

MAGEE

WINTER 2019

A PUBLICATION OF MAGEE-WOMENS RESEARCH INSTITUTE & FOUNDATION



HOW A NEW CENTER IS SHEDDING LIGHT ON CHRONIC PELVIC PAIN

THE PATH TO RESEARCH:

Career Aspirations Evolve

FIGHTING INFANT MORTALITY:

Richard King Mellon Foundation
Awards MWRI \$5.1 Million

ADVANCING FERTILITY TREATMENT:

Giving Pediatric Cancer
Patients Options

MAGEE

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Featured on cover:

Dr. Noah Rindos, Dr. Ted Lee, Dr. Nicole Donnellan, and Dr. Suketu Mansuria

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4 DIFFICULT DIAGNOSIS: HOW A NEW CENTER IS SHEDDING LIGHT ON CHRONIC PELVIC PAIN

10 THE PATH TO RESEARCH: CAREER ASPIRATIONS EVOLVE

16 RICHARD KING MELLON FOUNDATION AWARDS MWRI \$5.1 MILLION TO FIGHT INFANT MORTALITY

18 ADVANCING FERTILITY TREATMENT OPTIONS FOR PEDIATRIC CANCER PATIENTS

- 8** Janice Devine Appointed Executive Director of Magee-Womens Research Institute & Foundation
- 9** Update from Our Chief Executive Officer
- 13** Spotlight: UPMC Magee-Womens Hospital Receives Magnet® Status for Exceptional Nursing Care
- 14** Happenings
- 20** Generosity in Action: Women Unite to Champion Women's Health Research
- 22** Team of Experts Perform the Region's First In-Utero Spina Bifida Surgery
- 25** Generosity in Action: Former Penguin Greats Share Goal to Beat Breast Cancer
- 26** Notables

Difficult Diagnosis:

How a New Center is Shedding Light on Chronic Pelvic Pain



“Pelvic pain conditions don’t often result in straightforward diagnoses.”

-Dr. Ted Lee



It’s a condition as common as asthma or diabetes, affecting one in 10 women of reproductive age. Its symptoms aren’t as clear-cut as an asthma attack, but it can negatively impact a woman’s quality of life as much, and sometimes more, than other, more recognizable chronic diseases.

It’s endometriosis, and it’s one of the most common causes of pelvic pain in women of child-bearing age.

Despite how common endometriosis is, there is usually a significant delay in diagnosis – it can often take physicians several years to identify and treat it.

“We sometimes refer to the pelvic area as a black box, because chronic pelvic pain can be so difficult to diagnose,” said Nicole Donnellan, M.D., Director of UPMC Magee-Womens Hospital’s new Chronic Pelvic Pain and Endometriosis Center. “There are many different conditions that can cause pelvic pain, including bladder or muscle spasms, uterine issues, and even gastrointestinal problems. Chronic pelvic pain doesn’t always mean endometriosis.”

The difficulties in diagnosing pelvic pain, combined with the all-too-common treatment delays, propelled Dr. Donnellan to spearhead the creation of the new center, which seeks to improve early diagnosis and treatment

of endometriosis and other pelvic pain disorders, and advance research progress for the condition.

The new clinic embraces a unified team approach to patient care, providing patients with the opportunity to meet with gynecologists, psychiatrists, physical therapists, and surgeons during the same appointment.

“There are so many different elements that contribute to pelvic pain conditions,” said Dr. Donnellan. “Many women have been told for years their pain is all in their head, others have undergone unnecessary treatments or had poor pain management. Others have been completely dismissed by their gynecologists. The opportunity to meet with a comprehensive team of pelvic pain experts, who work together in developing a diagnosis and treatment plan, is a huge relief to these women.”



“By the time patients get to us, they are extremely frustrated,” said Dr. Mansuria. “They’ve been told the pain is psychological. The peace of mind they experience when their condition is diagnosed and they begin recovering is extraordinarily humbling.”

-Dr. Suketu Mansuria

In addition to Dr. Donnellan, the clinic is staffed by Dr. Ted Lee, Dr. Suketu Mansuria, and Dr. Noah Rindos. Together, the four show the strength of UPMC Magee-Womens Hospital’s minimally invasive gynecology program. Dr. Lee pioneered the hospital’s minimally invasive surgical program. Dr. Mansuria trained with Dr. Lee, Dr. Donnellan trained with Dr. Lee and Dr. Mansuria, and Dr. Rindos trained with all three.

“By the time patients get to us, they are extremely frustrated,” said Dr. Mansuria. “They’ve been told the pain is psychological. The peace of mind they experience when their condition is diagnosed and they begin recovering is extraordinarily humbling.”

According to all four surgeons, quality of life for women with chronic pelvic pain is by far the biggest issue.

“When a person suffers an asthma attack and can’t breathe, you don’t tell them to deal with it,” said Dr. Mansuria. “But so many of the women we see are truly suffering in their day to day lives. Their relationships suffer because physical intimacy is painful. The heavy bleeding and pain they experience means missed work days, and has a tremendous psychological impact.”

According to Dr. Rindos, the idea of a “bad period” has become so normalized that when women with heavy bleeding and excruciating pain seek help and support, they are routinely dismissed. But there’s nothing normal about pain and bleeding that interrupts daily life.

Symptoms of endometriosis include pain during a period and intercourse, generalized pelvic pain outside of the menstrual cycle, and unexplained infertility. Because it can’t be detected with imaging equipment, the only way to definitively diagnose endometriosis is through exploratory surgery.

Hilary Flint struggled for nine years before she met Dr. Donnellan.

“From the time I started menstruating, I was in excruciating pain. I had horrible cramping and uncontrollable bleeding. I didn’t believe I could possibly be having the same experience as other women, but that is what I was told – this was just part of being a woman,” said Hilary.



“We are able to improve people’s quality of life, and help them achieve their dreams.”

-Dr. Noah Rindos

When she was 19, Hilary came to UPMC to have her gallbladder removed. Her surgeon suspected it might actually be endometriosis causing her pain, and called Dr. Donnellan for a consult. Dr. Donnellan confirmed the diagnosis and immediately began working with Hilary.

