



Department of Obstetrics, Gynecology and Women's Health

# women's health

A publication for those who support the University of Minnesota Department of Obstetrics, Gynecology and Women's Health

*L to R: Chris Clark, Ph.D. candidate and Rafael Hellwig, research scholar*

## No Stone Unturned: Unearthing the Next Generation of Gynecologic Cancer Care

The future of medicine is in the details.

The microscopic, cellular, DNA-level details.

More and more research shows the complexities of cancer as it relates to our genes. With improved data sequencing technology and analysis, researchers are honing in on that, developing specialized treatments designed for groups of people with certain genetic mutations or characteristics. It's growing not only in gynecological oncology, but across all areas of health.

Here at the University, researchers are diving even deeper.

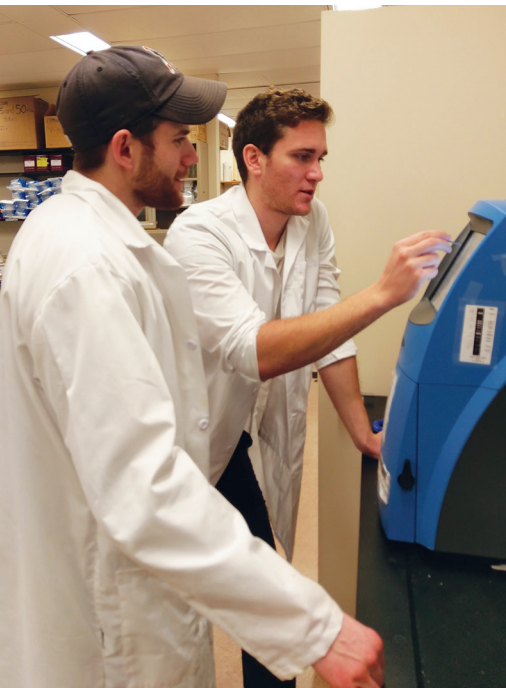
"We're looking at cancer from a single cell, because until we can define the enemy, we'll never be able to conquer it," said Tim Starr, Ph.D., assistant professor in the Department of Obstetrics, Gynecology and Women's Health.

Using new genomics technology, Starr worked with Boris Winterhoff, M.D., assistant professor in the department, and a team of UMN researchers to analyze individual cells within a single ovarian cancer tumor, and compare those cells with one another. It allowed researchers to find commonalities at a cellular level, as well as within the group of patients. It could give insight in the future for finding ovarian cancer biomarkers. The findings were recently published in *Gynecologic Oncology*.

"We know we can use this technique to compare cells and search for biomarkers," Starr said. "We found that not all ovarian cancer cells are the same - even within one person."

Up to this point, precision medicine has typically focused on comparing groups of cancer patients' genes. This study is one-of-a-kind. Few - if any - with such specificity have been published before.

*continued on page 2*



## Research, continued

“The people we surround ourselves with from across the University have such great ideas.”

~Melissa Geller, M.D.,  
Gynecologic  
Oncologist

That innovative research spirit can be found across the department. Several researchers are searching for biomarkers, preventative treatments, new drug therapies and ways to improve quality of life after a cancer diagnosis.

These studies help researchers and clinicians check causes, risk factors or treatments off the list. They shape a better understanding of cancer, and spark new ideas for how to try something different. They improve the lives of women with cancer.

Today, that drug is a common frontline treatment for breast cancer.

“What she did for women with breast cancer is huge,” said Conway, of Saint Paul.

The reality of that truly set in for Conway when she received her own cancer diagnosis of ovarian cancer in 2012. Last fall, she had a recurrence. She wasn’t happy with her oncologist, so she switched providers to Peter Argenta, M.D. She chose the University specifically because of its commitment to clinical research.

“I’m a big believer in clinical trials because somebody did it for me,” Conway said. In order to have the treatments she has now – taxol carbo – someone else had to test it first, just like her cousin tested breast cancer treatments to the benefit of patients today.

Conway is currently undergoing frontline treatment, which is not a clinical trial, but she’s comforted and empowered by the possibility. If the opportunity presents itself, she said she’d absolutely participate.

