TRUE GRIT

Hard work can get you a lot of places

When survival is linked to race
Living with metastatic cancer
Cultural mediators: heroes for our communities
Champions

I’ve learned to expect the extraordinary at UW Medicine. It’s a byproduct of working with thousands of talented individuals who are committed to improving health for all people. These individuals are champions for health and global leaders in their areas of expertise.

This magazine is full of champions, too. Literally, in one case: We feature a hard-working, compassionate medical student named Justinn Lahaye, who was a rodeo champion before deciding to become a doctor.

Other champions abound. Beloved faculty member Arno G. Motulsky, M.D., one of the founders of medical genetics, survived the Holocaust and went on to teach generations of our trainees.

If Arno is a reminder of the resilience of the human spirit, then Anab Abdullahi and Rose Cano — cultural mediators and caseworkers at Harborview Medical Center — remind us of the power of listening to everyone in our community.

Researcher and OB-GYN Kemi Doll, M.D., MSCR, is investigating the high mortality rates of Black women with endometrial cancer. This work is focused on learning more about the disease — while championing the elimination of inequities in healthcare.

There’s no doubt that medicine needs champions. And that the UW Medicine team has many champions who are improving health for the public we serve.

Sincerely,

Paul G. Ramsey, M.D.
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In This Issue

Cover photo: Justinn Lahaye, by Kurt Wilson

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HONORING ARNO

Arno's particular talent was his ability to value everyone equally. Amidst the paper chaos of his office, he always made space. Arno was relentlessly curious and kind, thrilled when we succeeded and supportive when we didn’t. He always expected the best of you, despite having grown up in a time where many showed themselves capable of the worst.

Virginia P. Sybert, M.D.

UW CLINICAL PROFESSOR OF MEDICINE, MEDICAL GENETICS

In the mid-1990s, Arno invited me to Seattle under false pretenses: simply to give a seminar and stay for a couple of days to meet his friends (including all the people on this page). As he anticipated, I was hooked by the intellectual power of the medical and genetics communities here, the sheer fun people took in doing science, and the pleasure basic scientists and physicians took in working together. He made the best decision of my scientific life for me, and (at least for a while) let me think that I had made it myself.

Mary-Claire King, Ph.D.

UW PROFESSOR, MEDICINE (MEDICAL GENETICS)
AND GENOME SCIENCES
AMERICAN CANCER SOCIETY PROFESSOR

Arno Motulsky founded our medical genetics division in 1957. He made enormous contributions to the field, and he’s known as the father of pharmacogenetics, having been the first to suggest that genetic variation had a role in drug response. Arno was also an exceptional, generous and challenging mentor — a role model for collaborative work.

Gail P. Jarvik, M.D., Ph.D.

HEAD, DIVISION OF MEDICAL GENETICS
ARNO G. MOTULSKY, M.D. ENDOWED CHAIR

As students, we learned about hemoglobin and the molecular biology of sickle cell disease from Arno. When I was a resident, he was my attending, with fellows including future Michigan dean/CEO Gil Omenn and Nobel Prize-winner Joe Goldstein. Arno’s background and climb to scientific success were amazing and inspirational. He was kind, generous and humble, with an excellent sense of humor.

William J. Bremner, M.D., Ph.D.

CHAIR, DEPARTMENT OF MEDICINE
ROBERT G. PETERSDORF ENDOWED CHAIR IN MEDICINE

With the death of Arno G. Motulsky, we lost one of our most distinguished and best-loved faculty members. Born in Germany in 1923, Arno was caught up in the horror of the Holocaust and sent to an internment camp in France in 1940, a journey well-chronicled by an obituary in The New York Times. In 1941, he reached the U.S., was drafted by the Army and went to medical school; in 1945, he married Gretel Stern. He came to the UW School of Medicine in 1953 and founded the Division of Medical Genetics four years later. I asked some of Arno’s admirers to share their thoughts about his accomplishments in the field of medical genetics — and to share a sense of why he will be so sorely missed by our community.

Paul G. Ramsey, CEO, UW MEDICINE

> See more tributes at uwmedmagazine.org/motulsky.
EVEN CHAMPIONS NEED SCHOLARSHIPS

Justinn Lahaye is a rodeo champion, a tremendously hard worker and a dedicated medical student. She’s also one of 288 students at the UW School of Medicine who receive scholarship funds from generous donors. Over the course of Accelerate: The Campaign for UW Medicine, more than 5,000 of you have given $24 million to scholarship funds. Thanks for championing our students — and the communities they’ll go on to serve.

