cancer Expert Panel, which produced new important society publications.
- Amber N. Watters, MD, led and collaborated on research innovations in electronic fetal monitoring and ultrasound technology.

FY22 key achievements

Clinical

The NIH awarded Melissa A. Simon, MD, MPH, $16 million over five years to fund the cluster hiring of new faculty members in the areas of cancer, cardiovascular, and brain and behavioral sciences to disrupt systemic barriers impeding the full participation of underrepresented groups.

Expanded services at offered in the north Chicago suburbs.

Led quality and process improvement initiatives.

Research

Active Grants	19
Publications	8

Received new grants, including those awarded by Friends of Prentice and collaboration on projects funded by the Bill and Melinda Gates Foundation.

Junior faculty members published original research.

Education

OB-GYN undergraduate medical education leadership:

- Weronika A. Armstrong, MD, Clerkship Director
- Marybeth Lore, MD, Associate Clerkship Director
- Ismely F. Minaya, MD, Director of Clerkship Assessment

The Section of Complex Family Planning and its educational programs are part of the Division of General OB-GYN

- Leanne R. McCloskey, MD, MPH, Fellowship Director
- Ashley M. Turner, MD, MSCI, Ryan Residency Training Program Director

The Division of General Obstetrics and Gynecology in the news

Illinois Hospitals Brace for a Flood of Out-of-State Doctors Seeking Abortion Training (featuring Cassing Hammond, MD)

The Most Common Abortion Procedures and When They Occur (featuring Cassing Hammond, MD)

Northwestern University Receives $16 Million Grant to Support Faculty Recruitment and Equity (featuring Melissa A. Simon, MD, MPH)

Key faculty awards and honors

Leanne R. McCloskey, MD, MPH
Society of Academic Specialists in General Obstetrics and Gynecology Faculty Award

Maura P. Quinlan, MD
Lead, Illinois State Medical Society Government Affairs Committee

Jessica W. Kiley, MD, MPH
Chair, American College of Obstetricians and Gynecologists, Illinois Section (elected position)

Key division publications

Bold names denote Northwestern Medicine Department of Obstetrics and Gynecology faculty, trainees and staff at the time of publication.

Shahawy S, Onwuzurike C, **Premkumar A, Henricks AA, Simon MA**. Perspectives of women of refugee background on healthcare needs in a major urban metropolitan community in the US: a qualitative needs assessment. *Health Soc Care Community*. 2022. doi: 10.1111/hsc.13989.

Folsom SM, Cejtin H, **Milad M**, Armstrong K, **Armstrong WA**. Improving colposcopy education through images: a preliminary assessment of an image-based mobile app for colposcopic education. *J Low Genit Tract Dis*. 2022. doi: 10.1097/LGT.0000000000000696.

Chelmow D, Brooks R, **Cavens A**, et al. Executive summary of the Uterine Cancer Evidence Review Conference. *Obstet Gynecol*. 2022;139(4):626-643.

Kiley J, Turner A, Nosal C, Beestrum M, **Dungan J**. Labor induction for termination of pregnancy with severe fetal anomalies after 24 weeks' gestation: a case series and systematic review of the literature. *Eur J Contracept Reprod Health Care*. 2022. doi: 10.1080/13625187.2022.2102604.

US Preventive Services Task Force, Davidson KW, Mangione CM, Barry MJ, Cabana MD, Caughey AB, Davis EM, Donahue, KE, Doubeni CA, Krist AH, Kubik M, Li L, Ogedegbe G, Pbert L, Silverstein M, **Simon M**, Stevermer J, Txeng CW, Wong JB. Actions to transform US preventive services task force methods to mitigate systemic racism in clinical preventive services. *JAMA*. 2021;326(23):2405-2411.

Section of Complex Family Planning

Section summary

The Section of Complex Family Planning consists of four Complex Family Planning subspecialists who staff one of the region's longest-serving and most-respected hospital-based abortion practices.

The clinical practice includes a Complex Contraception Clinic for patients with medical or other issues that make contraception challenging.

For 20 years, the section has collaborated with Family Planning Associates Clinic to host the Fellowship in Complex Family Planning, an ACGME-approved program, training leaders in family planning throughout the United States. It also hosts a Ryan Residency Training Program. In addition to education and research, the Section of Complex Family Planning's mission also includes advocacy – promoting the fundamental right to choose whether to become pregnant, remain pregnant or prevent pregnancy.

Faculty

Cassing Hammond, MD
(Section Director; Director of Illinois Coalition of Abortion Providers)

Allison A. Cowett, MD, MPH
(Medical Director, Family Planning Associates, Ltd.)

Jessica W. Kiley, MD, MPH
(Vice Chair, Clinical Operations; Division Chief, General Obstetrics and Gynecology; Medical Director, Northwestern Medical Group Women's Health)

Leanne R. McCloskey, MD, MPH
(Director, Fellowship in Complex Family Planning; Medical Director, Post-Partum)

Ashley M. Turner, MD, MSCI
(Director, Ryan Program in Complex Family Planning)

FY22 key achievements

Clinical

Provided medical and surgical abortion for highly complex patients through 24 weeks gestation.

Received a $2.3 million grant from the Woman's Board of Northwestern Memorial Hospital to endow a fellowship in Complex Family Planning.

Transitioned management structure so Cassing Hammond, MD, is Chief of Complex Family Planning and Leanne R. McCloskey, MD, MPH, now directs the fellowship in Complex Family Planning.

Developed the ICAP, which works with other stakeholders to help maintain access to safe, affordable, legal abortion in Illinois.

Research

Active Grants	4
Publications	8

Ongoing research projects include:

Transcutaneous Electrical Nerve Stimulation for Pain Control During Cervical Dilator Placement Prior to Dilation and Evacuation: A Randomized Controlled Trial

Trends in Non-resident Abortions in Illinois From 2005 - 2017

Factors Associated With an Increased Grief Response Following Termination of Pregnancy for Fetal or Maternal Indications

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Postpartum Weight Loss in Overweight and Obese Women Utilizing Immediate Postpartum Insertion of the Etonogestrel Subdermal Implant

Retrospective Analysis of Complications Following Second Trimester Labor Induction Abortion

Education

Received ACGME accreditation in March 2021, one of the first programs to pursue accreditation since the ACGME assumed responsibility for fellowship accreditation and renamed the specialty Complex Family Planning in 2020. This was the culmination of a 30-year effort at the national level and a 20-year presence at Northwestern Medicine.

