

UPDATES IN GYNECOLOGY

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Message from the Chairman

Dear Colleagues,

I am pleased to present you with this issue of *Updates in Gynecology* featuring some of the latest research and clinical breakthroughs from our Department of Obstetrics, Gynecology, and Reproductive Sciences at UPMC Magee-Womens Hospital and the University of Pittsburgh.

In this issue, you will find new research outcomes from our urogynecology surgery ERAS protocol for pelvic floor prolapse. **Halina Zyczynski, MD**, outlines the successful implementation of the protocol that was recently published in the *American Journal of Obstetrics and Gynecology*, and which Dr. Zyczynski presented at the American Urogynecologic Society annual meeting on October 13.

I am also pleased to introduce **Megan Bradley, MD**, one of our newest faculty members and clinicians in the Women's Center for Bladder and Pelvic Health. Dr. Bradley's research focuses on recurrent and refractory urinary tract infections, some of which is discussed in this issue.

This issue also features news and updates from our minimally invasive gynecologic surgery group, with new research and clinical advances presented by **Suketu Mansuria, MD**, and **Nicole Donnellan, MD**.

Finally, I am excited to inform you of the awarding of the inaugural Magee Prize, a \$1 million research award for collaborative scientific inquiry presented on October 9 during the first-ever Magee-Womens Research Summit.

We are incredibly proud of the research and clinical activities in the Department, and our plans for continued growth. We look forward to keeping you up-to-date on our progress and developments in future issues of *Updates in Gynecology*.

For more information about our program, please visit UPMC.com/Magee and UPMCPhysicianResources.com/Gynecology.

Robert P. Edwards, MD

Chairman, Department of Obstetrics, Gynecology, and Reproductive Sciences
Co-Director, Gynecologic Oncology Research, UPMC Magee-Womens Hospital

MIGS Update:

New Pathways in Hysterectomy Surgery, ERAS, and Endometriosis and Chronic Pelvic Pain Research



The Center for Minimally Invasive Gynecologic Surgery (MIGS) at UPMC Magee-Womens Hospital, led by director Ted Lee, MD, and assistant director **Suketu Mansuria, MD**, is home to one of the largest and busiest gynecologic minimally invasive surgery programs in

the country. Innovative research to advance the discipline — breaking new ground for the treatment of many common gynecologic conditions — is a hallmark of the program.



With colleagues **Richard Guido, MD**, **Nicole Donnellan, MD**, (left) and **Noah Rindos, MD**, the fellowship-trained surgeons of the MIGS division perform more than 1,000 surgical cases each year. As a tertiary care center, the MIGS surgeons at UPMC Magee see some of the most complex cases, and patients are often referred here because of their expertise in performing these highly complicated cases

laparoscopically. “Over the last several years, we’ve had a focus on implementing new clinical pathways designed to improve patient outcomes and patient satisfaction. This has transformed various aspects of the program. Part of this has involved our adoption of enhanced recovery after surgery (ERAS) protocols for our hysterectomy patients, while another off-shoot has been our development of a same-day discharge pathway that is beginning to show some impressive results,” says Dr. Mansuria.

A New Path Forward With Results

Minimally invasive hysterectomy typically affords less postsurgical pain, a faster recovery, and fewer complications than traditional open procedures. A goal of the MIGS division in recent years has been to increase the percentage of laparoscopic, robotic, or vaginal procedures. “Our desire was to reduce the number of abdominal hysterectomies and do it across the entire UPMC system, not just in our practice at UPMC Magee,” says Dr. Mansuria. To effect change on a system-wide level, physicians had to be engaged and become partners in care. “We wanted physicians to be involved in the decision-making process to truly see that this approach is better for all of our patients.”

Dr. Mansuria and colleagues put together a team to analyze UPMC patient data, comparing outcomes from minimally invasive hysterectomies to those done as open procedures. Using evidence-based recommendations from the American College of Obstetricians and Gynecologists (ACOG) and internal UPMC data, a pathway was developed that would offer guidance and recommendations to

the surgeon as to the best route for performing the hysterectomy. Questions about the size of the uterus, comorbidities, and other factors are used to develop the recommendation. “At this point, it’s still up to the physician to decide whether they want to follow those recommendations, but the pathway helps identify good candidates for a minimally invasive hysterectomy,” says Dr. Mansuria. For those clinicians who do not feel comfortable doing surgery minimally invasively, the pathway assists with referral of the patient to a specialist.