Beginning with pelvic floor physical therapy and working through two laparoscopic surgeries, Dr. Donnellan ended up prescribing a combination of birth controls that managed the majority of Hilary's symptoms – enough so she could finish college and start her career.

"Dr. Donnellan gave me my life back," said Hilary. "For 11 years, I had at most one good week a month. I wasn't comfortable making plans with my friends or family, and my pain problem turned into a depression problem. I was accused of being lazy and told I had to toughen up. I was so relieved when I met Dr. Donnellan and learned this wasn't all in my head, and there was something we could do about it."

Dr. Lee is proud of his team, and how they've come together to form this clinic. The kind of pain they treat, he comments, isn't a black and white situation. "Pelvic pain conditions don't often result in straightforward diagnoses," he said. "Randomly referring a patient to a gynecologist or physical therapist or psychologist isn't helpful, because they are seeing those experts in isolation. At the clinic, they can have all of the consults in one visit and begin a path to earlier treatment."

Today, there isn't a strong understanding of the pathology of endometriosis, which frustrates patients like Hilary, and her doctors, too. "Endometriosis is a debilitating condition affecting millions of women, but unlike breast cancer or diabetes, no one is out there, beating drums, raising money for research and treatment," Hilary said.

Working with researchers at Magee-Womens Research Institute, Dr. Donnellan is hoping to change that. Together, they are collecting samples of endometriosis from patients to begin understanding how the condition progresses and eventually developing targeted treatments for it.

"Someday, we'd like to have a blood test to detect endometriosis," said Dr. Donnellan. "But we need to understand the pathology of the disease first. We know it's an inflammatory response of the immune system. A blood test would help us understand earlier what treatment direction to go in."

For now, the doctors are committed to helping women by diagnosing the cause of pelvic pain earlier, and coordinating the appropriate physical and mental health support to improve lives.

"It's rewarding to work with women I can truly help," said Dr. Rindos. "We are able to improve people's quality of life, and help them achieve their dreams, whether those dreams include starting a family, or progressing in their career, or feeling comfortable pursuing a relationship. We help people live the lives they want, and it's fantastic."

"Someday, we'd like to have a blood test to detect endometriosis," said Dr. Donnellan. "But we need to understand the pathology of the disease first."

-Dr. Nicole Donnellan



Janice Devine Appointed Executive Director of Development of Magee-Womens Research Institute & Foundation



This fall, Janice Devine was appointed the new Executive Director of Development of Magee-Womens Research Institute & Foundation (MWRIF). Prior to joining MWRIF, Janice served as Director of Alumni Relations and Development for the University of Pittsburgh School of Law. She brings a wealth of health care development and management experience to the foundation team.

Before her work at Pitt Law, Janice held the title of Director of Development with UPMC East and UPMC Mercy from 2016-2018, as well as Director of Alumni Relations and Development at the University of Pittsburgh School of Nursing from 2008-2015. Janice was a member of AACN (American Association of Colleges of Nursing) and CASE (Council for Advancement and Support of Education) until 2015 and she also held memberships with the Association of Fundraising Professionals and Association for Healthcare Philanthropy.

“What really drew me to join the foundation was the commitment of its current team. Every person here believes that their work is more than a job – each team member has a personal ‘My Magee’ story.”

-Janice Devine



“What really drew me to join the Foundation was the commitment of its current team. Every person here believes that their work is more than a job – each team member has a personal ‘My Magee’ story. I’m looking forward to working with the team to increase support for both UPMC Magee-Womens Hospital and Magee-Womens Research Institute,” said Devine. “The challenge of increasing fundraising for laboratory research as well as patient care initiatives is particularly exciting. The potential our research has to impact women’s health globally is incredible.”



CEO UPDATE

With the conclusion of our five-year fundraising campaign and our first-ever expansion into Erie, we are seeing our vision and plan for Magee-Womens Research Institute & Foundation come alive.

In my last Magee Magazine update, I discussed how the first six months of 2019 were a time of incredible transition for Magee-Womens Research Institute & Foundation. From our new look and updated brand to a stronger-than-ever partnership between UPMC Magee-Womens Hospital and Magee-Womens Research Institute, it feels like every day brings us new opportunities to support and expand our mission.

As the year comes to a close, I am especially proud to share the conclusion of our fundraising campaign, reaching our goal of \$100 million. Five years ago, MWRI and its board of directors embarked on an ambitious campaign to change the world's thinking about human health by establishing women's health as the standard for which all considerations will proceed. UPMC made a commitment to match funds raised until the end of 2019, resulting in \$100 million that will exponentially increase our resources, leverage more government research dollars and increase revenue for research programs, endowment, major equipment, and national and global outreach to accelerate researcher recruitment and train upcoming young scientists. The success of this campaign reflects our position as the largest research institute in the U.S. dedicated to women's health research.

For the first time, MWRI expanded outside of Pittsburgh, thanks to a grant from the Erie Community Foundation. Together with cancer clinicians from UPMC Hillman Cancer Center, our researchers will work to identify potential new diseases where genetics may be a significant factor. This initiative will raise the level of care for women in Erie, and it will build upon the reputation and clinical expertise we have brought to Erie through UPMC Magee and UPMC Hillman by adding research and clinical trials specific to the community.

In addition to closing out our current campaign and growing the Research Institute, we are looking toward the future when it comes to building our team. This fall, we recruited Janice Devine as the Foundation's new Executive Director. Prior to joining our team, Janice served as Director of Alumni Relations and Development for the University of Pittsburgh School of Law and she brings a wealth of healthcare development and management experience to our team. With even more ambitious fundraising goals ahead of us, her leadership fulfills a critical role for the Foundation.

This issue of Magee Magazine explores research breakthroughs and innovations in clinical care, as well as profiles on our powerful community partnerships. The foundation of our organization includes our ground-breaking research and unparalleled clinical staff, but we wouldn't have the breadth and reach we do without the outstanding commitment of a much larger community.

We are deeply grateful for your support, and as always, ask that you continue to help us work toward a better, healthier world.