“Here at the University, they have a finger on the pulse of what’s going on in medicine,” she said.

Kathy Pohland, a fellow Argenta patient and ovarian cancer survivor, felt the same.

“There aren’t any clinical trials for me right now, but if I could do one, I would,” Pohland, of Bloomington, said. “Knowing the odds that my cancer will come back, I’m thrilled that there would be options for me. And it would help future generations.”

## The Gopher Advantage

Julie Conway knows that first hand.

Back in the 90s, her cousin was diagnosed with breast cancer. She participated in a clinical trial for the drug Tamoxifen, and since then, the understanding of breast cancer has changed dramatically.



L to R: Willa Durose,  
postdoctoral researcher  
and Christina Landis,  
junior scientist



## It Takes a Village

Research happens thanks to courageous women, like Pohland and Conway, but it's not limited to cancer patients.

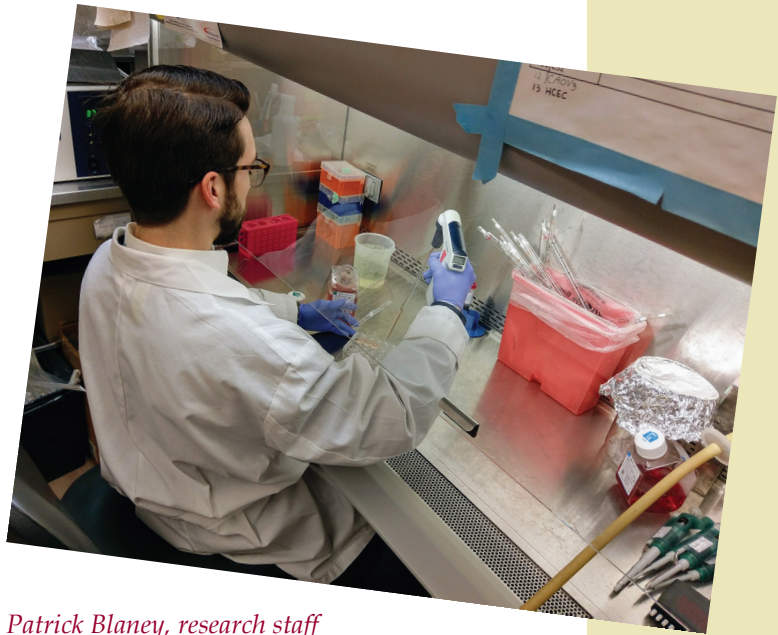
"The people we surround ourselves with from across the University have such great ideas. As a team, we can bring those novel approaches into the clinical realm and improve the lives of women living with cancer," said Melissa Geller, M.D., associate professor in the department.

That means bringing a diverse team of experts to the table.

Take Starr and Winterhoff's genomics study. It brought in several researchers from the department including Geller, Martina Bazzaro, Ph.D., Raffaele Hellweg, Sally Mullany, M.D. and Makayla Maile. They also worked with the Genomics Center, the College of Biological Sciences and the Masonic Cancer Center, which is a National Cancer Institute designated comprehensive cancer center.

"Academic medicine is rooted in collaboration, and that makes the University a great place to work. Everybody here is dedicated to the cause of improving the lives of women living with cancer," Geller said. She's leading a drug trial testing natural killer cells – cells within the body's immune system – that can fight off cancer on its own in women with chemo-resistant cancer.

It's all possible through the generous support from the state, cancer advocacy groups and donors. It can take years to move basic science research to clinical models, and years to move through phases of clinical trials.



*Patrick Blaney, research staff*

"Philanthropy is crucial for supporting research," Bazzaro said. "Many of the federally-funded projects I'm working on today started out through smaller contributions from single donors or small groups of donors."

In the end, each research finding, no matter how big or small, brings everyone closer to the end goal.

"We may not cure the disease, but we're helping people live longer and better lives," Geller said.

Pohland will be 5-years in remission – and officially cancer-free! – in August. Conway isn't there yet, but hopeful for her future, and happy with her care.

"I know I'm in good hands," she said.

