

WINTER 2022  
**DUKE OB/GYN**



Conquering challenges:  
Innovative research &  
patient-centered care



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## MISSION

**Deliver better health and hope to all women and their families** through compassionate care, innovation, education and discovery

## VISION

**Set the global standard of excellence and lead the future of women's healthcare**

## CORE VALUES

**Excellence  
Integrity  
Innovation  
Diversity and Inclusion  
Teamwork  
Continuous Improvement  
Community  
Advocacy**

### ON THE COVER

**Angeles Alvarez Secord, MD, MHSc**, is an internationally recognized gynecologic oncologist whose work in emerging immunotherapies and novel therapeutics has led to advancements in conquering women's cancer. *Insets:* Urogynecologist **Anthony Visco, MD**; and **Erin White, MS**, IVF lab manager/program manager at the Duke Fertility Center.



# MESSAGE FROM THE CHAIR

Conquering challenges through innovative research and patient-centered care is a tall order, and one I'm proud to say was at the forefront in Duke Ob/Gyn during one of the most difficult times in history, and in healthcare in particular. Faculty, many of whom have trained at Duke, are proud to educate the next generation of specialists and subspecialists at Duke University School of Medicine, which rose to No. 3 among 122 medical schools in the nation for research in 2021 in the *U.S. News & World Report* annual ranking of graduate programs. Duke Ob/Gyn is one of seven Duke specialty programs in the Duke School of Medicine that placed in the top 10, and Duke Ob/Gyn was ranked No. 8 in the nation.

As you read this edition of our annual publication, you will see firsthand how Duke Ob/Gyn is committed to ensuring that all women in need of care receive the benefit of the most state-of-the-art, impactful and innovative treatments that the Department's world-class faculty and trainees provide.

Here are highlights:

- Duke University is one of three sites that have been awarded a total of \$4.4 million in National Institutes of Health/National Cancer Institute Cancer Intervention and Surveillance Modeling Network (CISNET) comparative modeling funding. Duke will receive \$1.2 million.

Duke's CISNET investigators are **Laura Havrilesky, MD, MHSc; Evan Myers, MD, MPH; Haley Moss, MD, MBA; and Marc Ryser, PhD** (Depts. of Population Health Sciences and Mathematics).

- Providing hope to patients facing a diagnosis of cancer and the support needed to navigate the fertility preservation process is offered through the Duke Onco-Fertility Program. Reproductive endocrinology and infertility specialist **Kelly Acharya, MD**, along with colleagues at the Duke Cancer Institute, have built a nationally recognized program.
- A state-of-the-art new **Duke Fertility Center** opened in December 2021. The center continues to provide the full range of treatment options for heterosexual and LGBTQ+ couples, as well as individuals, to reach their reproductive wellness goals.
- Race, and how people are treated differently because of it, leads to major differences in health outcomes for cancer and other diseases. **Tomi Akinjemiju, PhD**, and gynecologic oncologist **Rebecca Previs, MD, MS**, are studying ways to improve this.
- For young children and adolescents with gynecologic conditions, it can be challenging to find a pediatrician or adult gynecologist with the specialized training and experience necessary to accurately diagnose and treat conditions in this specific age group. Duke Ob/Gyn welcomed **Jennifer O. Howell, MD**, one of the few in NC with a focused practice designation in this area, who joined the Department this year.



- A vast array of research focused on maternal-fetal medicine by **Liping Feng, MD; Jennifer Gilner, MD, PhD; Sarahn Wheeler, MD; and Luke Gatta, MD**, is making an impact on preterm birth prevention and improvement of maternal health.
- Global health collaborations and advancements in technology have helped eliminate barriers to effective cervical cancer screening around the globe. **Megan Huchko, MD, MPH**, and collaborators demonstrate the progress.

Thank you for taking the time to learn about how Duke Ob/Gyn is leading the way in women's healthcare.

Sincerely,



**Matthew D. Barber, MD, MHS**  
E.C. Hamblen Professor and Chair,  
Duke Ob/Gyn

# DUKE ONCO-FERTILITY PROGRAM: ADVANCES ARE ON THE HORIZON

BY FRANCES ROGERS  
DUKE UNIVERSITY HOSPITAL  
COMMUNICATIONS

A cancer diagnosis brings with it a flood of emotions – sometimes one at a time, often all at once. A patient's initial questions relate to their type of cancer, course of treatment and most importantly, the likelihood of survival.

What may not immediately come to mind is the possible effect the cancer and its treatment could have on the patient's future ability to have children. Just 20 years ago, this was rarely considered. Compared to now, cancer survival rates were lower, and the technology to preserve future fertility was not readily available.

The emerging field of onco-fertility brings together oncology and reproductive endocrinology specialties to maximize the reproductive potential of cancer patients and survivors. Therapies involve procedures performed prior to the beginning of cancer treatment in an effort to preserve options for both men and women related to future conception and completion of a successful pregnancy.

A novel collaboration between the Duke Cancer Institute's (DCI) Supportive Care & Survivorship Center and the Duke Fertility Center connects cancer patients to a multidisciplinary team of oncologists, fertility specialists and psychosocial providers. The Duke Onco-Fertility Program facilitates rapid referral to fertility counseling – within 48 hours of a patient's first oncology appointment – to ensure there is no delay in beginning cancer treatment for patients who are interested in proceeding with fertility preservation. Reproductive

endocrinology and infertility specialist **Kelly Acharya, MD**, serves as director of Fertility Preservation at Duke.

While Duke has provided onco-fertility preservation services on an ad hoc basis for years, the official Duke Onco-Fertility Program was born out of work by a special steering committee launched in the summer of 2019 by the Supportive Care & Survivorship Center. The center's co-director, **Cheyenne Corbett, PhD**, identified the gap in care for patients and led this 40-person committee, spanning eight disciplines, to develop a comprehensive program that addresses the unique fertility concerns of this population and eliminate barriers that might conflict with the time-sensitive nature of their cancer treatment.



**During fiscal year 2019-2020, 60 patients were referred to the program. From February 2020 – when the first patient navigator was hired – to December 2021, that number more than tripled, with 192 referrals. More than 60% of those patients – an impressive 106 – have gone through the process of fertility preservation.**

An early outcome of the onco-fertility steering committee was the creation of a patient navigator role. This dedicated resource is vital to coordinating the patient's referral process between DCI and the fertility specialist at the Duke Fertility Center. The navigator also works closely with patients and their families to provide education and support and to address potential barriers to fertility preservation, such as helping



*Pictured, clockwise from left: Caroline Dorfman, PhD; Duke Fertility Center Laboratory Director Douglas Raburn, PhD, HCLD; Coleman Mills, MA, CCRP; and Kelly Acharya, MD.*

patients apply for any relevant grants or philanthropic funds to mitigate costs. The navigator's ultimate goal is to ensure that patients have the information they need to make an informed decision about whether to move forward with fertility preservation therapies.