The pathway was implemented in 2012 across the then 14 hospitals within the UPMC system. Data from the implementation was compared from 2012 to 2014. “In a caseload of well over 6,000 hysterectomies system-wide, we saw a 39 percent reduction in abdominal hysterectomies with an equivalent increase in minimally invasive hysterectomies,” indicates Dr. Mansuria. Beyond just a reduction in open surgical cases, data was collected and analyzed to report on postsurgical complications. “We are not only doing more minimally invasive hysterectomies, but we also are improving patient care,” says Dr. Mansuria. Length of stay has significantly decreased, and there also have been significant reductions in surgical site infections, readmissions, and blood transfusions.

ERAS Is Changing the Nature of Surgery Across Disciplines

ERAS protocols are becoming more prevalent across the entire range of surgical disciplines and practices. Dr. Mansuria and colleagues implemented a protocol that borrows some of the principles and practices of ERAS and applied it to their minimally invasive surgical cases. “We felt that a lot of what ERAS was built upon for large, open surgeries — things like better pain control and decreased nausea and vomiting after surgery — were applicable to our minimally invasive cases,” says Dr. Mansuria. Working with colleagues in anesthesia, nursing, and other areas, the Center developed its own version of ERAS for minimally invasive cases and launched the protocol in August 2016.

The ERAS protocol for minimally invasive hysterectomy uses a multimodal analgesia approach. It combines nonsteroidal medications, acetaminophen, and limited amounts of narcotics. “Working in conjunction with our anesthesia partners, we’ve been able to significantly reduce the amount of opioids we use by adopting what’s called TIVA, or total intravenous anesthesia. We’ve seen a significant reduction in the amount of opioids administered intraoperatively. Even though we are giving a significantly smaller amount of opioids intraoperatively, pain scores are unchanged and remain very low,” says Dr. Mansuria. These new findings from the pathway are currently being finalized for publication in the near future.

Same-Day Discharges — A Growing Trend

An offshoot of the MIGS pathway for hysterectomies has been a secondary component designed to increase the number of same-day discharges for hysterectomy. Traditionally, minimally invasive hysterectomy patients would have an overnight stay in the hospital at UPMC Magee. However, now, with the pathways and ERAS protocols in place, this is changing in a dramatic way. “Discharging patients the same day has a number of benefits. We’ve seen lower rates of infection, and the risks of deep vein thrombosis and pulmonary embolism are also lower. At the same time, patient satisfaction has remained very high,” says Dr. Mansuria. This work has also shown that the rates of complications, ED visits, and readmissions have not risen. “In a few short years, we’ve gone from every minimally invasive hysterectomy requiring an overnight stay to nearly 85 percent of patients being discharged the same day. This includes hysterectomy in our cancer patients, as well as those with a complicated pelvic reconstruction, severe endometriosis, and large fibroids. This is great news for everyone involved, and we’ll be publishing our findings on the pathway in the near future,” says Dr. Mansuria.

Improving the Diagnosis and Management of Endometriosis and Chronic Pelvic Pain Patients

Chronic pelvic pain can be a difficult complaint to accurately diagnose. “It can go far beyond endometriosis as the culprit,” explains Dr. Donnellan, “which is one of the reasons there is such a large time lag from the appearance of symptoms to accurate diagnosis for these patients if they have endometriosis. There are a lot of factors involved, but as a field, we have to develop new tools and understandings to cut down significantly on the diagnostic odyssey many of these patients currently face.”

This patient population is a high utilization cohort, one in which UPMC as a whole is actively investigating new models of care to not only increase the value of care provided to the patient but also to reduce costs at the same time. “We currently have a work group established to develop an endometriosis and chronic pelvic pain center of excellence that will attack the issue from multiple angles with respect to creating a multidisciplinary patient care approach,” says Dr. Donnellan. This collaborative effort brings together physicians from gynecology, psychiatry, urology, anesthesia, neurology, and physical medicine and rehabilitation to work together to address the complexities of caring for patients experiencing pelvic pain in a manner that will improve the overall value of care while at the same time addressing associated costs and high utilization of this patient population.

