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**On the Cover: Ranked Among the Best**  
U.S. News & World Report consistently ranks Duke University Hospital in its Honor Roll of top hospitals in the United States.

Cover Photo by Ken Huth, Huth Photography



# MESSAGE FROM THE CHAIR

## Advancing Women's Health through Innovation and Discovery

Welcome to the inaugural issue of *Duke Ob/Gyn*. Since returning to Duke Obstetrics and Gynecology in May of 2017, one of my key initiatives has been to increase the communication about our outstanding department. Having trained as a resident and fellow at Duke, I am honored to now lead a department with a long and proud tradition of excellence in research, education, and women's healthcare. In 2017, Duke Gynecology was ranked #1 in North Carolina by *U.S. News & World Report*, and our residency program was rated #6 in the U.S. by Doximity. Most recently, Duke Obstetrics and Gynecology was recognized on the 2017 *Becker's Hospital Review* list of 100 Hospitals and Health Systems with Great Women's Health Programs. We are honored by, and appreciative of, this recognition by our peers. It is a reminder of our goal to constantly improve.

The mission of the department is to **deliver better health and hope to all women and their families through compassionate care, innovation, education and discovery**. In this issue, we share just a few of the ways we are advancing women's health through innovation and discovery. For example:

- The Pocket Colposcope – a multi-disciplinary team from Duke's Pratt School of Engineering, Department of Obstetrics and Gynecology, and Global Health Institute discuss

their award-winning work to develop a low-cost tool for speculum-free, automated cervical cancer screening in low resource settings. This innovation was featured in *Wired Magazine*, and **Nimmi Ramanujam, PhD**, and graduate student **Mercy Asiedu**, were recently presented with the 2018 Drs. Anvar and Pari Velji Emerging Leader in Global Health Innovation Faculty and Trainee Awards from the Consortium of Universities for Global Health for this work.

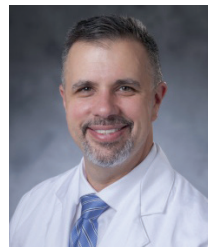
- The Duke Minimally Invasive Gynecology Division, led by **Craig Sobolewski, MD**, is making minimally invasive surgery even "more minimal" by using mini-laparoscopy (2-3mm) instruments to treat endometriosis, ovarian cysts and pelvic adhesions.
- **Eric Jelovsek, MD, MMed**, Vice Chair for Education and Director of our Women's Health Data Science Program, led an international team of investigators to develop models to predict the risk of pelvic floor disorders 12-20 years after childbirth. These models provide an important opportunity to identify high-risk women to target for prevention strategies.

In addition, in this issue, we highlight **Cindy L. Amundsen, MD**, Roy T. Parker Professor of Obstetrics and Gynecology and member of the Division of Urogynecology, who was honored as the 2017 Rodney Appell

Contenance Care Champion by the National Association for Contenance. She discusses her 20-year career advancing care for women with lower urinary tract dysfunction, including the award-winning multi-center trial she led comparing therapies for refractory urge urinary incontinence. We also discuss expansion of the Duke Prematurity Prevention Program, an innovative clinical and research program dedicated to decreasing premature birth in our local community and around the world.

Duke Obstetrics and Gynecology is filled with highly talented people, has world-class training programs, conducts innovative research and is dedicated to collaborating with you to advance women's health. I hope you enjoy this issue of *Duke Ob/Gyn*. I encourage you to visit our website, **obgyn.duke.edu**, to learn more about our department, and follow **@dukeobgyn** on Twitter for ongoing updates. Our team welcomes your comments and feedback.

Sincerely,



**Matthew D. Barber, MD, MHS**  
Professor of Obstetrics and Gynecology  
Chair, Duke Ob/Gyn





**Mercy Asiedu**, a graduate student in Duke University's Global Women's Health Technologies Center, shows the prototype speculum-free "pocket colposcope" that is currently being beta tested in several hospitals across the United States. The prototype produces images on a smart phone or laptop and can make cervical cancer screening more accessible to women living in low-resource areas.

*Photo by Jared Lazarus/Duke Photography*

## NEW TECH PROMISES EASIER CERVICAL CANCER SCREENING

**Pocket Colposcope Removes Need for Speculum, May Enable Self-screening**

BY KEN KINGERY, PRATT SCHOOL OF ENGINEERING

Duke University researchers have developed a handheld device for cervical cancer screening that promises to do away with uncomfortable speculums and high-cost colposcopes.

The "pocket colposcope" is a slender wand that can connect to many devices, including laptops or cell phones. If widely adopted, women might even use the device to self-screen, transforming screening and cure rates in low-income countries and regions of the United States, where cervical cancer is most prevalent.

Cervical cancer is the fourth most common cancer in women, with more than 500,000 new cases occurring annually worldwide. In the United States,

physicians diagnose more than 10,000 cases each year. While more than 4,000 American women die of the disease each year, the mortality rate has dropped more than 50 percent in the past four decades, largely due to the advent of well-organized screening and diagnostic programs.

While the Pap smear can be performed by a non-specialist, colposcopy requires visualization of the cervix, relying on highly trained professionals and expensive equipment that is not easily accessible to underserved populations. These factors make cervical cancer more prevalent in women living in low socioeconomic communities.

In a paper published on May 31, 2017 in the journal *PLOS One*, researchers from Duke believe they have found a better way.

"The mortality rate of cervical cancer should absolutely be zero percent because we have all the tools to see and treat it," said **Nimmi Ramanujam**, the Robert W. Carr, Jr., Professor of Biomedical Engineering at Duke. "But it isn't. That is in part because women do not receive screening or do not follow up on a positive screening to have colposcopy performed at a referral clinic. We need to bring colposcopy to women so that we can reduce this complicated string of actions into a single touch point."