**Coleman Mills, MA, CCRP**, is the manager for the DCI Teen & Young Adult Oncology (TYAO) Program that provides cancer patients ages 15 to 29 and their families with support throughout a cancer diagnosis, treatment and survivorship. He also manages the Duke Onco-Fertility Program.

During fiscal year 2019-2020, 60 patients were referred to the program. From February 2020 – when the first patient navigator was hired – to December 2021, that number more than tripled, with 192 referrals. More than 60% of those patients – an impressive 106 – have gone through the process of fertility preservation. This rate is much higher than the national average, and Mills credits the coordinated efforts of the Onco-Fertility Program team, and the

individualized education and support provided by the patient navigator.

“Receiving a cancer diagnosis is scary and overwhelming,” said Mills. “Having that open conversation with someone who can provide education and resources about fertility preservation opens it up to many patients who would have otherwise never known that it was even a possibility.”

As a clinical psychologist with the Department of Psychiatry and Behavioral Sciences at Duke and co-leader of the Duke Onco-Fertility Program, **Caroline Dorfman, PhD**, is well aware of significant gaps that have historically existed between clinical care and fertility preservation for cancer patients. Despite advances in assisted reproductive technology, the overall number of cancer patients throughout the United States who proceed with fertility preservation fall well behind those at Duke. A variety

of barriers exist, including a lack of understanding by the patient, limited provider referrals, socio-economic factors and more.

“A cancer diagnosis can stop you in your tracks and make it seem that you are missing milestones that those around you are achieving, including having children,” Dr. Dorfman said. “Partnering with our patient navigator to learn about potential options may help them work toward an important goal of having children or dealing with the decision to not move forward in a healthy way.”

An [October 2021 article](#) in the *Journal of Oncology Navigation and Survivorship* co-authored by Mills, Drs. Corbett, Dorfman and Acharya and others details the vital role of the patient navigator to patient support and the sustainability of an onco-fertility program.

In addition to the traditional onco-fertility options including the freezing of sperm, eggs or embryos, more advances are on the horizon. Cryopreservation of ovarian tissue is a promising therapy, especially for prepubescent females and women whose cancer treatment is more time-sensitive and not conducive to the typical wait period of two weeks required for egg or embryo harvesting.

### **Machine-learning based fertility risk calculator**

Dr. Acharya is part of a team that developed a machine-learning based fertility risk calculator. Through a study of past Duke fertility patients, the tool has been validated to provide a more



**Cryopreservation of ovarian tissue is a promising therapy, especially for prepubescent females and women whose cancer treatment is more time-sensitive and not conducive to the typical wait period of two weeks required for egg or embryo harvesting.**

accurate prediction of premature menopause and infertility following cancer treatment. Details are available in a [September 2021 article](#) published in the *Journal of Assisted Reproduction and Genetics*.

The calculator uses factors such as the patient's type of cancer and planned course of treatment, as well as age and other lifestyle factors, to assign a score that may help patients make decisions regarding fertility preservation.

As Dr. Acharya explains, “The goal of our program is not to see how many patients go through preservation, but to make sure we provide them with the resources they need to make what may be one of the most important decisions of their lives.”



Learn more:  
[Addressing Barriers to Fertility Preservation for Cancer Patients](#)



Learn more:  
[Development of a Fertility Risk Calculator](#)



## EGG CRYOPRESERVATION, IVF – AND A FAMILY!

**Sasha Zarzour**, Development Director at Caring House, a Durham-based extended stay facility for outpatients being treated at Duke Cancer Center, is a two-time survivor of Hodgkin's Lymphoma. Sasha went through successful egg cryopreservation and IVF at the Duke Fertility Center in 2019. Son Bobby (*top right*) was born at Duke Regional Hospital in May 2020. After thinking she would be unable to have more children, Henry – her “surprise child” – was born in October 2021.

“I had a great experience and am so grateful for the team at the Duke Fertility Center,” says Zarzour. “They knew how much my husband Billy and I wanted to have children, and they were willing to do whatever they could to make that a reality. The best thing is that they were thinking about my entire life – not just my cancer.”





## STATE-OF-THE-ART DUKE FERTILITY CENTER OPENS

BY SARAH AVERY  
DUKE HEALTH NEWS OFFICE

The Duke Fertility Center has moved to a new location – centrally located between Raleigh and Durham, in Morrisville – that provides a range of features designed to enhance the patient experience and clinical outcomes. The center, which opened to patients in December 2021, is located within Duke Health Center Arrington.

The new site features a large embryology laboratory with state-of-the-art embryo culture incubators, workstations and isolettes that closely mimic the in vivo environment. Ultrasound rooms, procedure rooms and recovery rooms have also been designed to create a warm and welcoming experience.



Other features of the new site include numerous advanced technologies that promote optimal pregnancy outcomes, including:

- Electronic witnessing of sperm, eggs and embryos. Duke Fertility Center will be the first center in the area to implement a radio frequency



identification technology to track sperm, eggs and embryos through each step of the laboratory process.

- An air filtration unit to eliminate harmful toxins in the air and ensure the highest pregnancy rates possible by targeting optimal culture conditions in the embryology lab.
- A cutting-edge system to leverage environmental data for early detection of potential issues and adverse trends. The monitoring system uses statistical analysis to generate meaningful statistics to ensure the highest pregnancy rates possible.
- Microscopes outfitted with the latest laser and micromanipulation technology to increase efficiencies and decrease exposure to ambient room conditions.

“Even in the midst of the pandemic – which has added an incredible burden

to health care professionals – our people have maintained focus on how to offer better facilities, services and overall quality of care to our patients,” said **John Sampson, MD, PhD, MBA, MHSc**, president of the Private Diagnostic Clinic, the Duke faculty practice. “It is a testament to the concern we have for our patients and community, and demonstrates the added value of entrusting your wellness to Duke Health.”

The center continues to provide the full range of treatment options for heterosexual and LGBTQ+ couples, as well as individuals, to reach their reproductive wellness goals, including fertility medication, artificial insemination, screening of gestational carriers, reproductive endocrinology, fibroid, endometriosis and polycystic ovarian syndrome treatments, fertility preservation, hormone management and age-related transitions, third-party reproduction programs and other services.

# DUKE UNIVERSITY AWARDED \$1.2 MILLION CISNET FUNDING

BY JANE BLACK

Duke University is one of three sites that have been awarded a total of \$4.4 million in National Institutes of Health/National Cancer Institute Cancer Intervention and Surveillance Modeling Network (CISNET) comparative modeling funding. Duke will receive \$1.2 million.

The CISNET grant will be used to study ways of reducing uterine cancer mortality through primary prevention, screening and treatment approaches. In addition to Duke, the other research sites that are part of the study cohort are **Columbia University** (lead site) and **Mt. Sinai Medical Center**. CISNET is a consortium of National Cancer Institute (NCI)-sponsored investigators who use simulation modeling to improve the understanding of cancer control interventions in prevention, screening and treatment and their effects on population trends in incidence and mortality. These models can be used to guide public health research and priorities, and they can aid in the development of optimal cancer control strategies (more information at [cisnet.cancer.gov](http://cisnet.cancer.gov)).