Translational Research to Improve the Diagnosis of Endometriosis

The MIGS division at UPMC Magee provides superb surgical care for endometriosis and is continuing to evolve with respect to how surgeries are performed. “At the same time, we are evolving to dramatically improve the health care experience for those patients with chronic pelvic pain who are struggling with its consequences by looking for better diagnostic tools with a greater emphasis on whole-person care, and specifically whole-woman care.”

There are several promising lines of investigation currently open at UPMC Magee looking into ways to accurately diagnose endometriosis without the need to do confirmatory surgery. One group of investigators is currently looking at microRNAs (miRNAs) and the development of a laboratory panel that could be used to detect the presence of endometriosis. “Work is still ongoing to optimize this approach before we can move to testing in a clinical trial,” says Dr. Donnellan.

Other investigators are collaborating with Dr. Donnellan and the MIGS division to explore potential biomarkers. “David Peters, PhD, from our department, is developing the concept of detecting endometrial markers in the blood that are shed during the menstrual cycle. This work may be able to identify and chart new molecular markers of the menstrual cycle that could be indicative of an endometriotic state. This is exciting work because no one has yet been able to devise a nonsurgical way to accurately confirm the presence of endometriosis,” says Dr. Donnellan.

For Further Reading

Sanei-Moghaddam A, Ma T, Goughnour SL, Edwards RP, Louder PJ, Ismail N, Comerci JT, Mansuria SM, Linkov F. Changes in Hysterectomy Trends After the Implementation of a Clinical Pathway. *Obstet Gynecol.* 2016; 127(1): 139-47.

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Sanei-Moghaddam A, Goughnour S, Edwards R, Comerci J, Kelley J, Donnellan N, Linkov F, Mansuria S. Hysterectomy Pathway as the Global Engine of Practice Change: Implications for Value in Care. *Cent Asian J Glob Health.* 2017; 6(1): 299.

UPMC Physician Resources

Visit UPMCPhysicianResources.com for the latest free CME courses, videos, news, and upcoming events at UPMC and the Department of Obstetrics, Gynecology, and Reproductive Sciences.

CME Courses

Obstetrical Neurology — Presented by M. Angela O’Neal, MD

Zika: Where Do We Stand — Presented by Amesh Adalja, MD

Killer Viruses: The Why and the How — Presented by Amesh Adalja, MD

Video Rounds

Endometriosis — Presented by Ted Teh Min Lee, MD

Fibroid Treatment Center at UPMC — Presented by Richard Guido, MD

Minimally Invasive Gynecologic Surgery — Presented by Suketu Mansuria, MD

New Guidelines for Vaccinations During Pregnancy — Presented by Richard Beigi, MD

Considerations and Strategies to Help Prevent Preterm Birth — Presented by Hyagriv Simhan, MD

Gynecologic Services for Women With Disabilities — Presented by Stephen Corey, MD

New Avenues of Collaborative Research: Recurrent and Refractory Urinary Tract Infections



There are few centers in the United States invested or interested in the study of recurrent and refractory urinary tract infections (rUTI). One of the newest faculty members in the Department of Obstetrics, Gynecology, and Reproductive Sciences, **Megan Bradley, MD**, has her sights set on uncovering new information on the causes and contributing factors, patient phenotypes, and better treatment options for this common and problematic condition that disproportionately affects older women.

Dr. Bradley joined the Department in August 2017 as an assistant professor after completing her medical school and residency training at the University of Pittsburgh School of Medicine, followed by a fellowship in urogynecology at Duke University. She also practices clinically in the Women's Center for Bladder and Pelvic Health at UPMC Magee-Womens Hospital and the surrounding community, where she treats patients for the entire spectrum of bladder and pelvic floor disorders.