> See page 8 for Justinn Lahaye’s story.

LET’S SAY THAT YOU HAVE A FAMILY HISTORY OF BREAST CANCER. You decide to take a genetic test to assess your risk. But when the results come back, they are, well, indeterminate. You have a mutation or variation, but your doctor can’t tell you if it’s harmful or benign. Identifying such variations, separating harmless from harmful, is a challenge that the Brotman Baty Institute for Precision Medicine (BBI) is taking on. Researchers from UW Medicine and Fred Hutchinson Cancer Research Center are creating a huge catalog of genetic variants, including their scope and their response to drugs. “I always had this idea that I wanted to be able to see the benefit of my research for humankind in my lifetime,” says Alice Berger, Ph.D., a Fred Hutch researcher who’s part of the BBI team. With her partners, she thinks she will.

The BBI — a collaboration of UW Medicine, Fred Hutchinson Cancer Research Center and Seattle Children’s — was founded in 2017 by a group of visionary friends: the late Jeffrey H. Brotman and his wife, Susan, and Dan and Pam Baty. Learn more at BrotmanBatyInstitute.org.

> Read the full story at uwmedmagazine.org/variants.

DIGGING THROUGH VARIANTS
UW MEDICINE INVENTS

UW Medicine faculty have made or contributed to significant advances over the years. Here, we take a look at a few innovations that caught our collective eye.


**THE TRANSGENIC MOUSE.** (1981) Several universities collaborated to create a genetically modifiable mouse — one that passed on genetic material to its offspring — a cornerstone of medical research.

**IDENTIFYING GENES.** (1996–2006) Researchers have connected genes to Alzheimer’s disease, pancreatic cancer and Werner’s syndrome, among others.

**CROWDSOURCED PROTEIN-FOLDING.** (2008) Online players start using their puzzle-solving skills to optimize protein structures; eventually, their insights could help design new proteins to combat disease.

**CURING COLOR BLINDNESS IN MONKEYS.** (2009) Researchers used gene therapy to cure red-green color blindness in adult monkeys, a step toward genetic treatments for many eye diseases affecting the retina.

**CANCER VACCINE.** (2015) Researchers create a vaccine to boost immunity to HER2-negative breast cancer recurrence.

**EASIER FEEDING FOR BABIES.** (2017) A team, including PATH, Seattle Children’s and others, created a low-cost silicone NIFTY Cup for babies born prematurely or with oral clefts.

> Read more about our researchers’ innovations and collaborations, from safer football helmets to genome-sequencing software, at uwmedmagazine.org/invents.

**THE VIEW FROM THE GROUND**

You’ve probably heard about Accelerate: The Campaign for UW Medicine. That, together — friends, employees, organizations, alumni — we’re trying to raise $2 billion. To date, we are $1,874,559,466 of the way there.

That’s the bird’s-eye view. But we’d argue that the view from the ground is a much better view. Because that’s where we can see your generosity at work.

We see researchers burst with excitement when gifts allow them to pursue their ideas. We see the joy when our students hear they’ve been awarded a scholarship. And we see relief when the patients who need our help the most learn their hospital bill is covered.

Does the big number matter? You bet it does. But what you care about — what you give during the Campaign — changes lives. Every day.
WHY ARE BLACK WOMEN DYING?

Kemi Doll, M.D., is partnering with cancer patients to address racial biases in medicine »
“It’s fascinating how much history you learn in medical school,” says Kemi Doll, M.D., MSCR, UW assistant professor in the Department of Obstetrics and Gynecology. But that history generally doesn’t include the legacy of institutional racism and its effects on patient care — and without that context, Doll argues, it’s hard for doctors to address health equity.

“We don’t learn the ways in which medicine has had all of these wrong ideas about race, and therefore we’re not able to develop that kind of questioning muscle in ourselves — and without that, you don’t get creative about solutions,” she says.

Doll knew from a young age that she wanted to be a doctor, but it wasn’t until her residency at Northwestern University’s Feinberg School of Medicine that she decided to specialize in gynecologic oncology.

“I loved connecting to the patients, the intensity of the relationships. Gynecological cancer is about the woman’s entire relationship with her reproductive life,” says Doll. “I couldn’t imagine anything else that would be as rewarding and nourishing to my spirit.”