Nimmi Ramanujam, Professor of Biomedical Engineering, talks with President Vincent Price about a novel pocket colposcope she developed to make cervical cancer screening easier and more sustainable in low-to-middle-income countries. Photo by Jared Lazarus/Duke Photography

Please see feature on Duke Ob/Gyn's John Schmitt, MD, (pictured, center), on page 6

**“The pocket colposcope is a highly portable, cervical cancer screening solution to be used at the community-level setting. The technology has been evaluated clinically in Tanzania, Peru, Kenya, Zambia, and the U.S. Cervical cancer affects the lives of 500,000 women worldwide each year and results in more than 270,000 deaths. It brings a small, easily cleaned, and highly usable device to many low to middle-income countries.**

Current standard practices for cervical cancer screening require three things: a speculum, a colposcope and a trained professional to administer the test.

The speculum is a metal device designed to spread the vaginal walls apart. The colposcope is a magnified telescopic device and camera designed to allow medical professionals to look through the speculum to see the cervix, which is located three to six inches inside the vagina. Colposcopes and people who know how to use them are difficult to find in many low-income regions, both domestically and internationally.

Ramanujam believes she can replace at least two of these requirements. Her laboratory has developed an all-in-one device that resembles a pocket-sized tampon with lights and a camera at one end. Health providers—or even women themselves—are able to capture images of the cervix using the rounded tip of the device to manipulate its position if necessary. The device also includes a

channel through which contrast agents used for the cervical cancer screening procedure can be applied.

“We recruited 15 volunteers on Duke’s campus to try out the new integrated speculum-colposcope design,” said **Mercy Asiedu**, a graduate student working on the project in Ramanujam’s lab. “Nearly everyone said they preferred it to a traditional speculum and more than 80 percent of the women who tried the device were able to get a good image. Those that couldn’t felt that they just needed some practice.”

Ramanujam and Asiedu are now working on clinical trials to see how their design stacks up against the traditional colposcopy used with a speculum. By using both methods to visualize the cervix, the researchers will be able to make a direct comparison.

Asiedu is also working to automate the screening process. By using image

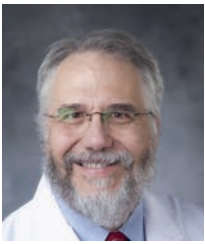
processing and machine learning to teach computers how to spot signs of precancerous and cancerous cells, Asiedu hopes to remove the need for a trained physician at any point in the screening process and shift the task to midwives, community health workers and even the women themselves.

“There have been a few other attempts to come up with a better solution, but none of them have succeeded,” said Asiedu. “One design using an inflatable cylinder proved just as uncomfortable as a traditional speculum. Another using directed airflow is just as bulky and expensive as a modern colposcope. With our handheld, low-cost design, we’re hoping to redefine the entire procedure.”

*This work was supported by the National Institutes of Health (1R01CA195500, 1R01CA193380).*

*CITATION: “Design and Preliminary Analysis of a Vaginal Inserter for Speculum-Free Cervical Cancer Screening,” Asiedu MN, Agudogo J, Krieger M, Miros R, Proeschold-Bell, RJ, Schmitt JW, Ramanujam N. PLOS One, May 31, 2017. DOI: 10.1371/journal.pone.0177782*





## Q & A WITH JOHN SCHMITT, MD

*You have dedicated your career to both innovations in preventive health and*

*proactive solutions for women in at-risk populations. Has the pocket colposcope been one of the most impactful developments you've seen throughout your career to help achieve this?*

Yes, this has huge implications in terms of affordable, reliable, and accurate cervical cancer screening and prevention.

*For the past six years, you have spent several months annually in Tanzania to bring innovation and improved care to women there, and to educate Ob/Gyns there. What has the response been to the pocket colposcope for cervical cancer prevention – from health care providers and patients?*

They have been quite impressed in terms of the image quality and ease of use of the device. Many of the providers as well as the Tanzanian Minister

of Health have seen the pocket colposcope and are very interested in seeing this put into widespread use.

*What was your role in bringing this potentially lifesaving device to where it is today?*

I am involved in the clinical testing, and I worked with the engineers, who implemented the design and improved workflow and efficiency.

*Will Duke be using this in the training of future Ob/Gyns?*

We are currently working through the process of FDA approval for the device with the hopes that with approval, it can be put into widespread use for others doing remote screening.

*How has collaboration with other Duke Departments made this a success story?*

We have ongoing collaborations with Engineering, Pathology, and Computer Science, and meeting these dedicated individuals and working on this

together has truly made this project a real success.

*How do you feel this device will enable Duke Ob/Gyn to fulfill its mission and vision?*

The pocket colposcope holds the promise of bringing state-of-the-art colposcopy connected to expert image interpretation to areas where this was previously not possible. This coupled with expedited low cost treatment of precancerous lesions can truly make a real difference in the lives of women all over the world! Seeing so many young and productive women die from advanced cervical cancer without resources to treat them makes screening and prevention so important.

*Editor's Note: Dr. Schmitt spends three months out of the year in Tanzania, where cervical cancer is the number one cancer killer of women.*

## REDEFINING THE WORD 'MINIMAL' IN MINIMALLY INVASIVE GYNECOLOGIC SURGERY

Laparoscopic surgery is nothing new. In fact, gynecologists were critically important in the development and adoption of this approach dating as far back as the 1970s. Gynecologists were the first to rig large, bulky, standard-size solid state video cameras to the laparoscope, allowing surgeons to stand upright and operate "off of the monitor."

The small, high definition digital cameras used today are often taken for granted. Obstetrics and Gynecology residency programs made training in laparoscopy a mandatory requirement several years before general surgeons performed the very first laparoscopic cholecystectomy. Since then, the advantages of this approach as compared to standard open surgeries have been well established, including less pain, less infection, and less risk of thromboembolic blood clots.