"As I progressed through fellowship, I became interested in how lower urinary tract symptoms burden our patients. These are issues such as overactive bladder and also refractory urinary tract infections, which tend to occur more frequently as women age, for a variety of reasons," says Dr. Bradley.

Dr. Bradley's research during fellowship looked at how to optimize urinary processing for translational studies with respect to infections, bladder pain, and other various lower urinary tract symptoms, all of which ultimately led to her desire to focus on the study of rUTIs.

rUTIs: Risk Factors and Limited Treatment Options

Female gender is one of the biggest risk factors for recurring and refractory UTIs because of the anatomic make-up of the female genitourinary tract. Aging is also another risk factor. "Aging predisposes women to a number of changes in the vaginal environment, such as vaginal atrophy due to a decrease in estrogen production that leads to an increased susceptibility not only for acute UTIs but also the more problematic recurrent and refractory ones."

At present, the treatment arsenal for rUTI is somewhat limited to estrogen replacement therapy and antibiotic therapy. There have been attempts to find or create different vaccines, but as yet none have proven effective or better than the current standards of care.

"With an aging population, the issue of UTI becomes complicated with respect to asymptomatic bacteriuria. This can make it difficult to disentangle symptoms of actual infection from asymptomatic colonization. As women age, there is a general worsening of urinary symptoms, such as frequency and incontinence, that may or may not be related to the presence of a refractory or recurrent UTI.

Also, in this current era of antibiotic resistance, determining the phenotypes in patients of rUTI is vitally important. Knowing who will respond to a specific antibiotic regimen in advance is of great interest. Antibiotic use needs to be judicious in this and many other populations because of the growing problems of resistance patterns," says Dr. Bradley.

The Importance of the Microbiome of the Urinary Tract

The importance and composition of the female urinary microbiome (FUM) is another focus of Dr. Bradley's research. "Interestingly, the urinary microbiome is newer in the spectrum of research in the field. The urine was previously thought to be a sterile environment, so no one paid much attention to it. Even the Human Microbiome Project, when it first started, had planned to exclude urinary studies. However, the initial work of Linda Brubaker and Alan Wolfe in Chicago pioneered the research on the female urinary microbiome with respect to incontinence. Now, we're trying to extrapolate that research in terms of recurring UTIs. We hope to understand the different ways we may be able to improve the microbial environment of the urinary tract as opposed to wiping it out with antibiotic therapies. This is all very new research and an area that my own investigations are beginning to move into," says Dr. Bradley.

Dr. Bradley is currently working on research meant to better understand the differences of UTI between younger and older populations of women. This research extends to symptomatology, the types of bacteria involved, and antibiotic resistance patterns in each age cohort. "Empiric therapy is difficult in postmenopausal women because we don't understand the specific resistance patterns or types of bacteria in this cohort," says Dr. Bradley.

One theory under investigation posits that the microbiome environment in some patients with UTI lends some form of protection from future infection, while other microbiome compositions may hinder infection clearance or predispose individuals to recurrent infection.

Antibiotic Therapy Studies and UTI

One of Dr. Bradley's interests in the study of UTI deals with antibiotic therapy. There is currently limited evidence in the literature from randomized trials comparing the use of antibiotics to placebo. "About 50 percent of patients with a UTI will improve without receiving antibiotic therapy. On the other hand, nearly 50 percent of patients who are given the correct course of antibiotics clinically do not improve. Both of these scenarios are of interest in my research," says Dr. Bradley.

Current research by Dr. Bradley is actively working to develop phenotypes of these two broad patient populations in an effort to better understand who may improve with antibiotic therapies and

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About the Department

The Department of Obstetrics, Gynecology, and Reproductive Sciences encompasses a full range of specialties and clinical services for patients, as well as a broad research portfolio and accredited subspecialty training programs for physicians.

Patient care is centered at UPMC Magee-Womens Hospital, home to one of the largest and most respected clinical care programs in the country. UPMC Magee-Womens Hospital is recognized as a National Center of Excellence in Women's Health by the U.S. Department of Health and Human Services. At UPMC Magee, more than 10,000 babies are delivered each year, and the hospital currently operates the largest neonatal intensive care unit in Pennsylvania, treating more than 1,500 patients annually.