Yet her experiences as a resident at Chicago hospitals revealed a stark imbalance in how patients of different backgrounds are treated. “The systems can be so different for people, even though the diseases are the same,” says Doll. “It influences everything about a woman’s experience: symptoms, care, delivery and outcomes.”

After medical school, Doll earned a master’s degree in clinical research through a postdoctoral research fellowship in cancer care quality at the University of North Carolina. While analyzing Medicare and Medicaid populations, Doll noticed major disparities in patient outcomes that weren’t attributable to insurance coverage.

She found the largest disparity in uterine cancer. Most women with endometrial cancer — the most common type of uterine cancer — are diagnosed at an early stage and are treated effectively, leading to an overall five-year survival rate of over 80 percent. However, African-American women across every educational and income level have a much lower chance of receiving that critical early diagnosis, resulting in thousands of preventable deaths each year.

“Endometrial cancer is the most common gynecologic cancer; 1 in 37 women get it,” says Doll. “But there’s not a single study where we’ve even talked to Black women about their experiences with it, and how their experiences may differ from everyone else’s.”

Doll joined UW Medicine with an innovative strategy for eliminating the racial mortality gap in endometrial cancer. Her 360-degree approach tackles the problem on multiple fronts: healthcare delivery, patient education, provider training and, importantly, community partnership.

Part of bringing women’s voices into cancer care means listening to patients tell their stories. To achieve this goal, Doll is partnering with Bridgette Hempstead, who has led a Seattle-based African-American breast cancer support group called Cierra Sisters for 20 years.

“It was important to me to have a member of the community represented in my work,” says Doll. “We have this wonderful partnership where she is doing the patient interviews, and the data coming out is just so much richer.”

**FIVE YEARS OUT: Race matters to survival in the U.S.**

Five years after diagnosis, more Black women than White will die of endometrial cancer.

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<th>Mortality Rate of Black Women</th>
<th>Mortality Rate of White Women</th>
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Yet that’s the reality for many African-American women with endometrial cancer. Black women have a 55-percent higher mortality rate after diagnosis than other groups of women. And understanding why means asking some hard questions about health equity.
Advocacy is integral to Doll’s approach. She is developing the Endometrial Cancer Action Network for African-American women (ECANA), an organization that will unite cancer survivors, researchers, clinicians and healthcare advocates to collaborate on treating endometrial cancer. Doll envisions it as a hub for patients to connect with each other and with researchers, breaking down the historical walls of distrust and distance.

“There has been no voice for these women,” says Doll. “And yet they are here, ready to partner and ready to understand what’s going on.”

Margie Willis is one of those women. She was diagnosed with endometrial cancer in 2016 and saw Doll for chemotherapy. After her treatment was complete, she joined ECANA as a patient advocate. “She was like a breath of fresh air,” says Willis. “Dr. Doll wants to get ideas, information and thoughts from actual patients. That’s why I was excited to be part of her research.”

Doll’s work at UW Medicine is just beginning, and eventually, she hopes to close the gap in racial disparities in endometrial cancer. In time, she wants to create a model for improving health equity in other areas of care, too. “The concepts and approaches are universally applicable,” she says.

“There’s so much to be done to educate the research community about how we deal with issues of race and racial discrimination, and how we study these kinds of health outcomes,” says Doll. “Let’s pull out the things that are impacting this community negatively — the areas of ignorance and bias — and build solutions.”
A rodeo-champion-turned-medical-student looks forward to practicing in her home state of Montana
The working day begins at sunrise on a family ranch in northeastern Montana. There are horses to feed, cattle to graze and the garden to tend. Weekday or weekend, there’s plenty of work to be done, and everyone is expected to help.

Justinn Lahaye grew up here. It’s where she learned to ride horses and rope calves. But today, she’s more of a visitor. Because today, she’s a busy and ambitious third-year student at the UW School of Medicine.

“My parents work hard, and it’s motivated me to do the same in every aspect of my life,” says Lahaye.

Life-or-death Struggles

Ranch life is unabashedly tough and unpredictable. Before Lahaye was born, the ranch flooded; this past year, there was a drought. The work is constant, and the animals get sick. Some days, it’s a life-or-death struggle.