Hosted a record number of students, including two from out of state, in the Complex Family Planning Fourth-Year Medical Student Elective.

The Section of Complex Family Planning in the news

Headache in Pregnancy: What's in the New ACOG Guidelines (featuring Catherine S. Stika, MD)

Illinois Clinics Ramp Up Aid for Women Seeking Abortions Across State Lines (featuring Allison A. Cowett, MD, MPH)

Staffing Shortages in Illinois for Abortion Care (featuring Allison A. Cowett, MD, MPH)

Key faculty awards and honors

Leanne R. McCloskey, MD, MPH
Society for Academic Specialists in General Obstetrics and Gynecology Faculty Award

Jessica W. Kiley, MD, MPH
Illinois Chair, American College of Obstetricians and Gynecologists

Cassing Hammond, MD
Founder and leader, Illinois Coalition of Abortion Providers

Key division publications

Bold names denote Northwestern Medicine Department of Obstetrics and Gynecology faculty, trainees and staff at the time of publication.

Latta K, Barker E, **Kendall P**, Testani E, Laursen L, **McCloskey L**, York S. Complications of second trimester induction for abortion or fetal demise for patients with and without prior cesarean delivery. *Contraception.* 2023;117:55-60.

Dahl C, Turner A, Bales C, **Cheu L**, Singh A, **Cowett A, McCloskey L**. Influence of the coronavirus disease 2019 (COVID-19) pandemic on delays in and barriers to abortion. *Obstet Gynecol.* 2021;138(5):805-808.

Hammond C. Overview of second-trimester pregnancy termination. UpToDate, Steinauer, Chakrabarti, Eds, UpToDate; Waltham, MA (Update 9/22).

McCloskey L, Wisner K, Cattan MK, Betcher HK, **Stika C, Kiley J**. Contraception for women with psychiatric disorders. *Am J Psychiatry.* 2021;178(3):247-255.

Gynecologic Oncology

Division summary

The Division of Gynecologic Oncology continues to build a track record of sustained clinical growth and research excellence that benefits our patients and trainees. The division is a leader in surgical innovation, providing the best care for gynecologic cancer patients in the Midwest. We look forward to an exciting future built around a core of young faculty members with bright futures in our field.

Faculty

Edward J. Tanner III, MD, MBA
(Division Chief)

Emma L. Barber, MD, MS

Emily M. Hinchcliff, MD, MPH
(Associate Program Director of Obstetrics and Gynecology Residency)

Jenna Z. Marcus, MD
(Associate Program Director of Gynecologic Oncology Fellowship)

Daniela E. Matei, MD
(Division Chief of Reproductive Science in Medicine)

Dario R. Roque, MD
(Program Director of Gynecologic Oncology Fellowship, Co-Director of Placental Accreta Program)

Innovation and highlights

- Our P20 Program Project Center Grant from the NCI in Disparities for Gynecologic Oncology Care continues to move forward.
  - In support of this mission, Dario R. Roque, MD, received a Bristol Myers Squibb Foundation Diversity in Clinical Trials Career Development Program Grant, acknowledging his role as an investigator from an underrepresented minority group.
- Gynecologic oncology trials can now be opened throughout Northwestern Medicine with a single trial startup process. The gynecologic oncology program is one of the first disease teams within the cancer center that has achieved this level of cohesion.
- Several investigator-initiated trials have opened over the last year. These include Dr. Barber's prehabilitation study, Dr. Roque's HIPEC study and Dr. Tanner's NRG trial.
- The multidisciplinary Placenta Acreta Spectrum (PAS) Program involving Maternal-Fetal Medicine, Gynecologic Oncology and Obstetrical Anesthesia is growing. The program has reduced perioperative morbidity and improved maternal outcomes since implementation.

FY22 key achievements

Clinical

Two additional faculty members with expertise in education and clinical trials started at Northwestern Medicine last fiscal year: Emily M. Hinchcliff, MD, MPH, and Jenna Z. Marcus, MD.

Clinical volume, as measured by Relative Value Unit targets, exceeded expectations by 14%, reflecting our clinical excellence and a strong reputation for gynecologic oncology care.

Integration of clinical programs throughout Northwestern Medicine continues as gynecologic oncology services expand in Chicago and the west, north and south suburbs.

Gynecologic Oncology team
Left to right: Mary Callaghan, APRN-CNS, AOCNS; Nancy Anderson, MSN, APN-BC; Patricia Kaye, MSN, APRN; Raanan Y. Alter, MD; Emily M. Hinchcliff, MD, MPH; Edward J. Tanner, III, MD, MBA; Emma L. Barber, MD, MS; Daniela E. Matei, MD; Jenna Z. Marcus, MD; Dario R. Roque, MD; Nicole Tasker, MSN, FNP-BC; Karen Novak, MSN, ACNP-BC

Research

Active Grants	5
Publications	29

Dario R. Roque, MD, was awarded two grants totaling more than $120,000:

- One to study the effects of heated intra-peritoneal chemotherapy on ovarian cancer DNA damage and repair.
- One to support the development of a Chicago-wide gynecologic cancer database and online platform for clinical trial education, outreach and recruitment.

Jenna Z. Marcus, MD, was awarded a $77,052 grant from Friends of Prentice to explore the impact of intermittent fasting after surgery for patients undergoing chemotherapy.

The research team hired two research coordinators and a research nurse to support the division's rapidly growing research portfolio needs.

The division opened its first interventional clinical trial (Fit4Surgery) in the north and west suburbs of Chicago.

Education

Dario R. Roque, MD, became the fellowship program director in July 2022. Jenna Z. Marcus, MD, will serve as associate program director.

Gynecologic oncology fellows participated in basic science laboratory experiences with Mazhar Adli, PhD, and Ji-Yong Julie Kim, PhD, strengthening educational and research connections within the department.

Over the last four years, 12 Northwestern University residents have matched into gynecologic oncology fellowship programs at top institutions across the U.S. In addition, four medical students rotated on our gynecologic oncology sub-internship rotation in summer 2022, all of whom applied to an OB-GYN residency this year.