Duke's CISNET investigators are **Laura Havrilesky, MD, MHS** (Gyn. Onc.); **Evan Myers, MD, MPH** (Women's Community & Population Health); **Haley Moss, MD, MBA** (Gyn. Onc.); and, not pictured, **Marc Ryser, PhD** (Population Health Sciences and Mathematics).

"Uterine cancer is the fourth most common cancer and the sixth leading cause of cancer mortality among women, but this cancer ranks only 17th in annual NCI funding," notes Dr. Havrilesky. "Of greater concern, both the incidence and mortality rate of uterine cancer are increasing. The average annual increase in mortality from uterine cancer is greater than from any other malignancy in males or females. Despite a well understood natural history and the availability of diagnostic tests to detect uterine cancer, screening is not routine and evidence-based recommendations for screening and prevention are lacking. And for women diagnosed with uterine cancer, optimal treatment strategies and precision therapeutics are often uncertain."

In this five-year, multi-site incubator project, the CISNET researchers will develop and apply three independent population-level, natural history models of uterine cancer. They will apply these models to clinical scenarios in which decision making is uncertain; explore how changes in epidemiologic risk factors including the rising obesity rate and declining hysterectomy rate influence current and future incidence and mortality; and develop tools for policymakers to facilitate cancer control and prevention activities.

"We anticipate that this work will be imminently actionable for patients, providers and policy makers. The findings of this work can be quickly utilized to develop strategies for screening and prevention using widely available and emerging tests and therapies," says Dr. Havrilesky. "These data will provide estimates of the effectiveness and cost-effectiveness for these strategies for populations at varying risk. Similarly, this work will help inform treatment decision making for women with newly diagnosed, metastatic uterine cancer, for adjuvant therapy and for treatment of recurrent disease. Our models will provide precision estimates weighing harms, benefits and costs for patients based

## MOSS NAMED DIRECTOR OF VA WOMEN'S CANCER PROGRAM

BY JULIE POUCHER HARBIN  
SENIOR WRITER, DCI



**Haley Moss, MD, MBA**, recently joined the U.S. Department of Veterans Affairs' National Oncology Program Office as director of the Breast and Gynecologic Cancer System of Excellence, which aims to advance

and expand women veterans' access to teleoncology and potentially lifesaving clinical trials and treatments.

"In the past two decades, there has been an unprecedented growth of women veterans seeking medical care through the Veterans Health Administration. In response to the ever-growing population of women veterans, the National Oncology Program Office through the VHA has developed the Breast and Gynecologic Cancer System of Excellence," said Dr. Moss. "We will be establishing partnerships with universities and NCI-designated cancer centers to promote breast and gynecologic cancer research and increase opportunities for these patients to participate on clinical trials. We will provide care coordination services to patients who may need to go between the VA and other health systems as they navigate their cancer care."

Dr. Moss' research has focused on the interface of women's health and policies to improve the value of cancer care.

on disease characteristics as well as underlying individual characteristics. These models will be leveraged to examine racial disparities including the influence of social determinants of health and population-level changes in obesity and the rate of hysterectomy. We will then utilize this work to develop strategies and an interactive web-based tool to guide state and local cancer control and prevention activities."

# DISSECTING DISPARITIES IN CANCER OUTCOMES

Excerpt from article originally published in *SOM Magnify*, Duke University School of Medicine's online magazine.



[Read the full article](#)



BY ANGELA SPIVEY  
**DUKE SCHOOL OF MEDICINE'S OFFICE  
OF STRATEGIC COMMUNICATIONS**

When **Tomi Akinyemiju, PhD**, came from Nigeria to the United States for college and applied for a part-time job, she found it odd that the application asked her to check a box to indicate her race. In Nigeria, where she had lived since she was 3 years old, she had never had to think about her race. "Why does it matter what race I am?" she thought.

As it turns out, it matters a lot. "The more time I spent in the United States, the more I understood that there are complex historical, structural and systemic factors that shape everyday interactions," she said. "The moment you step outside your door, one of the first things people notice is your race. And with that comes a series of unspoken and complex social cues to negotiate and navigate any preconceived assumption and implicit association, and to get to present your true self."

Race, and how people are treated differently because of it, leads to major differences in health outcomes for cancer and other diseases.

## **The stress of systemic racism**

In the United States, African Americans and Hispanics tend to have poorer cancer outcomes compared to white patients. In ovarian cancer, survival rates for white women have increased since the 1970s, but survival rates for Black women have gone down.

Dr. Akinyemiju, associate professor and vice chair for diversity, equity and inclusion in the Department of Population Health Sciences with a secondary appointment as instructor in Ob/Gyn, and associate research professor in the Duke Global Health Institute, points out that disparities like these have multiple causes. She and a team that includes a biostatistician and a medical geneticist rigorously measure those aspects: biological factors like genetic predisposition, as well as what are called "social determinants of health." That broad term refers to factors such as socioeconomic status, education, access to health care and systemic racism.

The biological and social factors intersect in an idea called allostatic load. Basically, allostatic load is biological wear and tear caused by a state of chronic stress, Dr. Akinyemiju said. The idea was developed in 1993 by a researcher at Rockefeller University, Bruce McEwen, PhD. "Before that, it was clear that the social context in which people lived affected people's health. But the concept of allostatic load allowed us to measure how that happens," Dr. Akinyemiju said. "That is when it began to crystallize that the social environment can lead to psychological changes that measurably change biology. How does the social environment get under the skin?"

Allostatic load is calculated by looking at markers of strain on several of the body's organs and systems, including the heart, the immune system and the neuroendocrine system. High allostatic

load indicates that the body is in a state of over-reaction or hyper-reactivity.

In general, allostatic load increases as people age. But when Dr. Akinyemiju's team analyzed data from a Centers for Disease Control survey that tracked more than 50,000 people over 30 years, they saw that higher allostatic load scores began at younger ages for African American and Hispanic/Latinx participants, and the scores stayed higher over time, compared to white people. This work was published in June 2021 in the journal *Preventive Medicine*.

## **Does stress affect cancer treatment**

Other researchers at Duke wonder if stress directly affects how the immune system fights cancer and the efficacy of treatments, especially newer treatments like immunotherapies.

**Terry Hyslop, PhD**, professor of biostatistics and informatics, has long studied health disparities in breast cancer. In October 2021, she received a Susan G. Komen and Gilead Sciences, Inc., Metastatic Breast Cancer Collaborative Research Grant to evaluate how stress contributes to higher rates of metastasis and worse breast cancer outcomes in Black women compared to white women. In particular, the team is studying how stress affects immune system signaling. One of the goals, Dr. Hyslop said, is to identify characteristics of subpopulations that could benefit from lifestyle interventions or clinical trials of specific treatments.