Now, surgeons in Duke's Division of Minimally Invasive Gynecology Surgery (MIGS) are pushing the envelope even further. Continuing improvements in technology have encouraged the development of significantly smaller instrumentation.

"Although microlaparoscopy is not a new concept, our specialty is only now beginning to more broadly explore its applications in gynecologic surgery," according to Duke MIGS Division Chief



**Craig Sobolewski, MD.** "Using smaller surgical instruments, some that are as small as 2.3 mm, we have successfully treated endometriosis, pelvic adhesions and ovarian cysts. Patients have been shown to have less pain and a preferred cosmetic outcome. In fact, oftentimes, it is difficult to see the incision sites afterward because the scars are so small. We are excited about continuing to advance this approach and explore additional opportunities to provide maximally effective care with the most minimal surgical impact for our patients."



# OVARIAN CANCER SCREENING: COST EFFECTIVE?

BY JULIE POUCHER HARBIN, DUKE CANCER INSTITUTE

A group of Duke Cancer Institute gynecologic oncology researchers has published a new paper with their projections on the cost-effectiveness of ovarian cancer screening in the U.S., based on their analysis of published results of the UK Collaborative Trial of Ovarian Cancer Screening (UKCTOCS).

The DCI group used statistical modeling to tailor the UKCTOCS results — that had concluded that screening might eventually be able to save lives in the U.K — to a U.S. population.

“Ours is the first study to look at the cost-effectiveness implications of screening using the UKCTOCS algorithm in the U.S., where the rate of developing ovarian cancer is about 1.4 percent over a lifetime,” said senior author **Laura Havrilesky, MD, MHSc**. “Our conclusion is that if proven effective, a screening test would also be potentially cost-effective in the U.S. We found that multimodal screening with serum CA-125, could reduce mortality by 15% (as was found in the U.K. study) with an ICER ranging from \$106,187 to \$155,256.”

An ICER is how much society or the payer (such as Medicare or insurance carriers) has to pay to achieve one additional year of life for one patient. In the U.S., Havrilesky explained, ICERs that are less than \$150,000 are considered “potentially cost-effective,” though no-one in the U.S. withholds care based solely on cost-effectiveness. In some other countries, including the UK, new tests and treatments may not be offered within their national healthcare systems unless the ICER is lower than a benchmark number. She said that “highly cost-effective” measures should have an ICER under \$100,000. The findings were published online on December 7, 2017 in *JAMA Oncology*.

The U.K.-based randomized controlled trial recruited more than 200,000 postmenopausal women aged 50 to 74, between 2001 and 2005 from centers throughout the U.K. who had

no previous bilateral oophorectomy or ovarian malignancy, no increased risk of familial ovarian cancer and no active non-ovarian cancer.

Multimodal screening (MMS) in the trial consisted of a CA-125 blood test performed annually. If the value was abnormal or borderline, a pelvic ultrasound or repeat CA-125 test done sooner was performed. Abnormal ultrasounds resulted in referral to a gynecologic oncologist.

Havrilesky explained that while the observed effect of the multimodal screening on lowering ovarian cancer deaths was not found to be statistically significant in the U.K. trial, U.K. investigators noted that the effects of screening on cancer deaths improved over time. While those investigators projected out 40 years, there’s only been 11 years of follow-up on average so far.

“The biggest limitation of the U.K. study is the current uncertainty around the mortality projections made by the investigators,” said Havrilesky. “Cancer screening program studies require many years of follow up to judge their effectiveness, with screening effectiveness judged by comparing cancer deaths between women who undergo screening and those who don’t. Screening is not yet being recommended to all postmenopausal women. If the next UKCTOCS analysis (in 2019) achieves a significant level of reducing ovarian cancer deaths, guidelines and recommendations for ovarian cancer screening may change.”

Currently, ovarian cancer screening gets a “D” recommendation from the United

States Preventive Services Taskforce. “This means based on the best evidence the harms of screening women outweigh the benefits,” said Havrilesky.

In many women with ovarian cancer, levels of CA-125, a protein found in the blood, are high, but not everyone who has ovarian cancer has a high CA-125 level. Additionally, many common conditions that are not cancer-related can cause high levels of CA-125.

“The specific harms of screening are the additional surgeries that need to be performed to find a case of ovarian cancer, and the potential complications from these surgeries,” said Havrilesky.

Moving forward, Havrilesky said her team “would like to perform a more robust cost-effectiveness analysis that would not depend on the previously modeled projections of mortality, but would rather simulate screening and deaths independently based on what we know about how ovarian cancer develops and grows.”

“We would also like to perform studies of women’s preferences for the harms and benefits of both screening and newer preventive methods for reducing ovarian cancer deaths,” she continued. “In two years, when the next UKCTOCS results come out, we may be able to do another formal assessment that could help guide policy in terms of whether ovarian cancer screening adds value to the care of postmenopausal women.”

*In addition to Havrilesky, study authors (all Duke) included: **Haley Moss, MD, MBA** (first author); **Andrew Berchuck, MD**; **Megan L. Neely, PhD**; and **Evan R. Myers, MD, MPH**. The study received funding from Colleen’s Dream Foundation.*





## Division Spotlight

# CINDY L. AMUNDSEN, MD, RECOGNIZED FOR LIFETIME OF MEDICAL CONTRIBUTIONS, NAMED NAFC CONTINENCE CARE CHAMPION

The National Association for Continence recently honored **Cindy L. Amundsen** as the 2017 American Urogynecologic Society (AUGS) recipient of the Rodney Appell Continence Care Champion Award. Amundsen was presented with the award during the AUGS annual meeting on Oct. 6, 2017. She was recognized for her outstanding work with patients, research and support of patient education. The award is among the most prestigious recognitions in the field of continence care, conferred upon those whose distinguished careers and outstanding contributions

in research, clinical practice and patient education have made them role models for others in the discipline.