The Division of Gynecologic Oncology in the news

New Initiative Aims to Increase Collaboration and Accelerate High-Impact Cancer Immunotherapy (featuring Daniela E. Matei, MD)

Key faculty awards and honors

Emma L. Barber, MD, MS
R03 Grant: Dr. Barber received a competitive grant from the National Institution of Aging to explore prehabilitation for older women with ovarian cancer undergoing neoadjuvant chemotherapy before surgery.

Dario R. Roque, MD
Career development grant from the Bristol Myers Squibb Foundation Diversity in Clinical Trials Career Development Program: The grant is to support Dr. Roque's early career clinical trials research efforts ($120,000 in salary support for two years).

Edward J. Tanner III, MD, MBA
Elected Chair of AAGL Oncology Interest Group: Dr. Tanner will lead oncology-related content for the AAGL throughout the year and for the AAGL Annual Meeting.

Key division publications

Bold names denote Northwestern Medicine Department of Obstetrics and Gynecology faculty, trainees and staff at the time of publication.

Grubbs A, Barber EL, Roque DR. Healthcare disparities in gynecologic oncology. *Adv Oncol.* 2022;2(1):119-128.

Chen S, Xie P, **Cowan M, Huang H, Cardenas H**, Keathley R, **Tanner EJ**, Fleming GF, Moroney JW, Pant A, **Akasha AM**, Davuluri RV, **Kocherginsky M, Zhang B**, **Matei D**. Epigenetic priming enhances antitumor immunity in platinum-resistant ovarian cancer. *J Clin Invest.* 2022;132(14):e158800.

Towner M, Kim JJ, Simon MA, Matei D, Roque D. Disparities in gynecologic cancer incidence, treatment, and survival: a narrative review of outcomes among Black and white women in the United States. *Int J Gynecol Cancer.* 2022;32(7):931-8.

Zhang Y, Wang Y, Zhao G, Tanner EJ, Adli M, Matei D. FOXK2 promotes ovarian cancer stemness by regulating the unfolded protein response pathway. *J Clin Invest.* 2022;132(10):e151591.

Hinchcliff E, Westin SN, Herzog TJ. State of the science: contemporary front-line treatment of advanced ovarian cancer. *Gynecol Oncol.* 2022;166(1):18-24.

Maternal-Fetal Medicine

Division summary

The Maternal-Fetal Medicine (MFM) Division's 10 physician faculty and two advanced practice providers deliver compassionate, collaborative medical care to high-risk obstetrical patients. The division is dedicated to advancing the care of the pregnant patient and fetus by being leaders in clinical care, education and research.

In addition to providing prenatal care, division members are experts in labor and delivery, antepartum care of patients with complex conditions, obstetrical ultrasound and prenatal diagnosis. In conjunction with the Chicago Institute for Fetal Health, the division provides the full spectrum of fetal therapy. The division aspires to provide care to patients in the greater Chicago area and beyond using various outreach methods.

Faculty

Janelle Renee Bolden, MD
(Division Chief and Interim Chief of Obstetrics)

Nevert Badreldin, MD, MS

Patricia M. Garcia, MD, MPH

Susan E. Gerber, MD, MPH
(Vice Chair of Education)

Michelle A. Kominiarek, MD, MS

LaTasha D. Nelson, MD, MS
(Co-Director of Placental Accreta Program)

Priya V. Rajan, MD
(Medical Director of Diagnostic Ultrasound)

Michael L. Socol, MD

Bethany T. Stetson, MD
(Medical Co-Director of Labor and Delivery)

Lynn M. Yee, MD, MPH (Associate Chief of Maternal-Fetal Medicine for Research)

Advanced practice providers

Charlotte Niznik, APN

Ismene Potakis, PA-C

Innovation and highlights

- Telemedicine continues to revolutionize the way we provide preconception-, maternal- and ultrasound-related consultations to patients in Chicagoland and beyond.
- Collaboration with the Chicago Institute for Fetal Health allows for exceptional multidisciplinary care for pregnant patients with fetal abnormalities.
- The division houses the Northwestern Medicine Placenta Accreta Center, led by LaTasha D. Nelson, MD, MS. Here, we provide excellent, comprehensive, multidisciplinary care to patients with placenta accreta spectrum disorder.
- MFM and Neonatology teams provide individualized, compassionate care via joint consultations to patients with pregnancies complicated by periviability concerns.

FY22 key achievements

Clinical

The Northwestern Medicine Women's Infectious Disease Program continues to lead the clinical care of families affected by HIV during pregnancy, including participating in NIH-funded multicenter studies about the health of pregnant and reproductive age women with HIV.

Successfully transitioned the COMPASS program, a multidisciplinary coordinated clinical care approach to perinatal mood disorders, to a new leader, LaTasha D. Nelson, MD, MS.

Research

Active Grants	13
Publications	31

The MFM remains a key site of the Eunice Kennedy Shriver National Institute of Child Health and Human Development-funded MFMU network, participating in many national trials and studies.

The Yee lab works diligently to promote health and equity in obstetrics.

Nevert Badreldin, MD, MS, received NIH grant funding (R03) for "Clinician perspective on the postpartum pain experience and attitudes about pain management."