Unfortunately, life-or-death matters have been a constant presence in Lahaye’s life. Her father, Dale Marshall, has been sick as long as she can remember. She was 2 when he was diagnosed with leukemia, and even though a bone marrow transplant cured the cancer, that wasn’t the end of his medical troubles. He had a heart attack when Lahaye was in high school. A sextuple coronary bypass surgery followed, and, a few years later, kidney failure.

Throughout her father’s health issues and the challenges of ranching life, working with horses was a comfort to Lahaye. “I grew up with them, almost like siblings,” she says. From junior high school on, Lahaye participated in rodeo, eventually making national finals and putting herself through college with scholarships.

Lahaye says ranch life and rodeo taught her discipline, teamwork and the value of persistence. “Hard work can get you a lot of places,” she says.
From Montana to Medical School

Lahaye was always interested in a career in medicine; her mother suspects that it was all those hours she spent with her dad at medical appointments. She was in college when she realized she truly wanted to become a doctor.

There were hurdles to overcome. For one, there was the question of money. Rodeo and academic scholarships had gotten Lahaye through college, but now she would have to take out student loans. Fortunately, she also received scholarship funds from the Friends of the UW School of Medicine, which eased the financial burden somewhat.

Her father was also a consideration. Despite her dad’s worsening health, Lahaye’s parents supported her decision to apply to medical school. When he was hospitalized with kidney failure, she had to leave his bedside to attend her medical-school entrance interview in Bozeman, hundreds of miles away.
“It was really hard, knowing that my dad’s health was poor and I wasn’t able to come home and help as much as I used to,” she says.

Lahaye worried about the future of the family ranch, too. It had always been assumed that she would take over from her parents one day, but medical school — and a career as a doctor — could take her far away from home. Together, the family rallied to find solutions, and Lahaye’s oldest sister and her husband agreed to move home to help their parents.

Now, their three children are growing up on the ranch, learning to ride and work the cattle, and Lahaye teaches them riding and roping skills when she visits.

“I’m trying to pass on as much knowledge as I can about ranching and rodeo, because they are the next generation, and hopefully, one day, they’ll take over the ranch,” she says.
The Challenge of Rural Medicine

For Lahaye, who grew up inspired by the family doctor’s connection to rural communities, the UW School of Medicine’s WWAMI program was a perfect fit.

This five-state medical education program emphasizes educating students from the region — Washington, Wyoming, Alaska, Montana and Idaho — for the region. Founded in 1971, the program is a response, in part, to the growing need for doctors in rural and other underserved areas. Students are exposed to medical care in all sorts of situations: from the tiniest clinic in rural Alaska to large urban hospitals.

Following 18 months of classroom work, students like Lahaye start rotating through various sites, learning about different medical disciplines, meeting patients and getting to know the community. Lahaye has been on rotations since early 2017. She also took part in the WRITE (WWAMI Rural Integrated Training Experience) program, which offers additional training in a rural setting.

One of Lahaye’s rotations took place at Frances Mahon Deaconess Hospital in Glasgow, Montana — the same place where she was born. Under the guidance of her preceptors, she helped treat patients while learning about family medicine, internal medicine, OB-GYN, psychiatry and pediatrics.

“Justinn has a good rapport with patients; people like to talk to her,” says Anne Millard, M.D., one of her preceptors. “They will tell her things that they might not tell somebody else — including me.”

Millard is all too aware of the physician shortage in rural areas like hers. “Our biggest issue is keeping doctors,” she says. “They’ll come out here for a couple of years, and then they leave. It’s not a lifestyle everybody wants.”

Moving a family here can be difficult, as career opportunities for spouses — outside agriculture — are limited. And with fewer specialists in rural areas, doctors sometimes feel overwhelmed at the wide range of medical issues they manage.

But, Millard adds, there are compensations. “This is a very tight community, as most rural communities are. People help each other and take care of each other.” She hopes that, after Lahaye graduates from medical school and completes her residency, she’ll come back to work at the clinic.
“The fact that she’s willing to come back to a rural area and do this kind of medicine is just wonderful,” says Millard.

**Rural Living, Rural Doctors**

Although medical school doesn’t leave much time for riding, Lahaye stays connected by cheering on her husband, Kody, a professional rodeo competitor who coaches rodeo at Montana State University. And, after graduation, she’s looking forward to settling down permanently in a community like the one she grew up in.

“I’ve learned how important rural physicians are to these communities. People like my dad struggle with access to healthcare in rural Montana, and the growing physician shortage means it’s going to be harder to get the medical care you need,” she says.