Thank you so much,

Michael J. Annichine, President & CEO
Magee-Womens Research Institute & Foundation

The success of this campaign reflects our position as the largest research institute in the U.S. dedicated to women's health research.

-Michael J. Annichine, President & CEO



THE PATH TO RESEARCH:

**CAREER
ASPIRATIONS
EVOLVE**

Laboratory and clinical research are rarely linear, with a line of inquiry leading directly from A to Z. Research takes steps forward and steps back, based on discoveries and answers gleaned along the way. Some researchers follow a hypothesis for years while others work in constant revision. While many of the researchers at Magee-Womens Research Institute knew what kind of work they wanted to do from extremely early on in their lives, several had less direct paths to become the researchers they are today.



"I always wanted to be a doctor. My earliest memory is wanting to be a cardiac surgeon. I wanted to make artificial hearts and handle heart transplants. I was dedicated to this career all the way until my third year of medical school when it came time to do clinical rotations. Initially, gynecologic oncology fascinated me because of the research involved – I always wanted research to be a part of my work. But once I started an obstetrics rotation and began helping women with pregnancy complications, I knew I wanted to be a high-risk pregnancy physician. The fact that I would be helping two lives instead of one, and that the babies had their entire lives in front of them – I was fascinated intellectually, and also knew I could make a difference with this population."

- **Hyagriv Simhan, M.D., Executive Vice Chair for Obstetrical Services, UPMC Magee-Womens Hospital**



"Throughout school, I thought I would work in neurology. I knew I wanted to study the immune system, and I was interested in how the immune system responded in the brain. It was while studying neurology that I learned about the links between ovarian cancer and neurologic disease. Ovarian cancer produces proteins that are usually only made in the brain – when this occurs, it's called para neoplastic disease. The response link with ovarian cancer intrigued me, and that is how I ended up in a career exploring the immune system and ovarian cancer."

- **Ronald Buckanovich, M.D., Ph.D., Director of MWRI's Ovarian Cancer Center of Excellence and Co-Director of MWRI's Women's Cancer Research Center.**



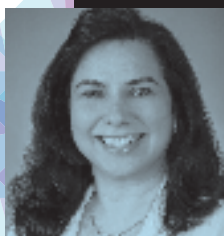
"Today, I see myself as a kind of advocate for men. Earlier in my career, I didn't realize how frequently male infertility occurs, and most men don't want to come forward to talk about it. Infertility can really undermine a man's sense of self – it carries a stigma with men that it doesn't seem to with women. My current goal is to find a way to help parents make decisions regarding the best way to start their families, so they are armed with as much knowledge as possible. My second goal is to someday see everyone who wants to have a biological child, be able to. I couldn't have imagined that my fascination in the late eighties with the human genome project would lead me to this work."

- Alex Yatsenko M.D., Ph.D., Associate Professor, MWRI, Department of Obstetrics, Gynecology, & Reproductive Sciences, Co-Director Pittsburgh Clinical Genomics Laboratory, UPMC Magee-Womens Hospital



"I was the first person in my family to go to college, and I fully intended to become a biochemist. One summer during college, I received a scholarship to study at the National Cancer Institute. While there, I was encouraged to apply to medical school. I wanted to keep research as a big component of my career, and I actually started off studying orthopaedics. Obstetrics and Gynecology research has many career options but cancer immunology and ovarian cancer was a unique niche that I was particularly attracted to during my training in Ob/Gyn. I feel very fortunate – I've been able to maintain a lab and see patients my entire career. I get to live translational research."

- Robert Edwards, M.D., Milton Lawrence McCall Professor and Chair, Department of Department of Obstetrics, Gynecology, & Reproductive Sciences



"I didn't start off in clinical laboratory research...I began my career as a chemical process engineer. I came to Magee as a post-doctoral fellow to conduct work in the area of mucosal immunology. I found the work incredibly compelling, and I've stayed here ever since! The overarching theme of my work is understanding drug design and delivery and thinking about it from a pharmaceutical perspective. Right now, I am working on products for HIV prevention for the developing world. Our lab is developing innovative, safe, effective and acceptable drug delivery systems which meet the varied and changing needs of women across the world. In my job, I feel like I'm only limited by my imagination."

- Lisa Rohan, Ph.D., Professor, Department of Pharmaceutical Sciences, School of Pharmacy

UPMC Magee-Womens Hospital **Spotlight**



UPMC Magee-Womens Hospital Receives Magnet® Status for Exceptional Nursing Care

The nurses at UPMC Magee-Womens Hospital are our heart and soul. From assisting women during labor to caring for the breast and gynecologic cancer patients receiving chemotherapy and radiation, our nurses commit their working hours to caring for people during some of the most vulnerable moments of their lives. This fall, I'm proud to announce their commitment was recognized – UPMC Magee-Womens Hospital received Magnet® designation from the American Nurses Credentialing Center (ANCC).



The Magnet designation places Magee among roughly seven percent of hospitals in the nation to achieve this status. Magnet recognition is the highest honor for nursing service excellence that any hospital can achieve, and it's a testament to the exceptional care our nurses provide to patients and families every day. This distinction is hard-won and well-deserved.

The ANCC Magnet Recognition Program® identifies healthcare organizations that stand out with exceptional patient care and outcomes, nursing excellence, and innovations in professional nursing practice – all the while adhering to national standards and demonstrating exceptional leadership and sensitivity to culture and ethnic diversity. Our professional registered nurses recognize this designation is a reflection of all the caregivers, support services and many colleagues who work collaboratively to ensure our patients obtain optimal outcomes and are appreciative of these working relationships.

To achieve this designation, hospitals must undergo a rigorous process over several months, including both a comprehensive document submission and an on-site evaluation of patient care and outcomes. Magnet hospitals must also provide an annual status report on their progress and undergo re-evaluation every four years to retain the designation.

Outstanding nurses deliver outstanding patient care. At Magee, our nurses work across a wide number of fields, including emergency medicine, obstetrics, oncology, cardiac care, bariatric surgery, and many others. They work nights and weekends, ensuring the safety and care of every patient – young and old – who walks through our doors.