Education

Fully accredited and successful three-year fellowship in Maternal-Fetal Medicine

Stephanie Fisher (PGY-7) was awarded 2022 Eleanor Wood-Prince Grant and 2023 Dixon Translational Research Grant recipient

Multiple division members honored with undergraduate and graduate teaching awards every year

The Division of Maternal-Fetal Medicine in the news

Chicago Doctors Seeing Surge in Out-of-State Women With High-Risk Pregnancies Seeking Abortion Care (featuring Susan E. Gerber, MD, MPH)

Is There a Doctor in the House or Senate? Medical Trainees Learn to Advocate (featuring LaTasha D. Nelson, MD, MS)

Pregnancy-Related Deaths Climbed in Pandemic's First Year (featuring Janelle Renee Bolden, MD)

Key faculty awards and honors

Janelle R. Bolden, MD
Member, Society for Maternal-Fetal Medicine Committee on Patient Education

Nevert Badreldin, MD, MS
Member, Histoplasmosis Guideline Panel, Infectious Disease Society of America
Panel Member, Frequency of Prenatal Care Visits (FORCAST)

LaTasha D. Nelson, MD, MS
Member, Governor's Council on Cannabis Use, Illinois
Member, Illinois Perinatal Quality Collaborative

Priya V. Rajan, MD
Chair, Society for Maternal-Fetal Medicine, Committee on Patient Education

Lynn M. Yee, MD, MPH
Thomas J. Watkins Memorial Professor of Obstetrics and Gynecology
Member, Society for Maternal-Fetal Medicine Research Committee and Editorial Review Committee
Co-Leader, Society for Maternal-Fetal Medicine 2022 President's Workshop on Social Determinants of Health and Obstetric Outcomes
Elected to Department of Health and Human Services Perinatal HIV Guidelines Panel

Maternal-Fetal Medicine and Diagnostic Ultrasound teams
Left to right: Ralph K. Tamura, MD; Michelle A. Kominiarek, MD, MS; LaTasha D. Nelson, MD, MS; Priya V. Rajan, MD; Patricia M. Garcia, MD, MPH; Janelle Renee Bolden, MD; Susan E. Gerber, MD, MPH; Lynn M. Yee, MD, MPH; Bethany T. Stetson, MD; Nevert Badreldin, MD, MS [Missing: Michael L. Socol, MD; Leeber Cohen, MD]

Key division publications

Bold names denote Northwestern Medicine Department of Obstetrics and Gynecology faculty, trainees and staff at the time of publication.

Dude AM, Yee LM, Henricks A, Eucalitto P, Badreldin N. Neonatal hypoglycemia after antenatal late preterm steroids in individuals with diabetes. *J Perinatol.* 2021;41(12):2749-2753.

Kominiarek MA, Cordero C, Stuebe AM, **Simon M**, Evenson KR, et al. Pre-pregnancy health behaviors and gestational weight gain among Hispanic/Latino women: Hispanic community health study/study of Latinos. *Matern Child Health J.* 2021;25(12):2002-2013.

Ruderman RS, Dahl EC, Williams BR, Feinglass JM, Kominiarek MA, Grobman WA, Yee LM. Obstetric provider perspectives on postpartum patient navigation for low-income patients. *Health Educ Behav.* 2021. doi: 10.1177/10901981211043117.

Cassimatis IR, Ayala LD, **Miller ES, Garcia PM**, Jao J, Yee LM. Third-trimester repeat HIV testing: it is time we make it universal. *Am J Obstet Gynecol.* 2021;225(5):494-499.

Gomez H, **DiTosto JD, Niznik CM, Yee LM**. Understanding food security as a social determinant of diabetes-related health during pregnancy. *Am J Perinatol.* 2021. doi: 10.1055/s-0041-1740194.

Section of Diagnostic Ultrasound

Section summary

The Section of Diagnostic Ultrasound provides comprehensive obstetric and gynecologic ultrasound services to patients across Chicagoland and around the world. The section has grown along with the Maternal-Fetal Medicine Division. The section collaborates with the various divisions within the Department of Obstetrics and Gynecology, as well as the Chicago Institute for Fetal Health.

In FY22, the section successfully completed more than 25,000 ultrasound interpretations for offsite partners and more than 30,000 interpretations for the downtown Chicago locations, for an average of more than 200 interpretations per weekday.

All ultrasound operations in the Department of Obstetrics and Gynecology have been awarded accreditation until 2023 in the following areas by the American Institute of Ultrasound in Medicine:

- Standard Obstetric Ultrasound
- Detailed Fetal Anatomic Evaluation Ultrasound
- Gynecologic Ultrasound
- 3D Gynecologic Ultrasound

Our experienced sonographers are certified by the American Registry for Diagnostic Medical Sonography, and many have advanced training in obstetrics.

Faculty

Priya V. Rajan, MD
(Medical Director)

Leeber Cohen, MD

Ralph K. Tamura, MD

Innovation and highlights

- Expanded telemedicine services to accelerate consultations on ultrasound findings.
- Participated in the development of AI protocols for follow-up of adnexal masses.

FY22 key achievements

Clinical

Maintained strong ultrasound volumes for downtown locations and offsite partners throughout the different stages of the COVID-19 pandemic (more than 200 studies a day).

Updated clinical guidance and imaging protocols to align with most current recommendations from national societies.

Adapted workflows to increase efficiency and ergonomic safety.

Research

Robust clinical enterprise allows for the identification of patients for potential enrollment in several studies such as a MFMU trial evaluating the role of pessary or gel in preventing preterm birth for patients with a twin gestation and short cervix.

Several current resident, fellow and student research projects use our extensive ultrasound databases.

Education

The section works with program directors to evaluate current teaching methods and how to improve educational experiences.

The section hosts monthly multidisciplinary conferences to discuss the implications of a range of conditions that can be identified on prenatal ultrasound.

Minimally Invasive Gynecologic Surgery

Division summary

The Division of Minimally Invasive Gynecologic Surgery (MIGS) anchors patient care in the Northwestern Medicine Center for Complex Gynecology, a multidisciplinary center for collaborating specialists that includes the following specialties:

- Minimally invasive gynecologic surgery
- Reproductive endocrinology and infertility
- Physical medicine and rehabilitation
- Physical therapy
- Interventional radiology
- Psychology
- Internal medicine
- Sexual medicine and menopause

The center focuses on treatment for fibroids, endometriosis, pelvic pain, tubal disease, and vaginal and uterine anomalies in a space specifically designed to prioritize the patient experience.

To support patients, the space also provides access to:

- Three full-time physical therapists
- Two nurse practitioners
- Three sex therapists
- Ultrasound and laboratory services

Patient experience is carefully orchestrated to allow all information and tests required to be obtained prior to the initial visit so that a detailed care plan can be organized without multiple return visits.