"It was a great pleasure and honor to present Dr. Amundsen with this award," said **Steven G. Gregg, PhD**, Executive Director for the NAFC. "We were inspired by the more than 20 years of work she has done in urogynecology care as well as clinical research and support for greater patient education. She is particularly successful treating those that often do not respond to the first or second line therapies."

Amundsen is the Roy T. Parker, M.D., Professor of Obstetrics and Gynecology in the School of Medicine at Duke. She is an active researcher and has published the first multicenter clinical trial comparing Botox Therapy with InterStim in women with refractory urgent urinary incontinence.

An active member of AUGS, she also was recognized during Pelvic Floor Disorders (PFD) Week for Best Overall Paper (2017), ***Two-year Outcomes of Sacral Neuromodulation vs. Onabotulinumtoxin for Refractory Urgency Urinary Incontinence.***



**Can you provide us with a little more on your background, credentials, education and degrees?**

I grew up in Hermitage, Pennsylvania. After high school, I went to Northwestern University, where I graduated with a degree in neurobiology. I received my medical degree from the University of Tennessee in Memphis, and I completed a residency in obstetrics and gynecology at the University of Texas, Houston. After residency, I was interested in reconstructive pelvic surgery and the newly evolving subspecialty called urogynecology. I was accepted as a female urology fellow by **Edward McGuire, MD**, who was considered one of the forefathers of female urology and a pioneer in the development of this combined gynecology and urology specialty.

**Can you give us any career highlights or special recognitions or achievements, published studies, etc.?**

My career has been dedicated to improving the lives of women with pelvic floor disorders, particularly urinary incontinence and voiding dysfunction. Over the last 22 years, I have significantly impacted the quality of patient care with my involvement in research, patient care, and trainee education. My research has been on applying rigorous methods to test tools used for evaluation of lower urinary tract symptoms, studying safer surgical approaches, and testing novel therapies for lower urinary tract dysfunction, including urinary incontinence.

A particular achievement of mine was to lead the first multicenter trial comparing Botox therapy to InterStim therapy for those women with refractory urgency urinary incontinence. The results of this study were published in the *Journal of American Medical Association (JAMA)*. Other highlights of my career have been 19 years of mentoring bright surgeon/scientists who have had as much passion as I do in providing top notch care to women with lower urinary tract and pelvic floor disorders.

As director of the Duke Female Pelvic Medicine and Reconstructive Surgery Fellowship, I pride myself in selecting and training the next generation of highly skilled and knowledgeable urogynecologists.

**What was it that drew you to urogynecology?**

After residency, I saw the potential of great collaborations with a variety of experts in gynecology, urology, physical therapy and colorectal surgery as well as basic scientists to work together to enhance patient care.

**What was your career path?**

The experiences during my fellowship propelled me into academic medicine. At Duke, I was fortunate to collaborate with a world-renowned reconstructive urologist, **George Webster, MD**, along with other very well-established scientists in other departments.

**What career achievement(s) are you most proud of?**

I have a philosophy to “give it my all” in everything I do. I want to provide the best care for my patients, every opportunity and resource for my trainees, and the highest quality and innovative research.

**What is most rewarding aspect in your current role?**

The most rewarding aspect of my current role is my involvement in all aspects of medicine, patient care, research and education. Pursuing each area as provided me with the experience and information to enhance the other. The patients I treat have usually not responded to first line therapy for their conditions, and thus, the complexity of their problems has provided the catalyst for developing important research questions. Performing evidence-based

*Continued, page 10*



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research has provided my patients with the state-of-the-art technology and the best treatments.

***What in your opinion are the keys to successful outcomes for the patients you treat?***

I think the key to successful outcomes for my patients is to understand the patients' concerns and goals, communicate and educate them about their condition and various options, while providing realistic expectations, and then meet those expectations. Although there has been tremendous progress over the last 20 years in the treatment of urinary incontinence and other lower urinary tract dysfunctions, there still is a lot of research to be done.

***What areas of research would you like to do or to see being conducted to further advance care or patient outcomes?***

In the area of research, I would like to see important scientific advances into what is coined "personalized medicine." Our field must begin to better understand the various mechanisms of why patients develop these conditions



**My philosophy in achieving the best urogynecology care is individualizing treatment for each patient - listening to my patient, taking into account their concerns, goals, and expectations and then designing a treatment strategy.**

so that we can better individualize treatment. This will then provide patients with a more targeted and rational approach to treatment, instead of the current algorithmic approach.

***What has changed in the last 10 years for urology/urogynecology?***

In the last 10 years, women's quest for a better quality of life has brought recognition to pelvic floor and lower urinary tract problems.

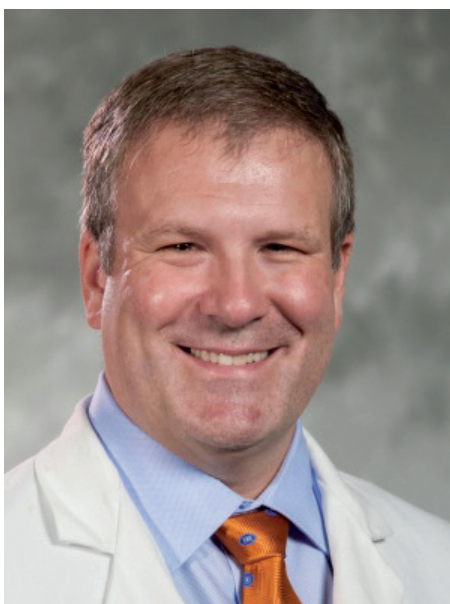
Urogynecologic disorders create both significant personal distress as well as a tremendous economic burden on society.

While physicians have responded by addressing these conditions with patients and providing them with more treatment options than ever before, more funding for research and education is needed.