On behalf of all of us at UPMC Magee-Womens Hospital, I want to thank our nurses. It is thanks to your dedication, compassion, commitment, and heart that we offer the exceptional care we do, and we wouldn't be Magee without you.



APRIL 22

MORRIS AND CAROLYN BARKON LECTURESHIP IN GYNECOLOGICAL ONCOLOGY SURVIVORSHIP

Where: UPMC Magee-Womens
Hospital Auditorium

**Made possible by Dr. Frank Lieberman
and Dr. Beverly Barkon**

We welcome Dr. Stanley Rockson, Director, Center for Lymphatic and Venous Disorders at Stanford University School of Medicine, who will discuss new and emerging treatments for patients with lymphatic disease. All oncologists, physical therapist and nurses, as well as survivors of all cancers are invited to attend.

For more details, check back in January at www.mageewomens.org/events.

APRIL 29

MAGEE LIVEWELL SURVIVORSHIP WORKSHOP

Where: The Chadwick, Wexford PA

Discussions on clinical updates on treatments, research updates, riding the emotional rollercoaster and interactive exercise sessions. Concludes with a relaxing dinner.

For sponsorship opportunities and to RSVP, contact Ali Grachen at 412-641-8950 or grachena@mwri.magee.edu.

MAY 13

4TH ANNUAL SEEDS OF HOPE DINNER

Where: Erie Yacht Club, Erie, PA

Enjoy a beautiful dinner and evening at the Erie Yacht Club where you will hear the very latest on world-class women's health research being brought to the Erie community. Proceeds support women's health research in Erie.

For sponsorship opportunities, call Katie King at 814-877-7922 or Kingk9@upmc.edu.

Check back in the new year at the hamothealthfoundation.org/events website for details.

MAY 15

4TH ANNUAL WOMEN WHO ROCK

Where: Stage AE, Pittsburgh's North Shore

Women who Rock connects all women through the power of music and helps to educate, support and fund women-centric health research and music endeavors. We "Turn Up the Volume" on women's health and shine a spotlight on women in music.

For sponsorship opportunities, call Melinda Colaizzi at 412-576-7766 or melinda@pitchconsult.com

Tickets and details go to WomenWhoRock.info.

MAY 31

17TH ANNUAL KIDS AND CRITTERS: ANNUAL NICU REUNION

Where: Pittsburgh Zoo & PPG Aquarium

Presented by:
The Twenty-five Club

All Magee and Children's Hospital NICU graduates and their families are invited to attend. Proceeds benefit the NICU family initiatives at UPMC Magee-Womens Hospital.

For sponsorship opportunities call Denise Wickline at 412-641-8911 or dwickline@magee.edu.

Tickets on sale March 1 at bidpal.net/2020nicureunion.

JUNE 14

31ST ANNUAL WOMEN'S CANCER SURVIVORSHIP BREAKFAST

Where: TBD

Join us for a delightful breakfast, special guest speaker, raffle and candle lighting ceremony to celebrate survivorship.

For sponsorship opportunities, call Ali Grachen at 412-641-8950 or grachena@mwri.magee.edu.

RSVP by June 1 by calling 412-641-4446 or emailing csdemail@upmc.edu.

JUNE 21-22

13TH ANNUAL NOAH ANGELICI MEMORIAL GOLF EVENT

Where: Shepherd's Rock Golf Course at Nemacolin Woodlands Resort, Farmington, PA

Full day of golf at the beautiful Shepherd's Rock Golf Course. Proceeds benefit the Center for Advanced Fetal Intervention at UPMC Magee-Womens Hospital.

For sponsorship opportunities call Jane Klimchak at 724-350-2940.

For reservations and information go to noahshouseofhope.com.

AUGUST 12-13

11TH ANNUAL HOME DEPOT CLAYS FOR A CURE

Where: Seven Springs Mountain Resort, Delmont, PA

Presented by: Home Depot

Team up and enjoy a day of clay shooting competition. Proceeds benefit A Glimmer of Hope Foundation in support of premenopausal breast cancer patient care and research at Magee.

For sponsorship opportunities contact Diana Napper at 800-454-6746

For more information, please visit symbolofthecure.com.

AUGUST 13-14

3RD ANNUAL PITTSBURGH PENGUINS ALUMNI CAST FOR A CURE

Where: HomeWaters Club, Spruce Creek, PA

Enjoy two days of relaxing fly fishing as you are teamed up with Pittsburgh Penguins Alumni. Proceeds benefit metastatic breast cancer research through the Nicole Meloche Breast Cancer Research Fund at Magee-Womens Research Institute.

For information, sponsorships or team opportunities, please visit mageewomens.org/events or contact Denise Wickline at 412-641-8911 or dwickline@magee.edu.

AUGUST 21

PARS FOR POSTPARTUM DEPRESSION GOLF OUTING

Where: Birdsfoot Golf Club

Full day of fun and golf to benefit postpartum depression support at UPMC Magee-Womens Hospital.

For sponsorship opportunities call Denise Wickline at 412-641-8911 or dwickline@magee.edu.

For reservations and information, go to parsforpostpartum.com.

SEPTEMBER 17-18

9TH ANNUAL WCRC FLY FISHING CLASSIC

Where: HomeWaters Club, Spruce Creek, PA

Enjoy two-days of fly fishing competition at the amazing HomeWaters Club. Proceeds benefit the Women's Cancer Research Center's efforts to reduce the incidence of and death from women's cancers.

For information, sponsorships or team opportunities, please visit mageewomens.org/events or contact Denise Wickline at 412-641-8911 or dwickline@magee.edu.