To complete the academic mission, the clinic:

- Has a full-time research coordinator on staff
- Has approximately 10 ongoing research studies
- Offers an accredited AAGL fellowship
- Hosts residents and students from Northwestern University's medical physician assistant, and nurse practitioner schools

Faculty

Magdy P. Milad, MD, MS
(Division Chief)

Angela Chaudhari, MD
(Chief of Gynecology and Gynecologic Surgery)

Sarah K. Hwang, MD
(Medical Director of Women's Health Rehabilitation)

Susan Tsai, MD

Linda C. Yang, MD, MS

Innovation and highlights

- The MIGS Division are founding members, along with plastic surgeons and urologists, of the Northwestern Medicine Gender Pathways Program providing surgical transition for transgender and gender non-conforming patients. The program has expanded to provide all aspects of transition care, including primary care physicians, endocrinologists, psychiatrists, counselors and speech therapists across Chicagoland.
- We are able to use new surgical technologies in the care of our patients with the adoption of vNOTES and single-site robotic surgery.

FY22 key achievements

Clinical

Consistently exceeds "Patient Likelihood to Recommend Provider" goal with a score of 92 out of 100*

Strong referral base for benign and complex surgery consultation, including multidisciplinary endometriosis care, uterine fibroids and reproductive surgery

Clinical surgical volumes continue to increase yearly with all modalities, including laparoscopic, hysteroscopic, robotic and vaginal surgery, offered to patients

*Source: Medallia

Minimally Invasive Gynecologic Surgery team
Left to right: Patricia Handler, MSN, FNP-C; Susan C. Tsai, MD; Angela Chaudhari, MD; Magdy P. Milad, MD, MS; Linda C. Yang, MD, MS; Audrey Fenwick, MS, PA-C

Research

Active Grants	3
Publications	10

Key studies underway:

#EMPOWER study, the largest ever conducted to develop a noninvasive diagnostic test for endometriosis (Dot Laboratories, $300,000; PI: Magdy P. Milad, MD, MS)

The Role of ICG in Detecting Endometriosis and Other Benign Complex Gynecologic Conditions (Storz, $43,000; PI: Magdy P. Milad, MD, MS)

Understanding Endometriosis: Generation of Induced Pluripotent Stem Cells From Endometriosis Patients (Friends of Prentice, $100,000; Co-PI: Magdy P. Milad, MD, MS)

Education

MIGS faculty are educational leaders and invited lecturers at national and international conferences around the world including ACOG, AAGL, SGS and ASRM.

A robust resident and fellow curriculum is in place with a regular MIGS journal club and didactic series, fibroid conference and pre-operative planning conference, in addition to developing weekly resident endoscopy rounds.

Organization of vNotes courses for Northwestern Medicine faculty and fellows.

MIGS faculty are consistently awarded Top Teachers award from Feinberg School of Medicine.

Key faculty awards and honors

Linda C. Yang, MD, MS
Nezhat Family Foundation Endometriosis Grant

Angela Chaudhari, MD
Magnes P. Urney Medical Student Teaching Award, 2022

Key division publications

Bold names denote Northwestern Medicine Department of Obstetrics and Gynecology faculty, trainees and staff at the time of publication.

Keller E, **Nixon K**, Oladini L, Chrisman HB, **Chaudhari A, Milad MP**, Vogelzang RL. The power of proximity: effects of a multidisciplinary fibroid clinic on inter-specialty perceptions and practice patterns. *PLOS ONE*. 2022;17(1):e0263058.

Folsom SM, Cejtin H, **Milad MP**, Armstrong K, **Armstrong W**. Improving colposcopy education through images: a preliminary assessment of an image-based mobile app for colposcopic education. *J Low Genit Tract Dis*. 2023;27(1):78-82.

Glaser L, **Milad MP**. Fellowship training and surgeon volume in the next era of gynecologic surgery. *J Minim Invasive Gynecol*. 2022;29(9):1021-1022.

Tsai S, Traylor J, **Milad M**, Liu C, Rindos N, Shainker SA. Pelvic organ function after total versus subtotal abdominal hysterectomy. In: Hochman M, editor. *50 Studies Every Obstetrician-Gynecologist Should Know.* Oxford University Press; 2021.

Milad M, Anderson TL. Principles of electrical and laser energy applied to gynecologic surgery. In: Handa VL and Van Le L, eds. *Te Linde's Operative Gynecology*. Wolters Kluwer; 2022.

Section of Sexual Medicine and Menopause

Section summary

The Northwestern Medicine Center for Sexual Medicine and Menopause includes:

- Physicians
- Advanced practice clinicians
- Sex therapists certified by the American Association of Sexuality Educators, Counselors and Therapists
- Pelvic floor physical therapists

The multidisciplinary team works collaboratively in four distinct programs:

Program for Menopause. Both hormonal and nonhormonal strategies are used to address vasomotor symptoms, genitourinary syndrome of menopause, and other repercussions of hypoestrogenemia. All clinicians are certified by the North American Menopause Society.

Program for Sexual Medicine. While cultural norms, religious beliefs, trauma, social issues, general health and age all influence an individual's ability to have a normal sexual response, medical comorbidities, such as endometriosis, diabetes and cancer, often precipitate or complicate an existing problem. Dyspareunia, hypoactive sexual desire disorder and orgasmic disorders are among the conditions that are treated.

Program for Vulvar and Vaginal Health. This unique program uses innovative medical and surgical approaches to treat common conditions, such as lichen sclerosus, vulvodynia and VIN, along with uncommon and complex vulvar conditions.

Women's Bone Program. Bone health optimization starts prior to menopause. It includes identifying patients at high risk, addressing risk factors and providing recommendations to minimize progression to osteoporosis and fracture. If osteoporosis is present, the program offers comprehensive hormonal and non-hormonal treatment options.