**Rebecca Previs, MD, MS**, assistant professor of obstetrics and gynecology, collaborates with Guillermo Armiaza-Pena, PhD, at Ponce Health Sciences

University to test how stress hormones such as cortisol and epinephrine affect response to immunotherapies. Their studies use samples from women with ovarian cancer and from mice with similar tumors. "We're measuring those physiological stress hormones that you need to survive but that can be elevated

*continued on page 14*



## SPECIALTY GYNECOLOGIC CARE FOR CHILDREN, ADOLESCENTS

### *Duke gynecologist one of few in NC with focused practice designation*

BY LORI MALONE  
**DUKE HEALTH CLINICAL PRACTICE TODAY**

For young children and adolescents with gynecologic conditions, it can be challenging to find a pediatrician or adult gynecologist with the specialized training and experience necessary to accurately diagnose and treat conditions in this specific age group.

With the recent arrival of **Jennifer O. Howell, MD**, Duke now offers treatments for gynecologic issues in children from birth through age 21 at Duke Women's Health Associates Arrington in Morrisville and Duke Women's Health Associates at Patterson Place in Durham.

Dr. Howell, who previously practiced at Rex and UNC clinics in the Triangle area, is one of the few gynecologists in North Carolina with a focused practice designation in Pediatric and Adolescent Gynecology from the American Board of Obstetrics and Gynecology.

#### ***Pediatric gynecology***

Dr. Howell says that pediatricians may not be trained to recognize and address the unique gynecologic issues that can affect children at birth and at young ages. Common conditions include:

- Congenital abnormalities of the genitalia or in the reproductive tract, including vaginal agenesis
- Chromosomal abnormalities,

including Turner syndrome – a condition in which a female is partly or completely missing an X chromosome

- Labial adhesions, which obstruct the vaginal opening and cause difficulty urinating
- Prepubertal vaginitis

Many parents of young children worry about gynecologists using an intravaginal device such as a speculum for an examination, but “at Duke, an awake child would never receive an invasive examination that could cause pain,” says Dr. Howell. “We have ways of making diagnoses without the use of intravaginal devices and can perform an examination under sedation if necessary. A gynecologic exam for a young child is not as intimidating as parents or providers might think.”



*Learn more:  
[Treatment for Müllerian Anomalies at Duke Ob/Gyn](#)*

#### ***Adolescent gynecology***

“Teenagers are not little adults,” says Dr. Howell, “and our practice is finely tuned into the different factors involved in diagnosing and treating adolescents.” For example, she explains, young girls with abnormal bleeding usually don't have structural issues such as fibroids or polyps and rarely need speculum exams;

their issues tend to be hormonal in nature. Common conditions include:

- Amenorrhea and dysmenorrhea
- Endometriosis and pelvic pain
- Adolescent gender care, including hormone therapy
- Fertility preservation associated with complex medical conditions
- Sexually transmitted disease and infection screenings

An often-overlooked aspect of treating adolescents is knowing their social history, according to Dr. Howell. “I interview adolescents over age 13 without parents and take a closer look at their social situation than an adult gynecologist normally would,” she says.

Dr. Howell uses an adolescent social history methodology known as HEADSS (Home, Education/employment, peer group Activities, Drugs, Sexuality and Suicide/depression). “These factors can play into the reason an adolescent is having gynecologic problems,” she says.

#### ***Patient referrals***

Dr. Howell encourages providers to refer children and adolescents to Duke for any gynecologic concern, noting the wealth of subspecialists for many uncommon conditions and the convenient community-based clinics that help parents avoid navigating large hospital-based clinics.

“We also have a clinical navigator to help ensure good communication with referring providers so they can stay involved. All of this demonstrates Duke's commitment to the community in terms of making sure specialty services are available and easily accessible.”



# PREVENTING PRETERM BIRTH AND IMPROVING MATERNAL HEALTH THROUGH RESEARCH AND INNOVATION

## Highlights in Maternal-Fetal Medicine research

### Liping Feng, MD

Division of Reproductive Sciences



Dr. Feng's goals as a research scientist are to improve pregnancy by understanding the mechanisms of placenta-originated pregnancy complications.

Currently, she has three lines of investigation focused on the roles of inflammation and infection, cell aging and environmental exposure in placental development and subsequent pregnancy complications.

Much of her work has focused on studying *Ureaplasma parvum*, an infectious organism that often causes preterm birth. Through her research, she has learned that this organism stimulates a chemical in the body that weakens the fetal membrane and can cause preterm birth. Dr. Feng is also studying the role of the hormone progesterone in preterm birth and hopes to continue her research to improve maternal-fetal outcomes, as well as her global health research

involving the impact of environmental contaminants and exposures on maternal-infant outcomes.

### Jennifer Gilner, MD, PhD

Maternal-Fetal Medicine Specialist  
Medical Director, Duke University Hospital  
Birthing Center



Dr. Gilner's work is centered on the hypothesis of immune dysfunction in preterm birth, integrating immunologic research with

high-risk obstetrical clinical practice to identify new immune system targets for reducing the burden of preterm birth. Immune system tolerance is a requisite for a healthy pregnancy, but not every woman's immune system is accepting of a growing baby, particularly in women with preexisting immunological conditions.

Dr. Gilner has partnered with numerous colleagues across Duke, including immunologists and rheumatologists, to pursue this work. Her projects focusing on T cell tolerance and preeclampsia in particular have resulted in promising new discoveries, as Dr. Gilner works to

identify new biomarkers to help reduce the incidence of preterm birth in women with pre-existing autoimmune disorders.

### Sarah Wheeler, MD

Maternal-Fetal Medicine Specialist  
Director of Diversity and Inclusion,  
Duke Ob/Gyn



Dr. Wheeler aims to eliminate racial disparities in preterm birth, particularly among Black women. Dr. Wheeler is the director of the Duke Prematurity

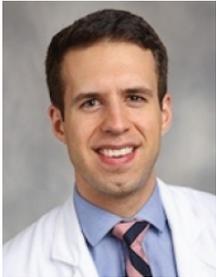
Prevention Program, a multidisciplinary clinical program that provides care to women at highest risk for preterm birth.

She has worked to integrate research efforts into the clinical program, ensuring equitable access for all patients at risk for preterm birth. She has studied the impact of racial and ethnic variation in the cervical microbiome on preterm birth, understanding and eliminating barriers to accessing preterm birth preventive therapies among Black women, and identifying different employment situations as potential barriers to preterm birth prevention in Black women.

Dr. Wheeler has also utilized research funding to develop and sustain research partnerships with community-based organizations focused on maternal health, which are critical to ensuring her work addresses issues and concerns that are important to the Durham community. Additionally, Dr. Wheeler chairs the Society for Maternal-Fetal Medicine's Diversity and Inclusion Committee.

**Luke Gatta, MD**

*Maternal-Fetal Medicine Fellow*



Dr. Gatta (Residency Class of 2020), under the mentorship of Dr. Jennifer Gilner and other colleagues from Duke, is currently conducting a

study on Placenta Accreta Spectrum (PAS) focusing on the validation of the International Society of Ultrasound in Obstetrics and Gynecology consensus for reporting PAS, which is endorsed by the Society for Maternal-Fetal Medicine.

Dr. Gatta notes that PAS is a complex disease and, for patients, a terrifying diagnosis. The single most important variable in management is being with the right team at the right time. This means a scheduled delivery with a skilled, multidisciplinary team.