Divisions and Specialty Women's Health Services

UPMC Magee-Womens Hospital offers a full spectrum of obstetric, gynecologic, and reproductive health services and specialty programs for patients. These include:

General Obstetrics and Gynecology — Featuring specialty programs and treatments for endometriosis, uterine fibroids, and other common conditions.

Gynecologic Oncology — In collaboration with the UPMC Hillman Cancer Center, the gynecologic oncology program provides a comprehensive, multidisciplinary approach to the treatment of gynecologic cancers.

Breast Cancer and Breast Surgery — UPMC Magee-Womens Hospital is a national leader in breast cancer research, clinical trials, and patient care for patients with breast cancers and other disorders.

Maternal Fetal Medicine — For complicated pregnancies, the maternal fetal medicine program offers consultation, diagnostic testing, and care management for high-risk pregnancies before, during, and after pregnancy.

Midlife Health Services — Physicians in the Midlife Health Services program specialize in the treatment of the symptoms of menopause, and on those women experiencing premature or perimenopause with accompanying symptoms.

Midwifery — Midwifery services at UPMC Magee are comprehensive, from prenatal care through labor and delivery, and are provided by a team of board-certified midwives licensed in both nursing and midwifery.

Minimally Invasive Gynecologic Surgery — With one of the largest contingents of fellowship-trained surgeons on staff, the minimally invasive gynecologic surgery program offers state-of-the-art treatments and procedures for a range of issues that include hysterectomy, ovarian cysts, endometriosis, pelvic pain, and others.

Obstetrical and Gynecological Ultrasound — Women's imaging services at UPMC Magee are provided by specially trained, board-certified physicians and staff skilled at various breast imaging and ultrasound-guided biopsies, OB ultrasound, bone density scans, and other diagnostic imaging tests.



Reproductive Endocrinology and Fertility — The Center for Fertility Preservation and Reproductive Endocrinology provides patients with on-site access to a full range of diagnostic and treatment programs for infertility issues for both women and men, including in vitro fertilization, fertility preservation, preimplantation genetics, and preconception counseling, among other services and support.

Reproductive Genetics — The Division of Reproductive Genetics and Genomics provides clinical evaluation and genetic counseling to men and women with genetic/genomic disorders, including preconceptional, prenatal, adult, and cancer cases.

Urogynecology and Pelvic Reconstructive Surgery — The Division of Urogynecology specializes in the diagnosis and treatment of a range of conditions that include chronic urinary tract infections, pelvic organ prolapse, urinary incontinence, and pelvic pain.

Fellowship Training Programs

The Department of Obstetrics, Gynecology, and Reproductive Sciences currently offers a number of accredited fellowship programs for prospective physicians:

- Family Planning
- Female Pelvic Medicine and Reconstructive Surgery
- Gynecologic Oncology
- Maternal Fetal Medicine
- Medical Genetics Residency
- Minimally Invasive Gynecologic Surgery
- Reproductive Endocrinology and Fertility
- Reproductive Infectious Diseases and Immunology

Areas of Research

As the top recipient of NIH-funded research grants for obstetrics and gynecology in the country, researchers at UPMC Magee-Womens Hospital and collaborative partners at the Magee-Womens Research Institute and UPMC Hillman Cancer Center are deeply involved in many novel basic, translational, and clinical studies. Primary research areas include:

- Genetics
- Gynecology
- Infectious diseases
- Pregnancy and newborn medicine
- Reproductive development
- Reproductive endocrinology and fertility
- Women's cancer
- Women's health and wellness

ERAS and Urogynecologic Surgery: New Pathways and Successes



Urogynecologic surgeries are complex, multidisciplinary affairs that require close collaboration to achieve optimal patient outcomes and to improve upon the surgical paradigm of bladder and pelvic reconstructive procedures. Numerous ERAS efforts have been and are being

devised and tested across the entire UPMC system to improve the patient experience during surgical admissions.