Faculty

Lauren Streicher, MD
(Medical Director)

Traci A. Kurtzer, MD

Rajal C. Patel, MD

Kristi A. Tough DeSapri, MD

Innovation and highlights

- Developed the Women's Bone Program through regional collaborations, investment in TBS iNsight software, clinical staff trainings and system policy updates
- Revised clinical protocol and workflow for increased training and better efficiency for advanced practice providers and registered nurses certified by the North American Menopause Society

FY22 key achievements

Clinical

Likelihood to Recommend Provider score of 94.4 out of 100*

Addition of advanced practice nurse, Emily R. Friedman, MSN, APRN, CNP, in April 2022

One of three designated sites in the United States for fractional CO2 laser therapy for survivors of gynecologic malignancies

Diabetic Retinopathy and Orgasmic Dysfunction (DROD) study underway with Northwestern Medicine Department of Ophthalmology

*Source: Medallia

Section of Sexual Medicine and Menopause team
Left to right, front row: Helen Strange, PT, DPT, OCS; Toshiko Odaira, PT, DPT; Rajal Patel, MD; Patricia Handler, MSN, FNP-C; Lauren Streicher, MD; Rachel Zar, MS, LMFT, CST; Jennifer Levy, MA, LCPC, CST
Left to right, back row: Shantae Williams, PT, DPT; Kristi Tough DeSapri, MD; Audrey Fenwick, MS, PA-C; Traci Kurtzer, MD

Education

Led a didactic for residents in family medicine: Social Determinants of Health Screening and Providing Trauma Informed Care.

Led didactics for emergency medicine and internal medicine residents: Neurobiology of Trauma and Providing Trauma Informed Care.

Led discussions on sexual health with various student groups at Northwestern University, including the Medical Student Forum, Women's Business Association, Manbassadors and the Family Institute.

The Section of Sexual Medicine and Menopause in the news

New Study: Premature Menopause Is Linked to Dementia Risk; Prevention (featuring Lauren Streicher, MD)

Key Faculty Awards and Honors

Kristi A. Tough DeSapri, MD
Medical Student Teaching Award, Northwestern University Feinberg School of Medicine

Lauren Streicher, MD
Castle Connolly Award for Outstanding Women in Medicine

Key division publications

Bold names denote Northwestern Medicine Department of Obstetrics and Gynecology faculty, trainees and staff at the time of publication.

Quick AM, Dockter T, Le-Rademacher J, Salani R, Hudson C, Hundley A, Terstriep S, **Streicher L**, et al. Pilot study of fractional CO2 laser therapy for genitourinary syndrome of menopause in gynecologic cancer survivors. *Maturitas*. 2021;144:37-44.

Streicher L. Hot Flash Hell: A Gynecologist's Guide to Turning Down the Heat. WUDT Press; 2021.

Tough DeSapri K. Effect of abaloparatide on fracture incidence and bone mineral density in postmenopausal women with osteoporosis at highest risk for fracture. Presented at: North American Menopause Society Annual Symposium; 2021.

Tough DeSapri K. Unmet needs in OP: PCP perspective from a national advisory board. Abstract. Society of General Internal Medicine; 2021.

See SHC, Tan TL, **Kurtzer TA**, Gerami P, Guitart J, Yazdan P. Vulvar elastosis: a novel diagnostic entity. *Am J Dermatopathol*. 2021;43(6):418-422.

Reproductive Endocrinology and Infertility

Division summary

The Reproductive Endocrinology and Infertility (REI) Division in the Center for Fertility and Reproductive Medicine has 15 faculty members, including world-class experts in the diagnosis and management of complex reproductive endocrine disorders, treatment of infertility, preservation of fertility, IVF and psychological impact of reproductive disorders.

Many faculty members hold key leadership roles in leading medical and research organizations. Collectively, the faculty and their work attract top residency graduates to the REI Fellowship training program.

Due to the Supreme Court decision to overturn Roe v. Wade, many changes impacted reproductive health care this year. The people who make up this team are nationally recognized thought leaders and were often asked to provide insight and education to ensure patient and stakeholder awareness of impacts to IVF and fertility care.

Faculty

Emily S. Jungheim, MD, MSCI (Division Chief)

Elnur Babayev, MD, MSCI

Lia A. Bernardi, MD, MSCI

Christina E. Boots, MD, MSCI

Serdar E. Bulun, MD (Chair)

Eve C. Feinberg, MD

Kara N. Goldman, MD

Tarun Jain, MD

Helen H. Kim, MD

Susan C. Klock, PhD

Angela K. Lawson, PhD

Mary Ellen G. Pavone, MD, MSCI

Joan K. Riley, PhD

Amelia C. Swanson, PhD

Jessica R. Walter, MD, MSCE

Innovation and highlights

- Received $2.6 million from Woman's Board of Northwestern Memorial Hospital for clinical, procedure room, and embryology lab renovations and equipment updates to ensure leading-edge patient care and access.
- Invested $750,000 to open a clinic at Northwestern Medicine Delnor Hospital to improve access to IVF care in the west suburbs of Chicago.
- Integrated an IVF navigator to improve patient education and onboarding to IVF treatment and to streamline scheduling for better patient volume predications.
- Vetted a cloud-based service for patient education and electronic signature that improves patient satisfaction, education and clinical efficiencies.