Dr. Gatta's research is intended to validate the ISUOG checklist, formulated in 2016. The goal is to validate the ISUOG consensus to see if it can distinguish PAS detected in the operating room.

Secondary objectives will be to see if it is predictive of FIGO staging severity, unscheduled bleeding and other clinical pathologic outcomes.



*Learn more:*  
[Validation of ISUOG Consensus for Reporting PAS](#)

Drs. Gatta and Gilner, along with maternal-fetal medicine specialists **Sarah Ellestad, MD; Brita Boyd, MD; and Anthony Swartz, BS, RT(R), RDMS,** recently received a Duke Artificial Intelligence SPARK Award for the proposal titled "LAIPPAS (Leveraging Artificial Intelligence to Predict Placenta Accreta Spectrum)," which will forge collaboration with The Center for AI in Radiology. The Department of Ob/Gyn partnered with Duke AI Health and the Duke Center for AI in Radiology (DAIR) to offer the awards.

AI and machine learning offer potential to advance the way clinicians diagnose disease and deliver healthcare.

The goal of the AI Spark Awards is to facilitate research in AI focusing on medical imaging to generate high visibility publications and preliminary data for grant applications or clinical implementation.

The LAIPPAS project will pilot machine learning algorithms to evaluate sonographic images of suspected PAS. The research is conducted as part of the Duke PAS Program.

## CENTER FOR WOMEN'S HEALTH DATA SCIENCE BIENNIAL REPORT

The number of reported pregnancy related deaths in the United States steadily increased from 7.2 deaths per 100,000 live births in 1987 to 17.3 deaths per 100,000 live births in 2017, according to The Centers for Disease Control and Prevention. The Duke University Health System and Duke Ob/Gyn's Division of Maternal-Fetal Medicine are leading efforts to decrease disparities across areas of care delivery, including maternal and newborn health and preterm birth. Maternal-fetal medicine specialist **Brenna Hughes, MD, MSc,** has led development of the Maternal Morbidity Dashboard, which allows obstetric providers a way to visualize and develop interventions for reducing severe maternal morbidity and health disparities.



In addition to this work, Duke faculty and collaborators in the Center for Women's Health Data Science, led by **J. Eric Jelovsek, MD, MMed, MSDS,** are harnessing the power of these data to make better clinical decisions and benefit patients. A summary of this work appears in the [Center for Women's Health Data Science Biennial Report](#).



*Learn more:*  
[Center for Women's Health Data Science Biennial Report](#)

Duke University Hospital and Duke Regional Hospital are proud to be recognized among the **best hospitals for maternity care** in the country.



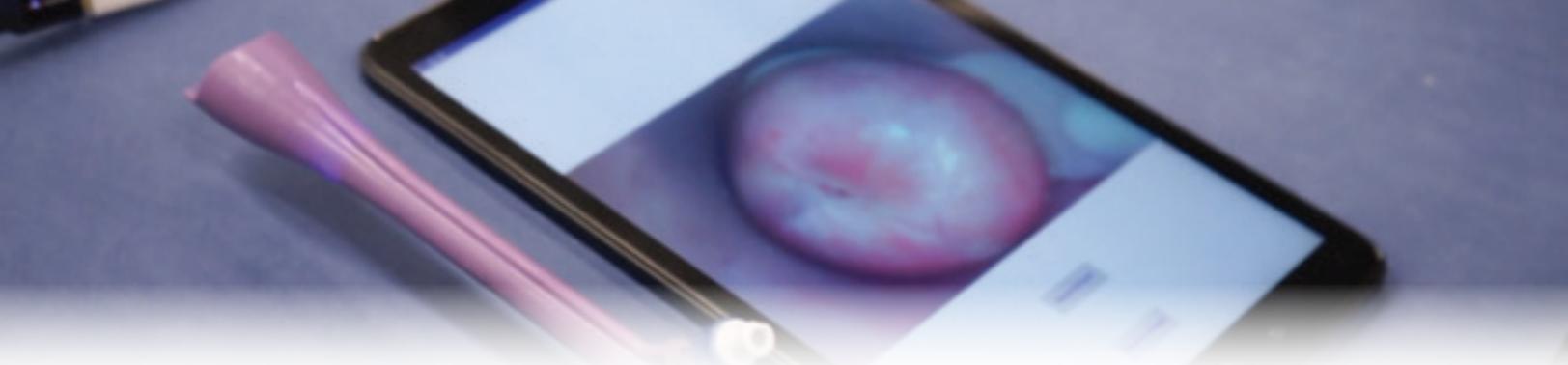
According to U.S. News & World Report, 2021-2022

**Leading the way**

Duke's School of Medicine has placed highly in national assessments, including 10th place for funding from the NIH (by the Blue Ridge Institute for Medical Research).

**Duke Ob/Gyn Clinical Trials Networks include**

- Pelvic Floor Disorders Network (PFDN) – NICHD*
- Symptoms of Lower Urinary Tract Dysfunction Research Network (LURN) – NIDDK*
- Duke Clinical Vaccine Unit – NIAID*
- CDC 200-2012-53663 Clinical Immunization Safety Assessment (CISA) Network*
- NRG/Gynecologic Oncology Group – NCI*
- Maternal-Fetal Medicine Units Network (MFMU) – NICHD*



# GLOBAL HEALTH COLLABORATIONS ADDRESS CERVICAL CANCER SCREENING BARRIERS

Cervical cancer is the fourth most common cancer in women worldwide, according to the National Cancer Institute. Researchers and faculty at the Duke Center for Global Women's Health Technologies (GWHT) have committed to addressing barriers to early detection of the disease, and mechanisms for cervical cancer screening through education, technology and cultural awareness.

In 2020, The John D. and Catherine T. MacArthur Foundation selected a proposal titled "Women-Inspired Strategies for Healthcare: A Revolution Against Cervical Cancer" as among the Top 100 out of 755 submitted in the 100&Change competition. The competition solicited proposals that promise measurable progress in solving a critical problem. The momentum of the initiative continues, with the goal being empowerment of marginalized women with knowledge, innovative clinical tools and confidence to take control of health and kickstart a worldwide movement against cervical cancer, according to [leverforchange.org](http://leverforchange.org), a nonprofit affiliate of the MacArthur Foundation.



Learn more:  
[Making Change  
by Changing the  
Callascope](#)

A Duke team behind the ongoing work outlined in the WISH initiative is comprised of **Megan Huchko, MD, MPH**, clinical lead; and **Nimmi Ramanujam, PhD**, technology lead. Drs. Huchko and Ramanujam have experience in cervical cancer prevention, technology innovation and entrepreneurship. Collectively, they

have global partnerships in more than 10 countries across four continents. Dr. Huchko has a dual appointment in Ob/Gyn and the Duke Global Health Institute.

At Duke, Dr. Huchko started the Center for Global Reproductive Health to increase research collaborations and educational opportunities. The goal is to reach 5 million women in two epicenters, Peru and Kenya, and reduce deaths by 50% in five years.