Besides, Conway added, just being at the University, surrounded by all the Maroon and Gold 'M's, brings back fond memories and sense of community. She said it's the perfect place to be.

"This is where I belong."

## Support our work

Your gifts can make a lasting difference in the Department of Obstetrics, Gynecology, and Women's Health.

Learn more by contacting Gail Kelly at 612-626-6513 or [gjkelly@umn.edu](mailto:gjkelly@umn.edu), or make your gift today at [give.umn.edu/giveto/obgyn](https://give.umn.edu/giveto/obgyn).

# Global Health Training: Resident Physicians Opt for Elective OB/GYN Program in Tanzania

What's it like to undertake your OB/GYN residency in a developing country with limited resources? University of Minnesota resident physicians who participate in the Tanzania Global Elective program do just that, and they'll tell you the knowledge and experience they gain is beyond measure.

Justin Boeke, M.D. spent five weeks in Tanzania at Dodoma Christian Medical Center (DCMC). Dodoma is the official capitol, and he said the hospital is located in a large rural area. "It's a poor area with an arid climate and there are many small villages with subsistence farming."

Boeke worked six days a week in the hospital and was on-call at night. He split his time between seeing patients in clinic and surgery. He performed all of the GYN surgeries during his time there and while most of his work was GYN related, he did see some laboring patients and performed their cesarean deliveries.

Boeke said patients came to the hospital in the morning and spent the day there. "The imaging and laboratory capacity was very limited, so much of the diagnosis relied on history and physical exams. I also performed most of my own ultrasounds."

In addition to his time in the hospital, he spent a memorable two days performing outreach in an isolated rural village where he saw roughly 100 patients. "Women walked, sometimes overnight to see me. Some of them had never seen a doctor before," Boeke said.

He performed complete exams and histories on these women. Many were healthy, though he did diagnose several cervical cancers, a case of breast cancer, AIDS and other rare diagnoses.

Boeke was able to do all of these things without many of the modern medical advancements doctors are used to in the United States, "I had limited resources on hand, but was able to make referrals to regional hospitals. This experience was extremely rewarding. I have never felt so useful."

He believes that his time in Tanzania allowed him to experience things he would not have seen had he stayed in the U.S.

*Operating room in Tanzania*



"This experience was extremely rewarding. I have never felt so useful."

~Justin Boeke, M.D.



*Dr. Justin Boeke with Dr. Jamhuri Kitange, Executive Medical Director, DCMC*





*Dodoma Christian Medical Center (DCMC), Tanzania, Africa*

He's also confident that his experience was beneficial for doctors and patients in Tanzania.

"This is a great opportunity to share our knowledge with doctors who have fewer resources and less training. The patients are so appreciative and some of the care we provide, including surgeries, are life-changing."

Pamela Mills, M.D., M.P.H. spent three-and-a-half weeks at DCMC in Tanzania. In addition to routine OB/GYN visits, she performed several surgeries including two abdominal hysterectomies, four C-sections, two cerclage and a handful of other procedures not typically performed in the U.S.

"Operating room techniques were very different from the U.S. and it was challenging to adjust to the style and efficiency," Mills said.

She also noticed a difference in how much emphasis is put on primary care as part of OB/GYN responsibilities in Tanzania, "Some of our patients were the babies we delivered. My fund of knowledge for pediatric care was definitely expanded as we never take care of pediatric patients during our training in the U.S. other than in Medical School."

The lack of resources like laparoscopy, in-house anesthesia, reliable imaging, and access to known medications may be a deterrent for some, but Mills saw the shortcomings as an agent to expand her abilities. "I think seeing familiar things in a new setting helps you think about problems and solutions in a new way. I gained other new experiences in procedures as well. It made me grateful for the resources I have at home and also made me think about being more judicious when choosing what labs/studies to order."

Mills is confident the skills she gained across the globe shaped her education in ways that would not be possible in the U.S. For that reason, among many others, she would do it all over again, "I met so many great people, patients and providers. Everyone was friendly and welcoming which made the experience even better."