Halina M. Zyczynski, MD, professor in the Department of Obstetrics, Gynecology, and Reproductive Sciences, division director of Urogynecology and Pelvic Reconstructive Surgery, and medical director of the Women's Center for Bladder and Pelvic Health at UPMC Magee-Womens Hospital, is leading ERAS efforts for urogynecologic surgery.

Dr. Zyczynski explains the history and implementation, and some of the successes realized during the first year of the new ERAS pathway at UPMC Magee. The impact on the patient's surgical experience under ERAS were recently published in the *American Journal of Obstetrics and Gynecology* in a paper titled "Implementation of a Urogynecology-Specific Enhanced Recovery After Surgery (ERAS) Pathway."¹ Additional findings from an ongoing quality improvement project were shared at the 2018 American Urogynecologic Society (AUS) meeting on October 13.

Q: ERAS has existed for many decades, first originating in the world of colorectal and GI surgery. In recent years, ERAS has begun to permeate many other surgical disciplines as the evidence base for its efficacy builds. When did this ERAS initiative begin at UPMC Magee, and what were the goals for the ERAS protocol in urogynecologic surgery?

A: We launched our urogynecologic surgery ERAS protocol in February 2017 after a year of planning by a multidisciplinary team of UPMC Magee experts from gynecologic surgery, anesthesiology, nursing, and pharmacy services. Our protocol is one of several designed specifically for women having gynecologic surgery. The urogynecology ERAS protocol is customized for women pursuing vaginal and minimally invasive surgery for pelvic organ prolapse. It is based on the core principles of ERAS introduced by Drs. Esper and Holder-Murray, the UPMC champions of ERAS, and further refined to be gender-specific and individualized to the pelvic surgery needs and the metabolism of older women.

The common goals of ERAS protocols are quicker recovery after surgery through patient preparedness, medical optimization, and optimal pain management. When we launched ERAS on our service, we made a concerted effort to track clinical outcomes in a quality improvement project. We compared the various aspects of the patient experience before and after the implementation of ERAS at UPMC Magee. We are particularly protective of our vulnerable older patients

and specifically wanted to learn whether or not ERAS benefits were comparable in women across all age groups. To our knowledge, ours is the first study of the impact of age on ERAS outcomes.

Q: What are some of the specific elements of the ERAS protocol that you implemented in order to meet your goals of an earlier recovery?

A: First and foremost is the gender-specificity of our protocol to better align with the unique needs of women, and specifically older women because a high percentage of our cases are in women over the age of 65. Like many ERAS protocols, we focus heavily on patient preparedness for surgery. This includes education and the establishment of clear expectations for the surgical experience. We strive to optimize patient health before the procedure through nutrition guidance, daily exercise, weight loss, and, if applicable, cessation of smoking. We counsel women to avoid presurgery fasting and aggressive bowel preps. They are instructed to drink generous amounts of electrolyte-rich beverages, such as Gatorade®, or clear fluids up to three hours before surgery. Pain and nausea prevention is started before surgery and includes several nonnarcotic medications. These and other anesthetics aim to reduce the administration of opioids. Early fluid intake in the recovery room facilitates the return of normal bowel function and discontinuation of IV fluids. Early ambulation targets the prevention of blood clots or deep vein thrombosis.

Q: You've published your initial findings from the study recently in AJOG. Can you summarize the key learnings and outcomes you were able to uncover?

A: To begin with, we found that compared to patients under the prior standard of care, those who experienced surgery under the new ERAS paradigm had a 13.8-hour shorter hospital stay. The duration of surgery did not change. Instead, the reduced time of recovery from anesthesia enabled early discharges.

We consider the ability to safely go home on the day of surgery to be the ultimate reflection of a successful "early" recovery. Under ERAS, the proportion of patients who were discharged to home on the same-day of surgery increased from 25.9 percent (pre-ERAS) to 91.7 percent. Importantly, we did not observe an increase in the 30-day postoperative complication rate, though there were a few more hospital readmissions that we are studying further.

Q: You also were interested in whether older women would benefit as much as younger women from ERAS. What has your analysis of the data uncovered so far concerning age?