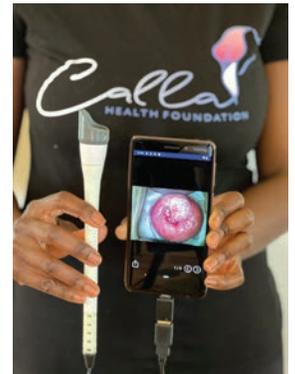
### *Addressing barriers, impacting lives*

Two common key barriers to global cervical health screening are fear of the speculum and feelings of vulnerability during gynecologic exams, according to GWHT researchers. Through ongoing work at the GWHT, gynecological exams across the globe have been reimagined.

Duke experts in biomedical engineering have worked collaboratively over the past decade to develop and improve novel, low-cost screening tools. The original device, the Pocket Colposcope, offered a portable, readily available and cost-efficient screening tool that could be used in primary care settings. The Pocket Colposcope is a magnified telescopic device and camera designed to allow medical professionals to look through a speculum to see the cervix. That version has undergone design modifications since first being developed a decade ago, and in 2018, the Pocket Colposcope received FDA clearance. Continual innovation led to the development of a new iteration, called the Callascope, which enables speculum-free provider insertion or self-insertion, and image capture of the cervix, according to the Calla Health Foundation.

### *The Callascope – human-centered design*

Developed by **Mercy Asiedu, PhD**, when she was a graduate student at the GWHT working in Dr. Ramanujam's lab, the Callascope has recently been updated with human-centered design in mind.



- The new version utilizes a 5 megapixel rather than a 2 megapixel camera.
- An integrated camera and shell is now utilized. The whole stem is the camera, and a removable tip functions as the introducer. The Callascope can easily go from being a speculum-free device that can be used for self-imaging (with the use of the inserter tip), to an imaging device that can be used with a speculum (without the use of the tip).
- Silicone was added to the tip to make it softer; brighter custom LEDs allow for a clearer picture of the cervix.
- The Callascope can be used in conjunction with HPV self-sampling for cervical cancer screening by the patient at home. Especially in cases where privacy is key, such as in culturally conservative regions, the Callascope allows users to take initiative and improves access to screening services. This, according to the GWHT, is life changing.

— Duke Center for Global Women's Health Technologies

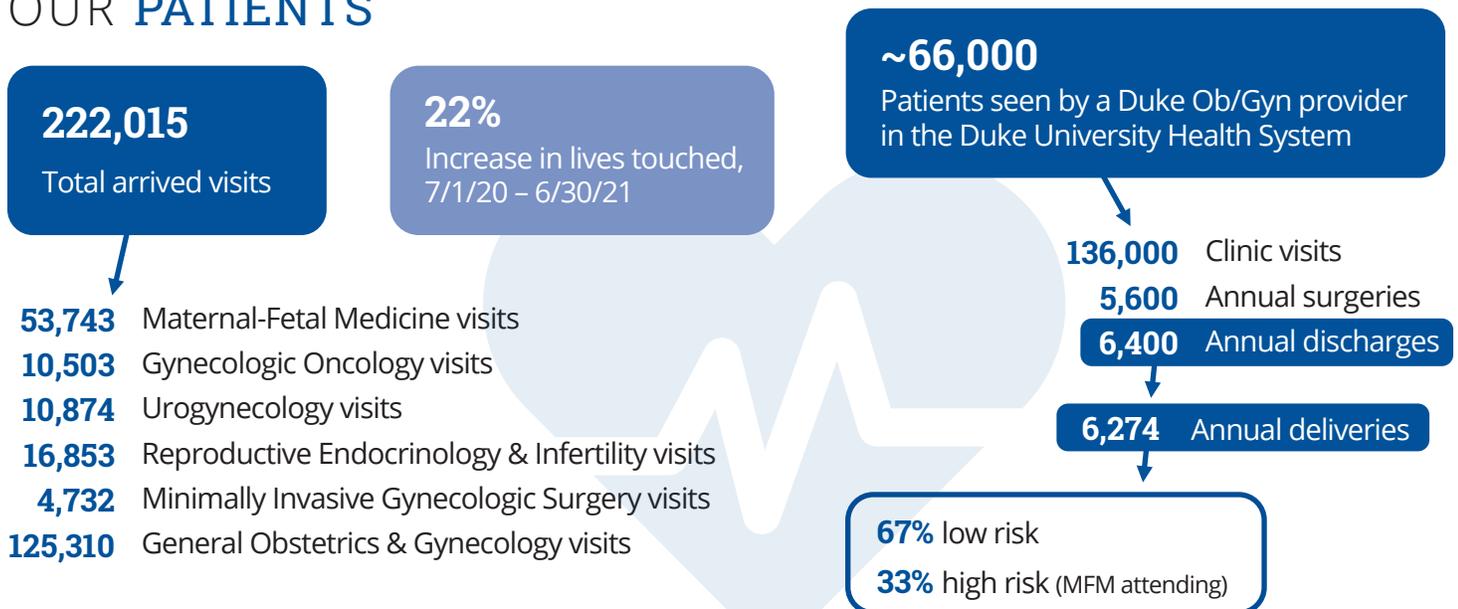
# DUKE OB/GYN BY THE NUMBERS

## OUR PEOPLE



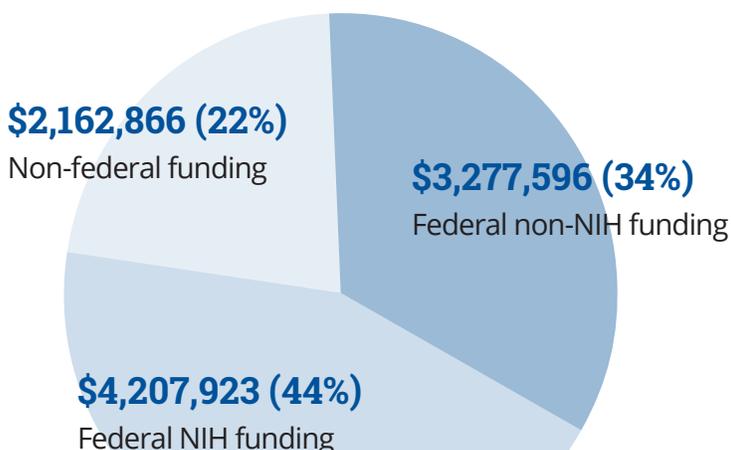
- 89 Faculty
- 11 Consulting and Adjunct Faculty
- 34 Residents
- 16 Fellows
- 47 PA/NP/CNM
- 62 Ob/Gyn Staff (directly employed)
- 500+ Ob/Gyn Staff (RN, MA, etc.)
- 200+ Students/year (MD, PA, NP)

## OUR PATIENTS



- Data reflects Fiscal Year 2021 (7/1/20 – 6/30/21)
- Clinic visits include only new and return visit types
- Does not reflect Duke Ob/Gyn deliveries at WakeMed North

## OUR RESEARCH



- In 2021 ...**
- 23 New grants/awards
  - 181 Active protocols
  - 35 Total funded research projects (new and continuing)
  - 205 Peer-reviewed publications

continued from page 8

due to acute and chronic stress," Dr. Previs said. Early results suggest that higher levels of stress hormones are linked to inflammation and reduced immune cell function.