***What areas do you see need more improvement? Patient Education? Awareness?***

Both patient education and awareness in urology are needed. Awareness about bladder health should be emphasized at every stage of life, especially educating women on what they can do to maintain good bladder health, and to seek expert advice when problems arise.

## ERIC JELOVSEK, MD, MMED, LEADS DEVELOPMENT OF MODELS **TO PREDICT PELVIC FLOOR DISORDERS**



*The models, developed by the Duke Clinical Research Institute (DCRI), the Cleveland Clinic, and international researchers, can predict the risk of pelvic floor disorders among women 12 and 20 years after childbirth.*

Researchers recently published an article in the *American Journal of Obstetrics & Gynecology* showing how variables known before childbirth can be used to develop and validate prognostic models estimating risks of pelvic floor disorders (PFDs) 12 and 20 years after delivery. The models developed in the article may provide an opportunity before birth to institute prevention strategies such as pelvic floor muscle training, weight control or elective cesarean section for

women at higher risk of developing PFDs.

"PFDs include a variety of different conditions in women, including urinary incontinence, fecal incontinence or pelvic organ prolapse, a condition in which the uterus, bladder and bowel may drop into the vagina and cause a bulge through the vaginal canal," said Vice Chair for Education **Eric Jelovsek, MD, MMEd**, lead author of the article and director of data science for women's health in Duke's Department of Obstetrics and Gynecology.

National Institutes of Health data reveals that more than one-third of U.S. women have PFDs, and nearly one-quarter of women have one or more PFDs that cause symptoms.

Continued, page 11



"The real obstacle when thinking about how to prevent PFDs in women is that they develop these conditions years, sometimes decades after childbirth," said Jelovsek. "Properly identifying women who are at risk for developing PFDs years or decades earlier and counseling them around the time of childbirth to help them make an informed decision regarding their healthcare directly related to the event of childbirth itself has been a real challenge in our field."

According to Jelovsek, the aim of this study was to see if the researchers can integrate a variety of different obstetric variables that they know about women into mathematical models and essentially use those factors known at that time to predict the events occurring 12 and 20 years after childbirth.

The researchers collected information from two large datasets: one from the Swedish Medical Birth Register, led by a team at the University of Gothenburg, Sweden and the other from a large cohort study conducted by investigators at Glasgow Caledonian University and the University of Birmingham in the UK and University of Otago in New Zealand. The students followed women after childbirth, particularly women who had multiple births over a long period of time. PFDs were self-reported 12 years after childbirth in the UK and New Zealand cohort and 20 years after childbirth in the Swedish Register.

"We combined our expertise in building prediction models with both of these large datasets to essentially fit models that we think accurately predict these outcomes," said Jelovsek. "That process involved not only fitting the models but also testing how the models perform on another group of women and in this case, we did that by essentially splitting those two cohorts into two so that data collected during the first half of the cohort's time period were used to fit prediction models and validation was performed from the second half," he said.

According to Jelovsek, the way such a tool can be successfully utilized is that a provider could inform a woman of her risk or lack of risk for developing pelvic floor disorders. The authors believe that reassuring women about being low risk is very important since most women want to deliver their infants through the vaginal route and also want to understand the long-term risks to their pelvic floor. With more information and data individualized to them, women have the tools to make better informed decisions between vaginal and cesarean deliveries and future treatment strategies.

"This study is a significant advance because really for the first time we have some idea of how accurately we can predict these events. We have not had this before," said Jelovsek. "Now that we have reasonably accurate models, we can

identify those who are certainly at lower than average risk and those who are at a higher than average risk."

"This is also an example of international collaboration at its finest," said Jelovsek. "The ability to share these types of datasets across international boundaries facilitates researchers' ability to provide these types of predictions to our patients."

According to Jelovsek, there is also an opportunity for qualitative work around providing predictions to providers and to patients in the context of childbirth and in seeing how they interpret them.

"Asking patients and providers whether this information is valuable, whether it is helpful, does it change their mind and reassure them that the decisions they are making are useful, is key," said Jelovsek. "We need to do this work ourselves because simply building the model and saying that it performs accurately doesn't actually change practice. We need to study how the use of the model might begin to alter the providers' and patients' perceptions of their risk of developing PFDs down the line," he said.

*In addition to Jelovsek, other co-authors included Kevin Chagin, MS; Maria Gyhagen, MD, PhD; Suzanne Hagen, PhD; Don Wilson, MD; Michael W. Kattan, PhD; Andrew Elders, MSc; Matthew D. Barber, MD, MHS; Björn Areskoug, PhD; Christine MacArthur, PhD; and Ian Milsom, MD, PhD.*

## CME ON PELVIC CONDITIONS OFFERED FOR PHYSICIANS, APPS ON APRIL 6TH

*Solving Your Tough Cases: Essential Pelvic Musculoskeletal Assessment for Physicians and Advance Practice Providers is being presented by Ingrid Harm-Ernandes, PT, WCS, BCB-PMD, Physical Therapist at Duke University Hospital.*

Course will discuss the musculoskeletal system and the impact it has on common pelvic conditions. There will be instruction on basic musculoskeletal system assessment skills, both internal and

external. In addition, discussion about how pelvic health physical therapists treat these conditions and how evidence based physical therapy can be of great benefit to patients. This course will have lab sessions with live models and in depth instruction in proper MSK assessment techniques.

All specialties — geriatric specialists, orthopedic, family medicine, gynecology, and more — can benefit from the information and skills learned in this course.



This is a CME accredited course. Register at: [events.duke.edu/msk2018](https://events.duke.edu/msk2018)

# DUKE EXPANDS ITS PREMATURETY PREVENTION PROGRAM

BY CATHERINE LEWIS, DUKE HEALTH CLINICAL PRACTICE TODAY

In 2016, the US preterm birth rate increased for the second year in a row after almost a decade of decline. According to the 2017 March of Dimes Premature Birth Report Card, racial disparities in preterm birth are also widening, with rates for black women and American Indian/Alaska Native women 49% and 18% higher, respectively, than those for white women.