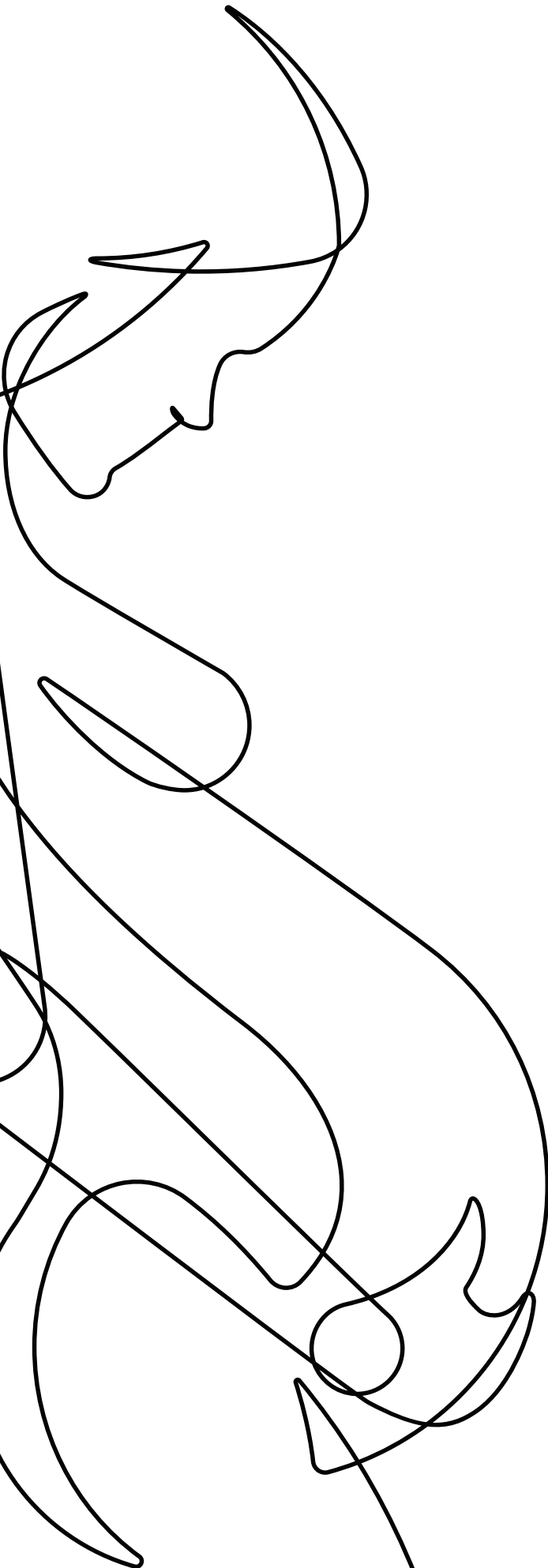
Richard King Mellon Foundation Awards MWRI \$5.1 million to Fight Infant Mortality

Early this fall, Magee-Womens Research Institute, along with several collaborating partners, received a \$5.1 million grant from the Richard King Mellon Foundation to fund the second phase of a \$13 million project aimed at researching pregnancy health, infant mortality and morbidity, encouraging patient participation, and creating communication tools that may allow physicians to apply current research on infant mortality to their patients.

Infant mortality, defined as death occurring within the first year of life, claimed the lives of 77 infants in Allegheny County in 2017 — a rate 5 percent higher than the national average according to the Center for Disease Control and Prevention's WONDER online database of public health statistics. Additionally, racial disparities — or inequalities in mortality rates for minorities — are over 5 times higher for black infants than white infants in Allegheny County.

"Our goal is to see babies live, grow, and develop through their first year of life and thrive throughout their lifetime," said Yoel Sadovsky, M.D., Executive Director of MWRI and professor of obstetrics, gynecology and reproductive sciences, University of Pittsburgh School of Medicine, and lead investigator of the pregnancy and infant mortality project. "This grant will help us continue our work to fight infant mortality and other adverse pregnancy outcomes that drastically impact the lives of mothers and families."

Additional collaborating partners on this project include the Tsui Lab at the Children's Hospital of Philadelphia and the University of Pennsylvania, who will deploy the developed algorithm to predict individual risks in real time; the RAND Corporation, which will develop models to tailor recommended interventions to each woman based on her specific risk and will contribute to an evaluation of the program's implementation, outcomes, and impact; Stanford University which will pilot one of the apps in conjunction with the neonatal intensive care units at UPMC Magee-Womens Hospital and UPMC Children's Hospital of Pittsburgh, and the Institute for Systems Biology, which will contribute to the research.



“Research advances continue to be made, yet infant mortality is still a major problem in the United States. The reason these rates are so much higher here than in other industrialized countries can’t be linked to one single issue,” explained Michael Annichine, President & CEO of MWRI. “As the largest research institute in the nation dedicated to women’s and infants’ health, the Magee-Womens Research Institute has the strongest potential to combat the high rates of infant mortality. We want to thank the Richard King Mellon Foundation for this important funding that enables our partnerships and research teams to expand upon their previous work.”

Phase 1 of this work, jointly led by Tsui Lab and RAND, created a unique integrated database, developed cutting-edge methods to predict infant mortality and preterm deliveries, and assessed the causal effects of interventions in order to help providers offer personalized solutions to reduce the risk of infant mortality.

A portion of the grant funds will be dedicated to expanding the Magee Obstetrical Maternal Infant Database (MOMI), an electronic database of more than 190,000 births at UPMC Magee-Womens Hospital. Researchers use MOMI to address the causes and prevention of premature birth; the effectiveness and safety of medication use during pregnancy; the effects of pregnancy on women’s heart health later in life; the effectiveness of vaccines and their impact on maternal and infant immunity; and the use of opioids and other substances during pregnancy and the downstream effects on future generations.

Additionally, the grant will help MWRI and its collaborative partners to develop new real-time information technology infrastructure, implement and expand technologies that will allow clinicians to estimate, communicate, and intervene when there is a higher risk of infant mortality or morbidity. The project will integrate the “Infant Mortality Prediction System with Intervention” network, which is comprised of risk identification and intervention recommendation tools and two mobile phone apps designed to combat prematurity and infant mortality risks by engaging pregnant and postpartum women. Together, the tools developed will help identify infant mortality risk earlier, and deploy risk mitigation strategies, which were created earlier in the project.



Advancing Fertility Treatment Options for Pediatric Cancer Patients

No parent ever wants to hear the words your child has cancer. In the midst of an incredibly scary, overwhelming diagnosis, families have to make treatment decisions and care plans they never envisioned and often feel ill-equipped to do so. Concentrating on saving their child, they often don't think about their child's future family.