Drs. Previs and Akinyemiju have published studies documenting that gynecologic cancer patients who are Black or Hispanic are less likely to receive care that adheres to national guidelines, such as palliative care, which helps improve quality of life and relieve symptoms. They are working together to study physiological stress mechanisms in combination with social determinants of health. "Dr. Akinyemiju has helped me think about the multi-dimensionality of these issues," Dr. Previs said. "It's complex, unique to each patient and certainly not a one-size-fits-all approach."

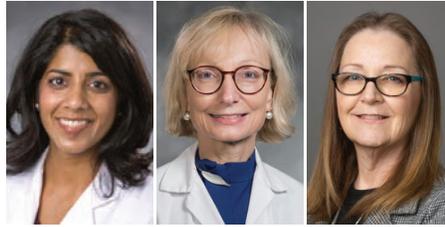
### **Equalizing care**

Not everyone gets equal access to cancer prevention and treatment. Fixing the problem is urgent, Dr. Akinyemiju said. Studies show that when everyone receives equal access to care, some of the racial differences in cancer outcomes are erased.

Dr. Akinyemiju's team analyzes those breakdowns so they can be fixed. They're doing this work now in a large study of patients with ovarian cancer, funded by the National Institutes of Health. Called the Ovarian Cancer Epidemiology, Healthcare Access and Disparities study, this effort will measure health care access and how it affects treatment, quality of life and survival. Researchers will recruit more than 1,600 Black, white and Hispanic patients from cancer registries in nine states, gathering information from them via surveys as well as collecting biological samples like saliva, to be used for future analysis.

"Advancing cancer health equity is one of the top global health challenges of our generation," Dr. Akinyemiju said. "Meeting that challenge requires that we address the fundamental causes of cancer disparities and promote equitable access to cancer prevention and treatment. This must be a top priority for the next 30, 40 years."

## NEWSWORTHY & NOTEWORTHY



Nazema Siddiqui, MD, MHSc  
Cindy Amundsen, MD  
Susan K. Murphy, PhD

### **Duke researchers honored with Best Overall Paper at 2021 AUGS Meeting**

The work of Duke urogynecologists **Nazema Siddiqui, MD, MHSc**, and **Cindy Amundsen, MD**, and reproductive sciences expert **Susan K. Murphy, PhD**, was awarded Best Overall Paper at the 2021 American Urogynecologic Society Annual Meeting during Pelvic Floor Disorders Week. The winning paper is titled "UUI-IR: distinguishing a subtype of urgency urinary incontinence based on molecular profiling."

Urgency urinary incontinence (UUI) is a severe manifestation of "overactive bladder." UUI impairs a woman's quality of life by producing sudden urges to urinate that cannot easily be controlled. This results in bladder accidents, sometimes of large volume, that are often unpredictable and therefore cause significant distress. Urogynecologists know that UUI becomes more common with each decade of life after age 40. However, they are also gaining more knowledge about strong associations between UUI, diabetes and pre-diabetes.

Diabetes and pre-diabetes are conditions defined by insulin resistance (IR). This study tested the hypothesis that women with UUI and insulin resistance (UUI-IR) have altered DNA methylation of bladder urothelial genes involved in sensory nerve signaling. If methylation changes actually have a functional effect, then one would expect there to be analogous changes in the messenger RNA (mRNA) of the gene involved.

In performing this study, researchers were trying to understand if UUI-IR might be a different subgroup, with a different molecular profile, than other UUI.

They found evidence for different molecular profiles in women with UUI-IR. Since women with UUI-IR are a substantial proportion of those suffering with UUI, this new information may have implications for future treatment strategies.

Additional authors were **Gabrielle McNary, MD**; student **Kathy Lu**; and bioinformatician **Joseph A. Prinz**.

### **Study shows that shows marijuana smoking abstinence could lower effect of cannabis on sperm**

While marijuana use may impact some genes linked to autism in men's sperm, abstaining from cannabis consumption over time may significantly lower many of those effects, according to a study by Duke Health researchers. Study authors from Duke Ob/Gyn are **Susan K. Murphy, PhD**; **Douglas Raburn, PhD, HCLD**; **Thomas Price, MD**; and students **Rose Schrott, PhD**, and **Dillon King**.

This study, [\*appearing online in Environmental Epigenetics in September 2021\*](#), followed other studies at Duke that linked cannabis use to alterations in the epigenetic information present in sperm, including genes important for early development. Epigenetic changes can affect the activity of genes without changing the information of the genes themselves.

This study aimed to learn whether those epigenetic changes could be diminished in some form with cannabis abstinence. The results showed marijuana users who stopped using cannabis for 77 days produced sperm that no longer showed the majority of the significant changes that were present when the men were actively using cannabis.

— Duke Health News Office



Learn more:  
[\*Smoking Abstinence Could Lower Effects of Cannabis on Sperm\*](#)

## NATIONAL HONORS

### **Friederike Jayes, DVM, PhD, receives Duke/NCCU Collaborative Translational Research Award**



A collaborative research team supported by the Duke Clinical and Translational Science Institute has secured follow-on funding from the North Carolina Biotechnology Center for work in drug delivery.

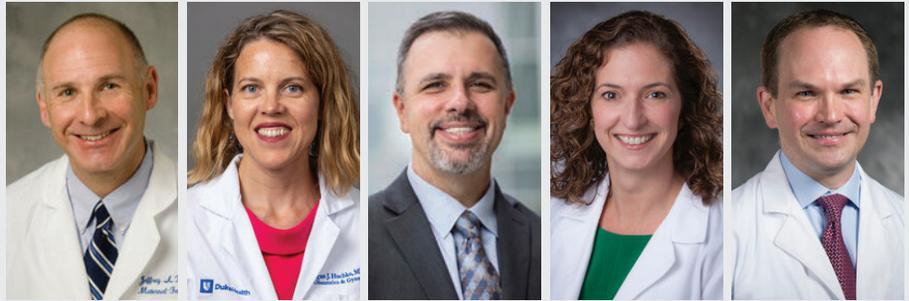
The project, "Engineering smart injectable drug delivery theranostics for uterine fibroids," is led by **Friederike Jayes, DVM, PhD**, as the Duke Principal Investigator on the project, and **Darlene Taylor, PhD**, as the NCCU PI. The team's funding advanced research on a hydrogel for controlled release of drugs used in uterine fibroid therapy. The Duke CTSI is the academic home of the National Institutes of Health's Clinical and Translational Science Awards pilot funding programs at Duke University.

### **Duke Regional team focuses on improving patient care for all**

Members of Duke Regional Hospital's Labor and Delivery Unit have undergone a training to better care for patients who identify as transgender or gender non-conforming. "Obstetrics is inherently gendered. We're known as the Women's Service Line," said Nurse Manager **Heather Talley, MSN, RNC-OB, C-EFM, CNML**. "We needed this training so that patients didn't feel like they needed to teach us before we could provide them care." Tools have been created to offer more informed care.