A: We have a diverse mix in our urogynecology patients. Their average age is 66 years with more than 25 percent of women over the age of 75 years, which compels us to regularly consider the special needs of community-dwelling, functional women in their late 80s and early 90s. Our goal is to send them home better than when they

UPMC Magee Women's Center for Bladder and Pelvic Health

Mary Fleming Ackenbom, MD	Pamela Fairchild, MD
Halina Zyczynski, MD	Beth Padin, PA
Pam Moalli, MD	Beth Klump, PA
Michael Bonidie, MD	Lauren Kunkle, PA
Megan Bradley, MD	Margaret Rajkovich, PA

arrived for surgery. In addition to considering the multiple medical comorbidities of older women, we are cognizant of their vulnerability to delirium and postoperative cognitive dysfunction from anesthesia and opioid pain medications. For these and other reasons, we were very pleased to learn that the benefits of ERAS were experienced by women of all ages on our service. We found that like their younger counterparts, the length of stay amongst the oldest group of women decreased by 58 percent — from 25 hours to 9.7 hours. Their opioid consumption decreased by 92 percent which is comparable to the 88 percent reduction seen in the youngest cohort. This remarkable reduction equates to older women on average receiving only 8.0 mg of morphine equivalence under the ERAS protocol compared to 82.5 mg morphine equivalents before ERAS.

Lastly, we learned that a third of our ERAS patients in each age group experienced opioid-free anesthesia after their small initial dose of extended-release morphine that is part of our multi-modal pain management approach in the pre-op unit.

On a side note, our analyses identified the characteristics of women who required higher than average amounts of opioid medication for pain relief. They were the youngest women, those who are under treatment for chronic pain, and those with a history of depression. These findings will influence our prescriptions of postoperative pain medication.

Q: What are patients telling you about their experiences?

A: To learn what patients thought of their surgical experience, we initiated telephone calls to patients the day after they were discharged to home. For the majority who were discharged on the same-day of surgery, the calls were made within 24-hours of surgery. Our standardized survey revealed that 93.5 percent reported their surgical experience as very good or excellent.

Q: Where are you headed next with ERAS at UPMC Magee?

A: We have been able to extend our ERAS protocol from UPMC Magee to our surgical services at UPMC Passavant and the Magee-Womens Hospital of UPMC Hamot with comparable success. By doing so, we demonstrated the transferability of the pathway in all its complexity to other sites. This is reassuring given that we strive to provide a comparable patient experience at all sites of service in the UPMC women's health service line.

Additionally, we need to get the word out to women that they should not suffer from their prolapse because of fear of surgery. We know that some women have been told they are "too old" to have their prolapse repaired. Others defer care because they are wary of being hospitalized for fear of acquiring delirium or infections. When I share the findings of our study with patients and their families, they are very relieved and reassured that under the new ERAS clinical pathway, even our oldest patients can expect to have a safe, short admission with a very high likelihood of sleeping in their own beds the night of their surgery. It is an extraordinary shift in the patient experience that we look forward to building upon in the years to come.

References and Further Reading

- 1 Carter-Brooks CM, Du AL, Ruppert KM, Romanova AL, Zyczynski HM. Implementation of a Urogynecology-Specific Enhanced Recovery After Surgery (ERAS) Pathway. *Am J Obstet Gynecol*. 2018 Jun 18. Epub ahead of print.

Recurrent and Refractory Urinary Tract Infections *Continued from Page 4*

also to characterize patients who have refractory UTIs despite seemingly appropriate therapy.

"All providers who see patients with UTIs have a vested interest in this kind of research. Some of these patients are being prescribed extensive amounts of antibiotics. This has consequences for the patient and the health care system at large. The only way we can understand the problem is through prospective cohort studies where patients are longitudinally enrolled and followed closely in a study environment."

Collaborative Investigations on Recurrent UTI

For Dr. Bradley, her research is a collaborative endeavor. "When I came back to Pittsburgh after completing my fellowship, I immediately began to seek out other investigators from across the University of Pittsburgh who also were conducting research into UTI who I could potentially collaborate with on new projects. Yohei Doi, MD, PhD, director of the Center for Innovative Antimicrobial Therapy in

the Division of Infectious Diseases at the University of Pittsburgh School of Medicine, has been very helpful with his assistance in my formulation of some research ideas. Recently, I have started to investigate collaborations with the Center for Medicine and the Microbiome, specifically with Barbara Methé, PhD, who has done some tremendous work on aspects of the microbiome. I am currently planning to submit a grant application that would allow for us to continue our collaborative efforts."