Read more about our residents' experiences in Tanzania on their blog at: [www.obgyn.umn.edu/global-health/resident-elective-tanzania/resident-blog](http://www.obgyn.umn.edu/global-health/resident-elective-tanzania/resident-blog)

## Department Announces a New Division of Urogynecology and Reconstructive Pelvic Surgery

We are delighted to announce the hiring of a new faculty member, John R. Fischer, M.D., Col. USAF, who will be leading the efforts in establishing an academic Female Pelvic Medicine and Reconstructive Surgery Division within the Department of Obstetrics, Gynecology and Women's Health.

The division will provide the full scope of care to treat women with pelvic floor disorders and provide both undergraduate and graduate medical education to the medical students and residents rotating on the division. Dr. Fischer will begin his new role in October 2017.

"Female Pelvic Floor Disorders (PFDs) include bladder and/or bowel control problems and pelvic organ prolapse. One in three women will experience a pelvic floor disorder in their lifetime. PFDs are not a normal part of aging and can be treated successfully."

- American Urogynecologic Society (AUGS)

# Partnering to Expand Global Oncology Training: St. Paul Millennium Medical College, Ethiopia and University of Minnesota

By Rahel Ghebre, MD, MPH, Associate Professor, Division of Gynecology Oncology, University of Minnesota

As a gynecologic oncologist, I know that a woman's survival from cancer depends on a timely diagnosis, treatment by a skilled oncologist and care by a comprehensive health team. For most women diagnosed with cancer in Ethiopia, that level of care is not available. Instead, women die from treatable cancer and leave devastated families and communities behind.



L to R - Drs. Tadios Asres, Tilmann Lantzsch, Tadesse Urgi, and Rahel Ghebre

With a population of 103 million, Ethiopia has just three practicing gynecology oncologists and one radiation facility in the capital city of Addis Abba. Breast, cervical and ovarian cancer are the three most common cancers for women in that order. Cancer data from rural communities in Ethiopia is limited, but the World Health Organization estimates there were 7,000 cases and 4,700 deaths from cervical cancer in 2012. In line with an anticipated increase in global cancer rates, these numbers are expected to rise dramatically by 2030.

I believe in the power of education as an agent of change. That's why I'm so proud to be the Director of the first gynecology oncology training program at St. Paul's Hospital Millennium Medical College in Addis Abba, Ethiopia.

St. Paul's Hospital has an established department of obstetrics and gynecology with 18 obstetricians and gynecologists. It also has one of the largest training programs for medical students and obstetrics and gynecology residents. When we started developing our training program in 2014, they had no established oncology program.

Gynecology oncologists are trained to provide the highest level of cancer therapy for women diagnosed with cervical, ovarian, uterus, vulvar cancer and gestational trophoblastic disease (a type of pregnancy-related cancer). In Ethiopia, gynecology oncologists are severely challenged by the lack of access to chemotherapy drugs, radiation facilities, and resources for pain and palliative care. Despite these limitations, the impact of oncologists in cancer care is invaluable.

In collaboration with the University of Minnesota, University of Michigan and German Gynecological Oncology Group (AGO), the first two fellows started the training program in 2016. The program utilizes a global gynecology oncology training curriculum which is delivered by



Gynecologic Oncology outpatient clinic waiting area at St. Paul Hospital Millennium Medical College

an international teaching faculty who travel to Ethiopia.

The program has rapidly expanded access to oncology care. An increasing number of women diagnosed with cervical and ovarian cancer are finding their way to the facilities, often traveling five hours or more to reach the hospital.

In addition to clinical care, we are implementing research protocols to seek answers for more effective gynecology cancer care in limited-resource settings. With more academic partnerships we hope to expand these activities in the future.