In an effort to address these challenges, Duke Maternal Fetal Medicine (MFM) specialists **Amy Murtha, MD**, and **Geeta Swamy, MD**, launched the Duke Prematurity Prevention Program (DP3) in 2015. Now, more than two years later, the program has expanded, adding an advanced practice provider, who serves as patients' primary point of contact, and two new MFM specialists — **Jennifer Gilner, MD, PhD**, and **Sarahh Wheeler, MD**.

With more faculty whose primary research interest is in prematurity, Murtha says the program is even better positioned to offer patients the best quality care. The addition of an advanced practice provider has also been instrumental in ensuring that patients' needs are met, she says.

In addition to the MFM specialists and advanced practice provider, the clinic offers the expertise of a clinical social worker, a nutritionist, a nurse, and a certified nursing assistant. The presence of this core team of health care professionals interfacing with patients is essential to the team's ability to provide continuity of care, Wheeler says.

"The entire team works with each patient throughout the pregnancy to prevent preterm birth at every step," she explains. "We get to know the patients really well, and they get to know us. I think there's a real therapeutic aspect to the close relationship the patients have with the entire DP3 care team."

The clinic provides care and support for women who have a history of preterm birth or who are at high risk of preterm birth,

offering the full range of nonsurgical and surgical options. This includes higher-level cerclages that are only offered at a handful of tertiary centers across the country. Ultimately, the DP3 team's goal is to develop a tailored, comprehensive prematurity prevention plan for each patient, whether she is thinking about getting pregnant, currently pregnant, or postpartum.

The center's ability to offer carefully tailored plans is facilitated by its team approach, Gilner says. "Preventing preterm birth is very complex, and there's a lot of disagreement in the field," she explains. "The nice thing about having multiple MFM specialists is that we make these decisions in a shared way, with careful attention to the literature, so patients leave their initial consultation with a responsible, evidence-based plan."

The program's clinicians have dedicated significant efforts to researching preterm birth. In 2015, Duke, in conjunction with University of Chicago and Northwestern University Feinberg School of Medicine, was announced as the fifth March of Dimes Prematurity Research Center. Murtha conducts prematurity research through the center, in addition to having several independent research projects.

Both Gilner and Wheeler also have independent research efforts as part of the DP3. Gilner's research focuses on understanding the underlying mechanisms of preterm birth, particularly the role of regulatory T cells in preterm births that have evidence of an immune rejection phenotype. Wheeler is studying the barriers to progesterone injection uptake among non-Hispanic black women at high risk of preterm birth, with the ultimate goal of identifying potential interventions to improve uptake and adherence.

The DP3 program focuses not only on patients' medical needs—making sure they have the right medicines and screening tests, for example—but also on providing psychosocial support, Murtha says: "We spend time with each patient, talking through what she can expect emotionally based on her pregnancy history and what we have available to help support her. I like to make sure our patients know that they're welcome to come see us or give us a call whenever they are worried or concerned. Worrying about preterm birth can be very stressful, and supporting the patient through that experience is a key component of what we do."

**We spend time with each patient, talking through what she can expect emotionally based on her pregnancy history and what we have available to help support her.**







## NATIONAL STUDY IDENTIFIES BEST METHOD FOR ACHIEVING A HEALTHY IVF BIRTH

The study, co-authored by Duke Ob/Gyn's Jennifer Eaton, MD, found the odds of having a full-term baby of a healthy weight were the same whether the patient received fresh donor eggs or donor eggs that had been frozen.

Transferring more embryos is not always better to achieve a healthy IVF birth, according to a retrospective analysis of nearly 30,000 IVF (in vitro fertilization) cycles that also found fresh donor eggs, not frozen, provide a higher chance of implantation.

**Jennifer Eaton, MD**, and researchers from University of Colorado collaborated on the study — the largest study published so far comparing these two types of donor eggs. Researchers evaluated 30,000 patient cases. They also found patients were two times more likely to have a full-term baby of a healthy weight when they had only one embryo implanted rather than two or more.

Findings were presented by Eaton in November at the 2017 American Society for Reproductive Medicine (ASRM) Meeting. The study concludes that fresh donor eggs during IVF provide a higher chance of implantation when compared with donor eggs that have been cryopreserved. In addition, the study lends credence to the practice of transferring just one embryo during IVF to avoid complications that accompany multiple births, in contrast

to the historically prevalent method of transferring two or more embryos to increase the odds of pregnancy.

Researchers conducted this extensive study because existing medical literature does not clearly indicate whether fresh or frozen donor eggs lead to better birth outcomes for patients undergoing IVF. Their study examined a three-year swath of the latest available United States data reported to the Society for Assisted Reproductive Technology (SART). This study looked at only those cycles that used eggs from donors in order to control for factors relating to egg quality. Donor eggs are known to provide the best chance of success for women undergoing IVF.

Among the examined cycles, healthy birth rates were similar with fresh and frozen eggs, with one important caveat. Double and triple embryo transfers were

found to be significantly more prevalent among cycles using fresh donor eggs, leading to a higher incidence of multiple pregnancies (twins or more). Multiple births are known to have increased risks of complications for both mother and child, including premature birth and low birth weight. When controlling for the factors known to affect IVF success, choosing to transfer just one embryo doubled the chance of a healthy baby, the desired objective in IVF.

Frozen donor eggs provide a more economical and convenient way to obtain fertility treatment with donor eggs, while fresh eggs (non-frozen) tend to be more expensive and require the patient to coordinate with a single egg donor. Irrespective of the type of donor egg a patient pursues, opting for a single embryo transfer was shown to lead to a higher chance of a healthy pregnancy and birth.