Learn more: [Duke Regional Team Focuses on Improving Patient Care for All](#)



**Jeffrey Kuller**  
MD

**Megan Huchko,**  
MD, MPH

**Matthew D. Barber,**  
MD, MHS

**Brenna Hughes,**  
MD, MSc

**Samuel Bauer,**  
MD, CPE

Maternal-fetal medicine specialist **Jeffrey Kuller, MD** has been appointed to the Board of Directors for the [Foundation for the Society for Maternal-Fetal Medicine](#). Dr. Kuller's three-year term began February 2022.

**Megan Huchko, MD, MPH**, has been accepted as an Active Fellow of the American Gynecological and Obstetrical Society. Dr. Huchko will be officially introduced as a Fellow at the AGOS Annual Meeting in fall of 2022.

In addition to this honor, Dr. Huchko, faculty in Duke Ob/Gyn and the Duke Global Health Institute who directs the Duke Center for Global Reproductive Health, recently was named the first appointee of the Hollier Family Global Health Professorship in Maternal and Child Health.

"I am thrilled and humbled that the HOLLIERs have chosen to support Duke and my work with this award," Dr. Huchko said. "Their commitment to Duke and global maternal child health will allow us to continue the research and teaching in this area, in partnership with our African colleagues. I am very excited about the wealth of new opportunities this will provide for Duke students and researchers over the years."

**Matthew D. Barber, MD, MHS**, was appointed as the new subspecialty female pelvic medicine and reconstructive surgery division chair for The American Board of

Obstetrics and Gynecology. He will also serve as an ex-officio subspecialty representative on the Executive Committee of the ABOG Board of Directors.

["Developing Treatment Guidelines During a Pandemic Health Crisis: Lessons Learned From COVID-19 \(Special Article\)"](#) has been published in *The Annals of Internal Medicine*, the result of a collective effort by maternal-fetal medicine specialist **Brenna Hughes, MD, MSc**, and colleagues on the National Institutes of Health COVID-19 Treatments Guidelines Panel. **Susanna Naggie, MD, MHS**, Vice Dean for Clinical Research and Associate Professor of Medicine at Duke, was also a Panel member.



Learn more: [Lessons Learned from COVID-19](#)

Maternal-fetal medicine specialist **Samuel Bauer, MD, CPE**, has been appointed to represent the Society for Maternal-Fetal Medicine on the Core Quality Measures Collaborative, the partnership between American's Health Insurance Plans and the Centers for Medicare and Medicaid Services.

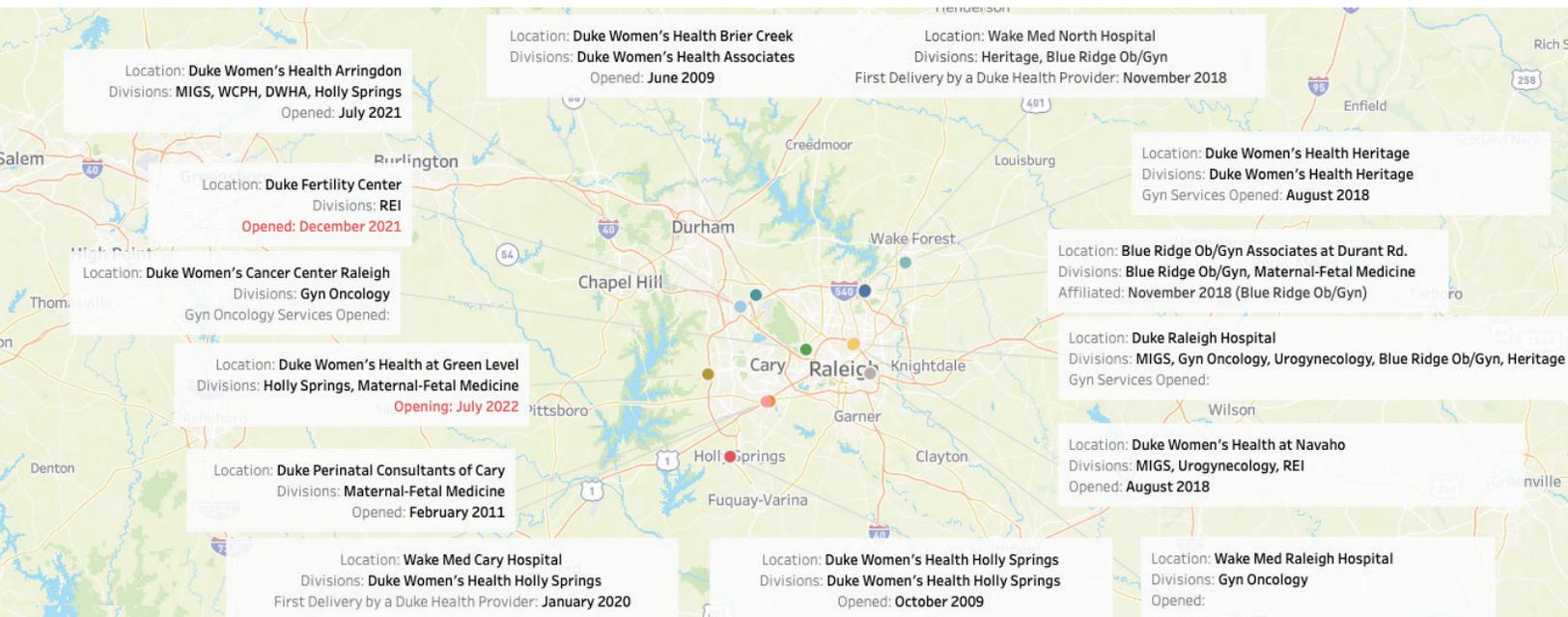
CQMC, which is housed at the National Quality Forum, is comprised of over 70 member organizations and maintains the existing core measure sets.

Department of Obstetrics and Gynecology  
DUMC 3704 Durham, NC 27710

## DUKE OB/GYN WAKE COUNTY EXPANSION



Learn more:  
[Access the Interactive Map](#)



The interactive map is best viewed from a computer (not a tablet or mobile device). Visit [bit.ly/WakeCountyExpansion](http://bit.ly/WakeCountyExpansion)

### ALUMNI: VISIT THE CARTER SOCIETY WEBSITE

[bit.ly/CarterSocietyWebsite](http://bit.ly/CarterSocietyWebsite)



### SAVE THE DATE

**2022 Carter Society  
Annual Meeting**  
September 15, 2022  
St. Louis, Missouri

**2023 Carter Society  
Annual Meeting**  
October 2023  
Durham, North Carolina

**2024 Carter Society  
Annual Meeting**  
October 2024  
Location TBD

Alumni: Please take a moment to let Duke Ob/Gyn know where you are now by filling out a brief online survey at [bit.ly/ObGynAlumniSurvey](http://bit.ly/ObGynAlumniSurvey)

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