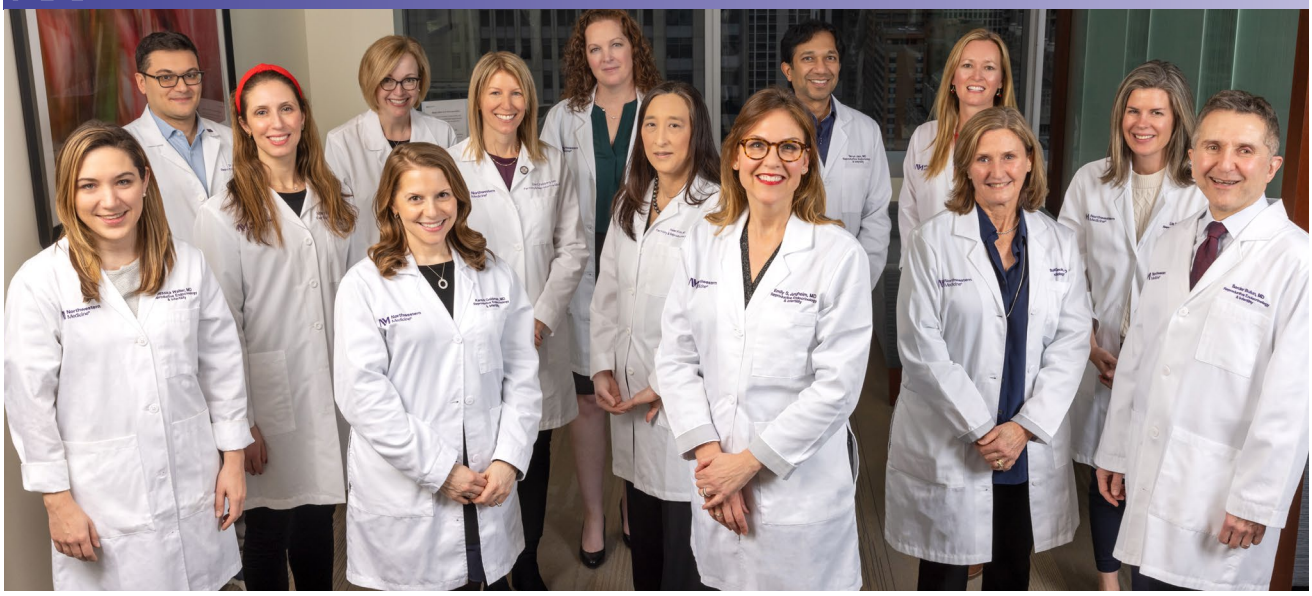
FY22 key achievements

Clinical

Completed three major process improvement projects to improve patient satisfaction and reduce patient lead-time to IVF by five and a half weeks.

Continued to leverage telehealth services for new and return consults, improving access to infertility treatment across Chicagoland.

Improved genetic counselor workflows related to genetically complex diagnostic and therapeutic paradigms.



Reproductive Endocrinology and Infertility team
Left to right front row: Jessica R. Walter, MD, MSCE; Kara N. Goldman, MD; Emily S. Jungheim, MD, MSCI; Susan C. Klock, PhD; Serdar E. Bulun, MD
Left to right middle row: Mary Ellen G. Pavone, MD, MSCI; Eve C. Feinberg, MD; Helen H. Kim, MD
Left to right back row: Elnur Babayev, MD, MSCI; Joan K. Riley, PhD; Angela K. Lawson, PhD; Tarun Jain, MD; Christina E. Boots, MD, MSCI; Lia A. Bernardi, MD, MSCI

Research

Active Grants	7
Publications	52

NIH Reproductive Medicine Network grant (R01): Launched Pre-IVF Treatment with a GnRH Antagonist in Women With Endometriosis — A Prospective Double Blind Placebo Controlled Trial (PREGnant).

Elnur Babayev, MD, MSCI, brought on as full-time faculty in the Women's Reproductive Health Research — Career Development Program; his research is focused on ovarian aging.

Christina E. Boots, MD, MSCI, and Emily S. Jungheim, MD, MSCI, each brought NIH sub-awards to the division.

- Dr. Boots: Developmental Origins of Polycystic Ovary Syndrome: Very Early Phenotypes During the Mini Puberty
- Dr. Jungheim: Prospective Cohort Assessing Novel Biomarkers of Early Pregnancy

Education

The division hired three and a half FTE research assistants to build a sustainable model for research training and execution in the fellowship program.

REI faculty members mentored many fellows, residents and medical students, and they have more than 20 mentored research projects to present at the 2022 annual ASRM meeting, including a prize paper.

REI faculty members worked with national organizations and media outlets to educate the public about impacts to fertility care and IVF related to the Supreme Court's decision to overturn Roe v. Wade.

The Division of Reproductive Endocrinology and Infertility in the news

The Importance of a Proactive Approach to Endometriosis (featuring Serdar E. Bulun, MD)

Trying to Conceive During COVID-19: A Happy Update After a Long Uncertain Road (featuring Kara N. Goldman, MD)

Key faculty awards and honors

Eve C. Feinberg, MD
Member of the ASRM COVID-19 Task Force that was awarded the ASRM's 2022 Suheil J. Muasher, MD, Distinguished Service Award
Immediate Past President, Society for Reproductive Endocrinology and Infertility

Emily S. Jungheim, MD, MSCI
Chair, American Board of Obstetrics and Gynecology Division of Reproductive Endocrinology and Infertility
Board of Directors, American Board of Obstetrics and Gynecology

Angela K. Lawson, PhD
Chair, LGBTQ Special Interest Group at the American Society for Reproductive Medicine

Key division publications

Bold names denote Northwestern Medicine Department of Obstetrics and Gynecology faculty, trainees and staff at the time of publication.

Bedrick BS, Tipping AD, Nickel KB, **Riley JK, Jain T, Jungheim ES**. State-mandated insurance coverage and preimplantation genetic testing in the United States. *Obstet Gynecol.* 2022;139(4):500-508.

Eskew AM, Bedrick BS, Chavarro JE, **Riley JK, Jungheim ES**. Dietary patterns are associated with improved ovarian reserve in overweight and obese women: a cross-sectional study of the Lifestyle and Ovarian Reserve (LORe) cohort. *Reprod Biol Endocrinol.* 2022;20(1):33.

Bonus ML, McQueen DB, Ruderman R, Hughes L, Merrion K, Maisenbacher MK, **Feinberg E, Boots C**. Relationship between paternal factors and embryonic aneuploidy of paternal origin. *Fertil Steril.* 2022;118(2):281-288.

Bakkensen JB, Flannagan KSJ, Mumford SL, **Hutchinson AP**, Cheung EO, Moreno PI, Jordan N, **Feinberg EC, Goldman KN.** A SART data cost-effectiveness analysis of planned oocyte cryopreservation versus in vitro fertilization with preimplantation genetic testing for aneuploidy considering ideal family size. *Fertil Steril.* 2022;118(5):875-884.

Feinberg EC, Kawwass JF, Cedars MI. Roe v Wade and the threat to fertility care. *Obstet Gynecol.* 2022;140(4):557-559.

Reproductive Science in Medicine

Division summary

The mission of the Reproductive Science in Medicine Division is to grow and sustain a highly productive and well-funded research milieu where faculty discover, collaborate, thrive, train and mentor the next generation of reproductive scientists, while pushing the field forward. The division includes six tenure-track faculty, eight non-tenure-track faculty and two lecturers.