**Researchers conducted this extensive study because existing medical literature does not clearly indicate whether fresh or frozen donor eggs lead to better birth outcomes for patients undergoing IVF.**

# NEWSWORTHY & NOTEWORTHY

## Duke Ob/Gyn Announces Reproductive Sciences Division



Duke Ob/Gyn's new Division of Reproductive Sciences was announced in December, led by **Susan Murphy, PhD**. Murphy is an associate

professor in Ob/Gyn and the Duke Nicholas School of the Environment. She is an internationally recognized and highly accomplished reproductive scientist whose research has focused on the developmental origins on health and disease, in particular the role of epigenetics in development of gynecologic malignancies, and the impact of environmental exposures on childhood development.

Murphy co-founded the Newborn Epigenetics Study (NEST) at Duke in 2005, which enrolled 2000 mother-baby pairs and has provided for a wellspring of related NIH-funded studies, helping to launch the careers of postdoctoral researchers and junior faculty.

Among many other accomplishments, she also serves as Program Director of the NICHEs Children's Environmental Health and Disease Prevention Research Center at Duke. Other Ob/Gyn faculty with primary appointments in the new Division of Reproductive Sciences include **Liping Feng MD**; **Friederike Jayes, DVM, PhD**; and **Evan Myers MD, MPH**.

Murphy also has been selected to participate in the **2018 ALICE** program – Academic Leadership, Innovation, and Collaborative Engagement. The program is for mid-career women faculty at Duke. The 2018 participant class includes 14 outstanding faculty leaders from eight School of Medicine departments. The class includes diverse interests in research, clinical care, and education. ALICE is a 10-month program that will focus on personal leadership skills, self-reflection, goal setting, peer mentoring, and structured 360 feedback.

## Campion Fund Honors

On April 6, 2018, Murphy will be honored with the Campion Fund's Outstanding Senior Scientist Award at the annual Campion Gala. The Executive Committee of the Fund has chosen Murphy for her important work on the epigenetics in the development of gynecologic malignancies and the impact of in-utero and early life environmental exposures in the development of disease.

Duke Ob/Gyn Chair **Matthew Barber, MD, MHS**, is the 2018 Honorary Chair of the Gala. The Campion Fund provides peer-reviewed grants to qualified investigators, conducts scientific conferences for the exchange of information, and educates the public on fertility research. The Campion Fund (Phyllis and Mark Leppert Foundation for Fertility Research) was co-founded by **Phyllis Leppert, MD, PhD**, Duke Ob/Gyn Professor Emeritus and former Vice Chair for Research.

## Alice Cooper, OGNP, RNC, Becomes DCLP 2018 Fellow



Congratulations to **Alice Cooper, OGNP, RNC**, for completing the Duke Clinical Leadership Program and becoming a fellow in the 2018 class

of the DCLP. The program is designed for mid-career clinical faculty who show extraordinary promise for future leadership roles at Duke. These 26 clinicians will join the ranks of the 169 fellows who completed the DCLP program during its first seven years. Cooper and her colleagues were recognized for this accomplishment by **A. Eugene Washington, MD**, Duke University Chancellor for Health Affairs, and President and CEO of the Duke University Health System.

## Donald T. Moore, MD, Endowed Lectureship Fully Funded



Duke Ob/Gyn will soon be planning impactful lectures on such topics as health care disparities, societal issues related to access to care, and the

economics and politics of health care, thanks to a milestone accomplishment: full funding of the **Donald T. Moore, MD, Endowed Lectureship**.

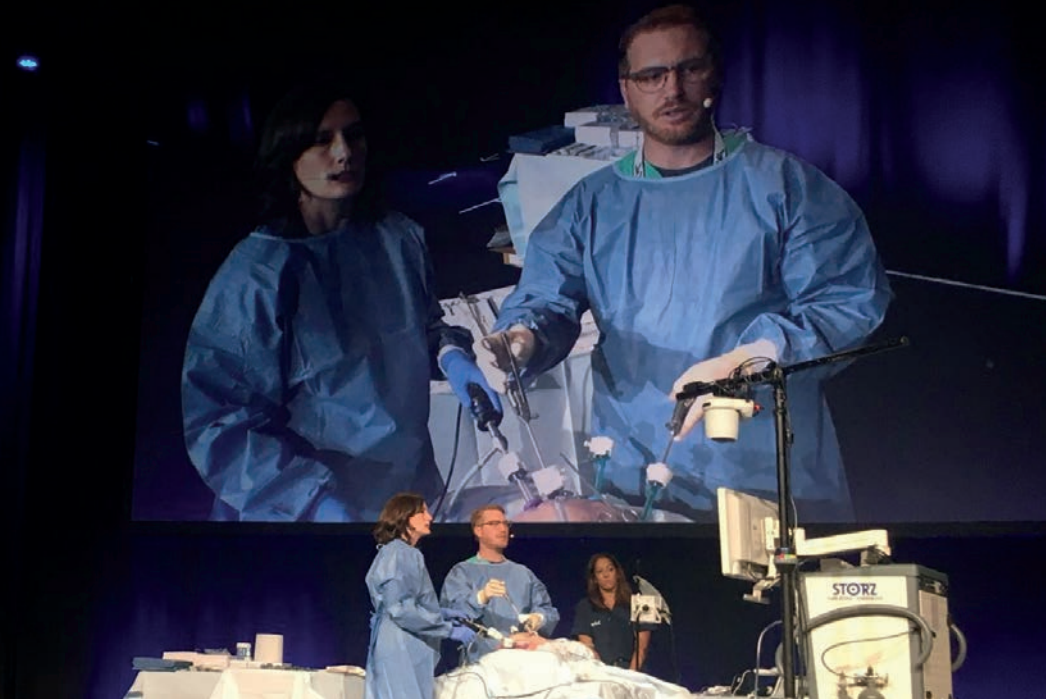
This endowed lectureship honors Moore, who had a tremendous impact as the first African American Fellow in the School of Medicine, following the evolving desegregation of Duke Hospital.