But one in three childhood cancer survivors is at risk of becoming infertile due to chemotherapy or radiation, and since their sperm or eggs haven't matured, assisted reproduction using those sperm or eggs isn't an option in adulthood. This spring, for the first time, researchers from Magee-Womens Research Institute (MWRI) published a study in the journal, *Science*, finding that immature testicular tissue can be cryopreserved and later used to restore fertility in a non-human primate model.

The advance is the next step in the development of next-generation reproduction therapies and offers hope for fertility preservation in prepubescent boys who are about to undergo cancer treatments.

Kyle Orwig, Ph.D., Professor of Obstetrics, Gynecology, and Reproductive Sciences with Magee-Womens Research Institute, was the study's senior author. For Dr. Orwig, this research is one piece of his overall career goal – to help all people who want a biological child, have one.

"We grow up in families, and so many of us dream about growing up to have our own," Dr. Orwig said. "This advance is an important step toward protecting that dream for young cancer patients."

For this study, Dr. Orwig and his team developed a non-human primate model of cancer survivorship. Prior to treating it with chemotherapy, the researchers removed one testis from prepubertal rhesus macaques and cryopreserved the immature testicular tissue. As the animals approached puberty, the other testis was removed. On the same day, they thawed and transplanted pieces of the tissue as well as pieces of the cryopreserved tissue under the skin of the same animal. As the animals entered puberty, their testosterone levels increased, causing the grafted tissue to mature and produce sperm.

Eight to 12 months later, after the animals entered puberty, the researchers removed the grafts and found large numbers of sperm present. They sent the sperm to their collaborators at the Oregon National Primate Research Center at Oregon Health and Science University who were able to generate viable embryos, which were then transferred to females. In April of 2018, one of the females gave birth to a healthy female baby, which Dr. Orwig named "Grady."



“Infertility is not a trivial problem – it can have a terrible psychological impact. My lab is committed to helping people who can’t make an egg or sperm, but desperately desire a biological child.”

-Dr. Kyle Orwig

In preparation for clinical translation, Dr. Orwig established the fertility preservation program in 2010 at UPMC Magee-Womens Hospital. The program offers pediatric cancer patients the option of cryopreserving testicular or ovarian tissue before starting cancer treatments. Since then, it has expanded through collaborations with centers around the world. Dr. Orwig hopes that when these patients grow up and want families of their own, they’ll have that option.

The fertility preservation program at UPMC Magee-Womens Hospital is part of a national consortium that receives referrals from all over the world. It is a team effort that includes urologists, reproductive endocrinologists, fertility specialists, oncologists, medical oncologists, and surgical oncologists.

“Our fertility preservation program is incredibly unique,” said Dr. Orwig. “We are able to provide a comprehensive program that I feel has the creativity and flexibility to deal with every patient who walks in the door – I’m very proud of that.”

Additional authors on the study include Karen Peters, B.S., Meena Sukhwani, Ph.D., and Hanna Valli-Pulaski, Ph.D., all of Pitt; Gunapala Shetty, Ph.D., and Marvin L. Meistrich, Ph.D., of The University of Texas MD Anderson Cancer Center; Nicola Robertson, M.S., Victoria Roberts, Ph.D., Cathy Ramsey, B.S., Lisa Houser, B.S., Carol Hanna, Ph.D., and Jon D. Hennebold, Ph.D., all of Oregon National Primate Research Center at Oregon Health and Science University; and Ina Dobrinski, D.V.M., Ph.D., of the University of Calgary.

Rock on: Women Unite to Champion Women's Health Research



Women rock. You'll get no argument on that from Melinda Colaizzi, musician, Pittsburgher, champion of women in music, and founder of Women who Rock, an initiative that empowers women in music through workshops, performance opportunities, networking events, and a flagship annual concert of the same name that benefits Magee-Womens Research Institute & Foundation (MWRIF).

So how did MWRIF, the nation's largest independent research institute dedicated solely to women's health, come to be the beneficiary of Women who Rock's annual concert? It was meant to be.

Women: Underrepresented in music and health care research.

"Women are woefully underrepresented in the music industry," said Colaizzi. "If you look at music festival lineups, generally 20 percent or less of headline acts are women. And after participating at an MWRIF benefit, I learned that women are underrepresented in healthcare research funding, too."

"The speakers that evening brought me back to my own mom, a cancer survivor, and all the women I know who have faced women's health issues," said Colaizzi. "Learning about the disparity in research dollars made me think: why not come together and rock the future of health care for all women?"

Powerful women lead the charge.

Colaizzi's vision of an all-female fronted music showcase was born. Dubbed Women who Rock, its growth has been fast and furious thanks to countless women. Colaizzi lauds Shelia E. as a tireless force who has devoted her time and talents generously to the cause. And the pleasure has been all Shelia E's.

"I was so excited to headline this important concert that supports women's health and empowerment," she said. "Now is the time to stand up for all women."

Women who Rock's growth has inspired an annual Women who Rock Award, which was presented to Sharon Hillier, Ph.D., MWRIF, this year. Dr. Hillier, an internationally recognized microbiologist whose work has influenced an entire field of research based on the intersection of women's health and HIV prevention, was a natural fit for the award. With her efforts to ensure women and girls across the globe have agency and autonomy over their bodies and health, she's rocking women's health on a daily basis. Dr. Hillier is also in good company. Past recipients of the award have included Kelly Frey, WTAE-TV news anchor, breast cancer survivor and advocate, and Carola Neumann, M.D., MWRI, who co-leads the breast cancer research advocacy network in addition to researching chemical reactions in breast cancer as a primary investigator at MWRIF. To learn more about Women who Rock, visit womenwhorock.info.