The division fosters much of the basic science efforts in the department and complements a high-volume clinical practice and parallel activities in clinical research, population science and community outreach. The main areas of scientific strength are:

- Nuclear receptor signaling (studied by Bulun, Chakravarti and Kim Labs)
- Epigenetic regulation of gene expression (studied by Bulun, Matei, Chakravarti and Adli Labs)
- Cancer biology and therapeutics (studied by Matei, Kim, Chakravarti and Adli Labs)
- Stroma and microenvironment (studied by Duncan, Bulun and Kim Labs)

Division work focuses on common disorders of the reproductive tract, such as cancer, endometriosis, leiomyomas and ovarian failure. The division benefits from the collaborative relationship with Robert H. Lurie Comprehensive Cancer Center of Northwestern University.

The strengths of the division come from the depth and breadth of the science carried out by its investigators. Major projects include:

- Uterine Leiomyoma Research Center Program (NICHD-P50, 2019 to 2024), Serdar E. Bulun, MD (Contact PI)
- Disparities in Gynecologic Cancer (NCI-P20, Northwestern University Cancer Health Equity Research, 2020 to 2023), Melissa A. Simon, MD, MPH (Contact PI); Ji-Yong Julie Kim, PhD (Basic Co-lead, Co-investigator); Daniela E. Matei, MD (Core Co-lead)
- Reproductive Tract Micro-fluidics System Development (NIH-UH3, 2020 to 2022), Ji-Yong Julie Kim, PhD (PI)

Faculty

Daniela E. Matei, MD
(Division Chief)

Mazhar Adli, PhD

Serdar E. Bulun, MD (Chair)

Debabrata Chakravarti, PhD

Francesca E. Duncan, PhD

Ji-Yong Julie Kim, PhD

- Chromatin Imaging in Ovarian Cancer Stem Cells (NCIU01, 2021 to 2025), Daniela E. Matei, MD (MPI); Mazhar Adli, PhD (Co-investigator)
- Ovarian Biology Core Platform (Bill and Melinda Gates Foundation), Francesca E. Duncan, PhD (PI)
- CRISPR based platform to characterize essential human genes (NIH UM1 2022-2027); Mazhar Adli, PhD (PI)

Innovation and highlights

Faculty in the Division of Reproductive Science in Medicine conduct high impact research in diseases affecting organs of the reproductive tract. Through leading-edge technology and innovative models developed in-house, these investigators strive to develop new treatments that impact the lives of patients with reproductive tract disorders.

Reproductive Science in Medicine team
Left to right: Ji-Yong Julie Kim, PhD; Serdar E. Bulun, MD; Mazhar Adli, PhD; Francesca E. Duncan, PhD; Daniela E. Matei, MD; Debabrata Chakravarti, PhD

FY22 key achievements

Clinical

Division members actively collaborate with clinicians. For example:

Francesca E. Duncan, PhD, works with Kara N. Goldman, MD, and other Reproductive Endocrinology and Infertility clinicians to develop clinical research protocols to address ovarian aging and fertility preservation

Daniela E. Matei, MD, translates her stem cell work in ovarian cancer together with her clinician colleagues in the Gynecologic Oncology Division

Mazhar Adli, PhD uses single cell RNA sequencing technology to characterize changes induced by chemotherapy in ovarian tumors in collaboration with Edward J. Tanner III, MD, MBA, in the Gynecologic Oncology Division

Serdar E. Bulun, MD, works with the Minimally Invasive Gynecologic Surgery and Reproductive Endocrinology and Infertility clinicians to use aromatase inhibitors innovatively in endometriosis, adenomyosis and infertility

Research

Active Grants	33
Publications	40

Highly impactful manuscripts published by division investigators are pushing the field forward.

Collaborative science is highly valued and reflected in the existing funded collaborative grants and continued efforts to apply for P and U type program awards in uterine fibroids, endometriosis, ovarian cancer and fertility preservation.

Education

Graduate students (PhD or MD/PhD): 12; post-doctoral fellows: 12; Master students: 13

Eunice Kennedy Shriver National Institute of Child Health and Human Development T32 grant for mentoring pre-doctoral students (two students per year)

The only master's program in Reproductive Sciences, led by Ji-Yong Julie Kim, PhD, and Francesca E. Duncan, PhD, trains five to 10 graduate students per year, who apply to PhD programs or proceed to work in research labs and clinical embryology labs

Key faculty awards and honors

Daniela E. Matei, MD
Chair, Clinical Oncology Study Section (CONC), National Institutes of Health

Francesca E. Duncan, PhD
Deputy Editor-in-Chief, Molecular Human Reproduction

Key division publications

Bold names denote Northwestern Medicine Department of Obstetrics and Gynecology faculty, trainees and staff at the time of publication.

Holmes AG, Parker JB, Sagar V, Truica MI, **Soni PN**, Han H, Schiltz GE, Abdulkadir SA, **Chakravarti D**. A MYC inhibitor selectively alters the MYC and MAX cistromes and modulates the epigenomic landscape to regulate target gene expression. *Sci Adv*. 2022;8(17):eabh3635.

Zhang Y, Wang Y, Zhao G, Tanner E, Adli M, Matei D. FOXK2 promotes ovarian cancer stemness by regulating the unfolded protein response pathway. *J Clin Invest*. 2022;132(10):e151591.

Ozturk H, Cingoz H, Tufan T, Yang J, Adair SJ, Tummala KS, Kuscu C, **Kinali M**, Comertpay G, Nagdas S, Goudreau BJ, Luleyap HU, Bingul Y, Ware TB, Hwang WL, Hsu K-L, Kashatus DF, Ting DT, Chandel NS, Bardeesy N, Bauer TW, **Adli M**. ISL2 is a putative tumor suppressor whose epigenetic silencing reprograms the metabolism of pancreatic cancer. *Dev Cell*. 2022;57(11):1331-1346.e9.

Leistico JR, **Saini P**, Futtner CR, Hejna M, Omura Y, **Soni PN, Sandlesh P, Milad M**, Wei JJ, **Bulun S, Parker JB**, Barish GD, Song JS, **Chakravarti D**. Epigenomic tensor predicts disease subtypes and reveals constrained tumor evolution. *Cell Rep*. 2021;34(13):108927.

Potluri T, Taylor MJ, Stulberg JJ, Lieber RL, **Zhao H, Bulun SE**. An estrogen-sensitive fibroblast population drives abdominal muscle fibrosis in an inguinal hernia mouse model. *JCI Insight*. 2022;7(9):e152011.

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