Moore was asked to join the Department of Obstetrics and Gynecology at the invitation of Chairman **Roy T. Parker, MD**. Moore also served as Chief of Ob/Gyn at Lincoln Hospital, which later became Lincoln Community Health Center, and trained many residents, medical students and nurses. Parker once noted, "There is a place in heaven for Don Moore for improving the health care of minority — especially African American — women."

## Inaugural 'Ethics on Tap' Program Presented

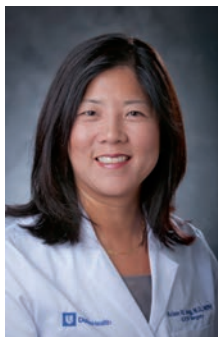
Duke Ob/Gyn launched its *Ethics on Tap* departmental initiative in February to promote bioethics discussion in women's health, facilitated by residents **Luke Gatta, MD**, and **Lauren Sayres, MD**. Fourteen residents and four faculty members discussed four challenging cases over dinner in a conversation led by guest speaker **Brownsyne Tucker Edmonds MD, MPH, MS**, 2009 residency alumna, assistant professor of Ob/Gyn and assistant dean of Diversity Affairs at Indiana University School of Medicine; and **Philip Rosoff, MD, MA**, pediatric oncologist and the Chair of the Duke Hospital Ethics Committee. The topic was *Obstetrical Counseling & Decision Making at the Limits of Viability*.





### Faculty Present at the American Association of Gynecologic Laparoscopist Global Congress

Minimally Invasive Gynecologic Surgery faculty **Arleen Song, MD;** **Craig Sobolewski, MD;** and **Amy Broach, MD;** recently presented at the American Association of Gynecologic Laparoscopist Global (AAGL) Congress.



Song was faculty for the robotic postgraduate course **Building a World Class Robotic Program: Simulation, Integration, Application and Evaluation.** She presented *Decide,*

*Commit, Succeed: Tips for Success.* She also taught the **Robotic Cadaveric Lab: Creating Systematic Proficiency.**

Song recently completed a three-year term on the Board of the Robotic Special Interest Group for the AAGL, where she served as vice chair, chair and past chair.

#### **Pictured at top of page:**

*Amy Broach, MD, performing a live demonstration of laparoscopic vaginal cuff closure.*

### Matthew Barber, MD, MHS, Presents at NIH/NIDDK; Appointed ABOG Division Member-Elect

Duke Ob/Gyn Chair **Matthew D. Barber, MD, MHS,** presented work on development and use prediction models for urinary incontinence and pelvic floor disorders at the recent National Institutes of Health/National Institute of Diabetes and Digestive and Kidney Diseases meeting, **Individualizing Treatment for Urinary Incontinence - Evolving Research Questions into Research Plans.**

Barber also will serve as FPMRS Division Member Elect for the American Board of Obstetrics and Gynecology (2018), the organization recently announced.

### Sandy Li, MD, MA, Receives Pfizer SRI President's Presenter's Award



Congratulations to **Sandy Li, MD, MA,** REI fellow, honored as the recipient of the Pfizer SRI President's Presenter's Award at the Society for

Reproductive Investigation's 65th Annual Meeting in San Diego, California. Li's winning abstract is titled *T Type Ca<sup>2+</sup> Channels May Play An Essential Role In Uterine Contractility.* Co-authors are **Chad Grotegut, MD,** and **Thomas Price, MD.**

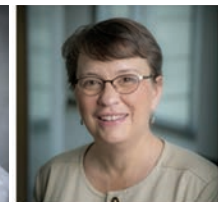
### REI Recognized at ASRM Conference

At the recent American Society for Reproductive Medicine (ASRM) conference, Duke's REI Division was recognized, and two late breaking abstracts were presented:

- *Freezing of all embryos in in vitro fertilization (IVF) is beneficial in high responders, but not normal and low responders: An analysis of 82,935 cycles from the most recent SART registry* by **Kelly S. Acharya, MD;** **Chaitanya R. Acharya, PhD, PSM;** **Sandy Li, MD;** **Katherine Bishop, MD;** **Benjamin Harris, MD;** **Douglas Raburn, PhD;** and **Suheil J. Muasher, MD.**
- *How do patient and IVF cycle characteristics impact blastulation rates? An analysis of 70,968 blastocyst cycles from the SART registry* by **Kelly S. Acharya, MD;** **Carrie Jones, MD;** **Sanaz Keyhan, MD (former Duke fellow);** **Douglas Raburn, PhD;** **Chaitanya R. Acharya, PhD, PSM;** and **Suheil J. Muasher, MD.**

**Suheil Muasher, MD,** and **Jennifer Eaton, MD,** each received the **ASRM Star Award for 2017.** **Thomas Price, MD,** was recognized as outgoing SREI President.

### Geeta Swamy, MD, Named Vice Chair for Research and Faculty Development for Duke Ob/Gyn



**Geeta Swamy, MD,** (left), has assumed the role of Vice Chair for Research and Faculty Development, effective March 1. In this dual role, Swamy oversees strategic development and administration of the department's basic, translational and clinical research programs, as well as implements and oversees programs to support development and mentorship for all faculty at all levels. Swamy succeeds **Amy Murtha, MD,** Vice Chair of Research. Murtha will be leaving Duke on May 1 to serve as Chair of the Department of Obstetrics, Gynecology and Reproductive Sciences at the University of California, San Francisco.

Department of Obstetrics and Gynecology  
DUMC 3084 Durham, NC 27710

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