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WOMENWHOROCK.INFO

A Team of Experts Perform the Region's First **In-utero** **Spina Bifida Surgery**



It's not every day a mother names her baby after the doctors who cared for her. But it's not every day that mom and baby undergo complex surgery at 25 weeks gestation to close a neural tube defect commonly known as spina bifida either. Born healthy and happy in March – two months after having the first-of-its-kind procedure in the region at UPMC Magee-Womens Hospital – baby Emery Greene is proof that an interdisciplinary team of maternal-fetal medicine, obstetric anesthesiology, neonatology, and pediatric neurosurgery specialists can come together to change lives.

“That’s a really important part, it’s not me, or any one individual or hospital that can make this happen,” said Stephen Emery, M.D., Director of the Center for Innovative Fetal Intervention, UPMC Magee. “It’s drawing on all of the expertise and resources of the health system.”

The team just had to be patient in waiting for the right opportunity to put their expertise to work.

“In 2011 we trained in San Francisco to bring this procedure to the region,” said Dr. Emery. “Then we came back to Magee and got everything in place to be ready. Then, we waited and waited.”

Being ready to intervene when conditions are both rare and risky.

There were several reasons for the lengthy wait. First, it’s a rare diagnosis. Spina bifida affects about 1,500 babies born each year in the United States. Second, there are strict exclusionary criteria. Third, in-utero intervention comes with significant risk to mom and baby. Before Allee Mullen, there hadn’t been an expectant mother who was willing to be the first to have the procedure at UPMC and met the criteria. Mullen, who happens to be a NICU nurse at UPMC Children’s Hospital of Pittsburgh, was an ideal candidate.

“This couldn’t have aligned more perfectly,” said Dr. Emery. “Because Allee’s a nurse, she’s seen babies born with spina bifida. She also knows there ought to be a program in the region where moms and babies can get this procedure – and she was willing to go first. She was our hero.”

“Because of Allee, other pregnant women who are diagnosed with fetal spina bifida might very well be candidates for the in-utero procedure.”

-Dr. Stephen Emery

And though the inherent risks of the surgery are great – from the use of anesthesia during pregnancy and opening the abdomen and uterus, to the recovery process and necessity to keep mom pregnant for as long as possible after the surgery – there is also the potential for much to go right.

“Being able to perform this surgery in-utero offers many benefits to the baby, but one of the most important is improving the chances that a child will be able to walk on their own,” said Stephanie Greene, M.D., Director of Vascular and Perinatal Neurosurgery, UPMC Children’s Hospital of Pittsburgh. “Our initial tests show that Emery has almost entirely normal leg function. It can take up to a year to rule out other complications; however, the neurologic outcome is definitely better than if her surgery had been done after birth.”

“Because of Allee, other pregnant women who are diagnosed with fetal spina bifida might very well be candidates for the in-utero procedure,” said Dr. Emery. “We are excited and proud to now offer this service at UPMC Magee to patients in the western Pennsylvania and tri-state regions.”

Preparing for the next first-of-its-kind procedure.

Dr. Emery is also proud of the research that will lead to the next “firsts” at UPMC and beyond. Today, that involves focusing on hydrocephalus, which happens when developing fetuses present with a blockage of cerebral spinal fluid out of the brain, which produces an accumulation of cerebral spinal fluid in the brain’s ventricles and results in profound neurological damage. Magee-Womens Research Institute and Foundation and the University of Pittsburgh are leading an international initiative to investigate the use of a specialized shunt and ultrasound-guided technology that would relieve pressure from the brain, allowing it to develop normally.

“The research makes it possible to be able to diagnose and treat conditions in-utero and avoid catastrophic neurological outcomes,” said Dr. Emery. “Research means we can continue to do better for moms and babies.”

For now, Allee Mullen has made sure that her daughter, Emery Greene Mullen, will always be connected to Drs. Emery and Greene, who were so integral in delivering her pioneering care.

To learn how you can support research that leads to surgical firsts, visit mageewomens.org.

Former Penguin Greats Share Goal to Beat Breast Cancer

“Everyone knows someone who has been affected by breast cancer,” said Bryan Trottier, Hockey Hall of Famer, former Penguin great, and current chair of several Penguin Alumni Association committees. “Our teammate, Gilles’ wife Nicole Meloche, passed away from the disease. I lost my sister-in-law, who was an amazing inspiration throughout her long fight. Supporting Magee in all their great work has been personal to many of us.”

The fight against breast cancer is personal.

It’s nearly impossible to find someone whose life hasn’t been touched by breast cancer. And while we constantly make progress in advancing lifesaving research, we welcome the day when everyone who faces a breast cancer diagnosis can expect a positive outcome. With the support of the Pittsburgh Penguins Alumni Association and the annual breast cancer research fundraising events they help to champion, that day might be growing closer.

“What started out as a couple of little events has grown to the point that corporations and other sponsors have started matching our contributions,” said Trottier. “I can’t take credit for it. All of the guys have rallied behind this and our relationship with Magee-Womens Research Institute has grown stronger along the way. We’re certainly proud of our small part in supporting really important research.”

Advancing research with a little help from Penguins and friends.

Through events like the annual Cast for a Cure, where Pittsburgh Penguins Alumni and friends take part in two days of fly fishing at the HomeWaters Club in Spruce Creek, PA, the Nicole Meloche Metastatic Breast Cancer Research Fund continues to grow.

“We’re extremely proud to partner with the Pittsburgh Penguins Alumni Association in support of breast cancer research,” said Dr. Steffi Oesterreich, Co-Director of the Women’s Cancer Research Center at Magee-Womens Research Institute and Foundation. “The funds they help to raise are used to transform cutting-edge research into



From L to R,
Mike Harpster,
Colby Armstrong,
Bryan Trottier

personalized therapies for women with this devastating disease. These donations are critical to our success in beating this disease and we are grateful to the Penguins Alumni for their continued support.”

Celebrating cancer survivors in true Pittsburgh style.

That support was also evident when Trottier was asked to be the keynote speaker this past June at the Black and Gold-themed 30th anniversary of the Magee Cancer Survivors Celebration.

“It was a powerful experience,” said Trottier. “I was really able to connect with the people in that room for a lot of reasons. I have a son who is an oncologist and my sister-in-law fought cancer for many years. There were many shared connections. I love Pittsburghers – they just get it – they come together. And they embraced me as this guy from Saskatchewan who has made Pittsburgh his home.”