Another research interest of Dr. Bradley's is the examination of the efficacy of various antibiotics on UTI. "Dr. Doi has an extensive research background examining the antibiotic fosfomycin. It's a first-line therapy for UTI, but it is incredibly expensive and insurances do not cover it well, which limits our ability to use it. I also have started to work on cost-minimization analyses to make fosfomycin cost-effective by better understanding which patients will benefit the most from taking it."

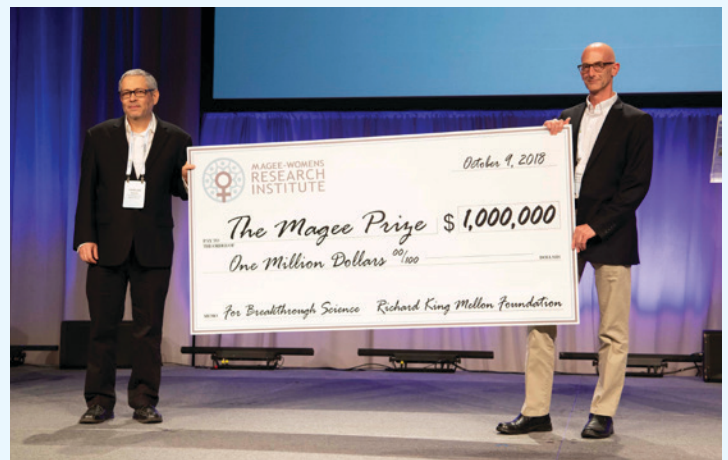
Department News Briefs

Inaugural Magee-Womens Research Summit

October 9 and 10 saw the inaugural Magee-Womens Research Summit hosted by the Magee-Womens Research Institute in Pittsburgh, Pennsylvania. The summit convened more than 400 innovators in women's health research, community advocates, and local leaders from around the world to tackle key issues influenced by the early stages in life. The centerpiece of the summit was the awarding of the first Magee Prize, a \$1 million award for collaborative and transformative research within the reproductive sciences. The inaugural award was presented to an international team of scientists working toward understanding how defects in the placenta during gestation could lead to heart defects in the developing fetus.

The award was presented to an international research team led by **Yaacov Barak, PhD**, associate professor of obstetrics, gynecology, and reproductive sciences at the University of Pittsburgh. Dr. Barak's team includes Myriam Hemberger, PhD, a placenta expert from the University of Calgary, and Henry Sucov, PhD, of the University of Southern California who specialized in the study of the heart.

The researchers plan to use the prize, which is funded by the Richard King Mellon Foundation, to develop a diverse collection of mouse models which they will use to better understand the placenta-heart connection



and the mechanism which lead to the development of heart defects. This information may greatly improve early detection and prevention or treatment approaches in the future.

"I have been working on this project and idea for 20 years. It is gratifying to know that persistence pays and yesterday's wild ideas may become today's reality," says Dr. Barak.

A \$19 billion world-renowned health care provider and insurer, Pittsburgh-based UPMC is inventing new models of patient-centered, cost-effective, accountable care. UPMC provides more than \$900 million a year in benefits to its communities, including more care to the region's most vulnerable citizens than any other health care institution. The largest nongovernmental employer in Pennsylvania, UPMC integrates 85,000 employees, 40 hospitals, 600 doctors' offices and outpatient sites, and a 3.4 million-member Insurance Services Division, the largest medical insurer in western Pennsylvania. As UPMC works in close collaboration with the University of Pittsburgh Schools of the Health Sciences, *U.S. News & World Report* consistently ranks UPMC Presbyterian Shadyside on its annual Honor Roll of America's Best Hospitals. UPMC Enterprises functions as the innovation and commercialization arm of UPMC, and UPMC International provides hands-on health care and management services with partners around the world. For more information, go to UPMC.com.

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