# News Briefs

## Recent Research Grants

2016 Masonic Cancer Center Internal Grants Program Awards/Pre-R01 Pilot Grant awarded to: **Britt Erickson, M.D.**, Assistant Professor, Department of Obstetrics, Gynecology, and Women's Health: Prevention Study of Daily Aromatase Inhibitor in Low Grade Endometrial Cancer and Endometrial Intraepithelial Neoplasia - \$75,000

PI: **Rachel Isaksson Vogel, Ph.D.**, American Cancer Society, Risk Factors of 'Chemo Brain' among Women Treated for Ovarian Cancer, \$29,000

PI: **Martina Bazzaro, Ph.D.**, Department of Defense Ovarian Cancer Research Program, (OCRP), Breaking Off Cancer Cell's Addiction to Prevent and Treat Recurrent Ovarian Cancer, \$680,000

PI: **Martina Bazzaro, Ph.D.**, Randy Shaver Cancer Research and Community Fund Grant, New Interventions to Predict and Prevent Metastatic Melanoma, \$25,000

PI: **Boris Winterhoff, M.D.**, Ovarian Cancer Research Fund (OCRF), Precision Medicine in Ovarian Cancer: Using Single Cell Analysis, \$449,678

PI: **Boris Winterhoff, M.D.**, University of Minnesota Grand Challenges Grant, Development of a Clinical Precision Medicine Program in Ovarian Cancer as a Paradigm for 21st century Tailored Health Care solution, \$60,000

PI: **Melissa Geller, M.D., M.S.**, Masonic Cancer Center (MCC), IL-15 Superagonist ALT-803 for treatment of advanced stage ovarian cancer, \$50,000

## Department Welcomes New Faculty



The impact of the program has already exceeded my expectations. With continued support of our partners including the International Society of Gynecology Oncology (IGCS) we will continue to expand the fellowship training program.

In 2018, the first two gynecology oncologists will graduate and go on to develop the core of the future Division of Gynecology Oncology. This is a clear example of education as an agent of change, and further motivation to continue working to ensure that more women in Ethiopia get the high-quality cancer care they need.

*Pictured top:*  
Bethany Hart, D.O. – Maternal-Fetal Medicine  
Stephen Contag, M.D. – Maternal-Fetal Medicine  
Rachel Isaksson Vogel, Ph.D. – Gynecologic Oncology

*Pictured bottom:*  
Darrah Solitario, M.S.N., C.N.M.  
Karen Cullen, M.S.N., C.N.M.  
Andrea King, M.S.N., M.P.H., C.N.M.  
Stephanie Pott, D.N.P., W.H.N.P.

# UNIVERSITY OF MINNESOTA

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*On My  
Mind*

Dear friends,

Women's health was at the forefront of global conversation in January when millions celebrated the Women's March on Washington. Many of our staff and faculty participated in the historic Washington D.C. and St. Paul events, raising awareness for women's reproductive health and gender equity issues.

Other international efforts include the work of gynecologic oncologist Rahel Gehbre, M.D., M.P.H., who is training doctors in Rwanda to detect, treat and prevent gynecologic cancers. Meanwhile, Residency Program Director Phillip Rauk, M.D., has created a global health elective in the Dodoma Region of Tanzania. There, physicians-in-training learn how to treat patients with few resources, broadening their understanding of healthcare systems and clinical care while helping patients beyond our borders.

Closer to home, Britt Erickson, M.D., will lead a multi-institutional chemoprevention study evaluating the effectiveness of aromatase inhibition on low grade endometrial cancer. Endometrial cancer is the most common gynecologic malignancy and is increasingly prevalent because of rising obesity rates. The study is sponsored by the National Cancer Institute and

will also involve the University of Wisconsin and University of Alabama at Birmingham.

It's these types of projects, along with our unmatched clinical expertise, that attract such high caliber talent to the Dept. of ObGyn & Women's Health. To meet the market demands for our clinical services, our division of Obstetrics, Gynecology, Midwifery and Family Planning has grown to nine physicians, eight midwives and two nurse practitioners. In addition, we'll soon add a tenth specialist to our Maternal-Fetal Medicine division. But I'm most pleased to announce the launch of a new urogynecology division in October 2017.

It's inspiring to see how our residents, fellows, faculty and staff work to affect the health of local communities, while also delivering much-needed healthcare, education & training to the most vulnerable people around the world.

**Linda Carson, M.D., F.A.C.O.G.**

*Professor and Chair, Department of Obstetrics, Gynecology and Women's Health*

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