To learn more about Cast for a Cure, visit mageewomens.org/events.



Matt Clackson

NOTABLES



Sharon Achilles, M.D., Ph.D. and Lisa Rohan, Ph.D., along with colleagues from SUNY Buffalo, received a 2-year, \$890,000 grant from the FDA entitled "Physiologically-based Model of the Female Reproductive Tract: Vaginal and Intrauterine Delivery Components – Support New Approaches to Improve Product Manufacturing and Quality."



Mary Ackenbom, M.D., received a 2-year, \$260,000 R03 grant from the National Institutes of Health – National Institute on Aging, entitled "A Prospective Examination on Perioperative Neurocognitive Disorders in Older Women Undergoing Urogynecologic Surgery." The Female Reproductive Tract: Vaginal and Intrauterine Delivery Components – Support New Approaches to Improve Product Manufacturing and Quality.



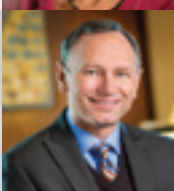
Ronald Buckanovich, M.D., Ph.D., and Anda Vlad, M.D., Ph.D., received a 2-year, \$140,000 grant from the UPMC Hillman Developmental Funding Program, entitled "ALDH Inhibition as Modulator of Tumor Immunobiology."



Ronald Buckanovich, M.D., Ph.D., received a 3-year, \$900,000 grant from the Ovarian Cancer Research Alliance, entitled "Targeting Tumor Desmoplasia to Enhance Immunotherapy."



Janet Catov, Ph.D., M.S., received a 2-year, \$272,000 R21 grant from the National Institutes of Health-National Heart, Blood and Lung Institute, entitled "Shared Antecedents to Pre-Term Birth and Cardiovascular Disease in Women."



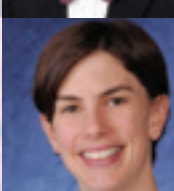
Robert Edwards, M.D., and Anda Vlad, M.D., Ph.D., received a 2-year, \$998,000 grant from Merck, entitled "Systemic Immune Checkpoint Blockade and Intraperitoneal Chemo-Immunotherapy in Recurrent Ovarian Cancer."



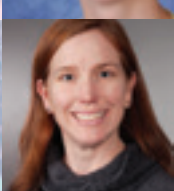
Stephen Emery, M.D., received a 1-year, \$100,000 grant from the Coulter Translational Research Program, entitled "Ventriculo-Amniotic Shunt for Fetal Aqueductal Stenosis."



John Harris, M.D., M.Sci., received a 5-year, \$1.9 million R01 grant from the National Institutes of Health – Agency for Healthcare Research, entitled "Developing and Testing an Evidence-Based Toolkit for Nursing Home Care of Residents with Obesity."



Kata Himes, M.D., M.S., received a 1-year, \$290,000 R56 grant from the National Institutes of Health – National Institute of Nursing Research, entitled "Healthy Beyond Pregnancy: Leveraging Behavior Economics to Improve Postpartum Care."



Elizabeth Krans, M.D., M.Sci., received a 1.5 year, \$276,000 R34 grant from the National Institutes of Health – National Institute on Drug Abuse, entitled "Investigation of Opioid Exposure and Neurodevelopment (iOPEN)."



Faina Linkov, Ph.D., received a \$61,000 grant from the Phi Beta Psi sorority to support her cancer research.



Pam Moalli, M.D., Ph.D., received a 5-year, \$2.57 million R01 grant from the National Institutes of Health – National Institute of Child Health and Human Development, entitled “Overcoming Complications of Polypropylene Prolapse Meshes: Development of Novel Elastomeric Auxetic Devices.”



Lisa Rohan, Ph.D., received a 3-year, \$3.96 million R61 grant from the National Institutes of Health – National Institute of Allergy and Infectious Disease, entitled “Long Acting Film Technology for Contraception and HIV Prevention (LATCH).”



Kyle Orwig, Ph.D., received a 5-year, \$8.5 million P50 center grant from the National Institutes of Health – National Institute of Child Health and Human Development for a grant, entitled “Genetics of Male Infertility: A Marker of Overall Health.”



Yoel Sadovsky, M.D., and Adrian Morelli M.D., Ph.D., received a 5-year, \$2.66 million R01 grant from the National Institutes of Health-National Institute of Allergy and Infectious Diseases, entitled “Placental Extracellular Vesicles as Regulators of Maternal Adaptive Immunity.”



Anda Vlad, M.D., Ph.D., received a 2-year, \$385,000 grant from the Department of Defense, entitled “Ovarian Cancer Therapy via Conditional STING Pathway Activation.”



Harold Wiesenfeld, M.D., received a 1-year, \$71,000 clinical trial grant from Speedx PTY Ltd., entitled “Prospective, Multi-Site, Method Comparison Clinical Study of the ResistancePlus MG Diagnostic Accuracy in Detecting M. genitalium and Mutations Associated with Azithromycin Resistance.”



Judy Yanowitz, Ph.D., received a 4-year, \$1.85 million R01 grant from the National Institutes of Health – National Institute of General Medicine Sciences, entitled “Role of GCNA in Preserving Genome Integrity and Fertility.”

Magee-Womens Research Institute would like to welcome the following new members:

Tim Canavan, M.D., M.Sci., Assistant Professor of Obstetrics and Gynecology and Director of the Division of Ultrasound at UPMC Magee-Womens Hospital

Tamar Krishnamurti, Ph.D., Assistant Professor of Internal Medicine

Sarah Taylor, M.D., Assistant Professor of Gynecologic Oncology



THREE WAYS TO GIVE.
SO MANY LIVES TO TOUCH.

MAGEE LEGACY SOCIETY

Making a planned gift to Magee-Womens Research Institute & Foundation, whether for research, patient care or education, is easy. This gift costs you nothing today and creates a meaningful legacy that touches the lives of so many others in the future.

BEQUEST

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IRA

Name Magee as a beneficiary on your retirement account.

CHARITABLE REMAINDER TRUST

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