“I want to be able to give back to those small communities,” says Lahaye. “I can help people like my parents and our neighbors continue to live the rural way of life.”

Watch Justinn Lahaye’s video uwmedmagazine.org/alahaye >

By Stephanie Perry
Photos: Kurt Wilson
A medical-school class that takes place in an art museum? That’s MED 556, “Visual Thinking: How to Observe in Depth.” In this 10-week elective course, supported by the Friends of the UW School of Medicine, medical students hone their clinical observation skills by looking at — and thinking about — works of art.

“It’s not based in art history or the name of the artist or the period,” says Tamara Moats, an art history teacher at the Bush School. “I choose works that offer a lot of detail to discuss...so that we can really spend a lot of time with the work and use it as a doctor would look at a patient.”

A decade ago, when Moats first approached UW professor and dermatologist Andrea Kalus, M.D., with the idea, only a handful of medical schools were teaching the Visual Thinking Strategies (VTS) method. Today, says Moats, around 70 universities offer similar programming.

First, students are introduced to the VTS using art slides. They describe what they see in detail, citing visual evidence in the artwork. They visit museums and journal.

Then they apply their new observation skills to medical slides.

“What we see greatly influences the care that we give,” says graduate Alison B. Herson, M.D. ’13. “I use VTS for everything from looking at a skin lesion to reviewing pathology and even interpreting a patient’s emotions.... I believe it’s made me a more critical observer and a better care provider.”

There’s proof to back up Herson’s assessment. In a Harvard study published in 2008, VTS-trained students made an average of five more observations on a visual skills examination compared to a control group — a 38-percent increase. Kalus suspects it also enhances important “soft” skills.

“We’re asking them to connect with emotional content, which develops emotional intelligence, resilience and empathy,” says Kalus. “Although that wasn’t our purpose at the beginning, I now recognize it as a valuable tool that the class offers students.”
NO TIME FOR CANCER
“You are not a statistic.”

Teri Pollastro slams the medicine ball hard onto the gym floor. “I pretend it’s my cancer,” she says.

Pollastro received her first cancer diagnosis just six weeks after giving birth to her second daughter. Her doctors told her she had a noninvasive form of breast cancer called ductal carcinoma in situ. After a mastectomy and immediate reconstruction, they thought she was cured. It was 1999.

After four years of being cancer-free, Pollastro received another cancer diagnosis: stage IV metastatic breast cancer — it had spread to her liver. In these cases, a patient’s average life expectancy is just three to four years.

At the time, Pollastro was 43 years old. Her two girls were 3 and 7. “I was devastated and in shock,” says Pollastro. “I never thought it would come back.”

As Long as Possible

After her first diagnosis, Pollastro sought a second opinion from UW Medicine oncologist Julie Gralow, M.D., director of breast medical oncology at Seattle Cancer Care Alliance (SCCA) and the Jill Bennett Endowed Professor in Breast Cancer. Impressed by Gralow’s approach, Pollastro transferred her care to UW Medicine.
“Right from the get-go, Dr. Gralow was extremely positive,” says Pollastro. “But she didn’t tell me I was going to be cancer-free. Instead, she was just very forthcoming with things I could do. I’ll never forget, one time she told me, ‘The statistics are not good, but you are not a statistic.’ When things got bad, I would play that tape in my head.”

Gralow says her approach is to plan for the worst, but hope for the best.

“Metastatic disease is treatable, but it’s not curable,” she says. “Any time a metastatic diagnosis of breast cancer is made, our primary goal shifts from a cure to maintaining a good quality of life for as long as possible.”

For Teri Pollastro, “as long as possible” has lasted more than a decade. And counting.

**Almost Miraculous**

Gralow started Pollastro on a milder form of chemotherapy known to work well with Herceptin, a drug for women with HER2-positive breast cancer.

After just two weeks of treatment, Pollastro felt much better. After eight weeks, her liver was so improved that doctors were calling her recovery “almost miraculous.” And after six months, Pollastro had only a little residual disease and was able to discontinue chemotherapy.

Pollastro knows she is an anomaly. It is far more common for metastatic cancer patients to continue chemotherapy for the rest of their lives, changing their treatment plans repeatedly as their cancers develop resistance.

With only a few spots of cancer left in her breast, Pollastro began searching for other treatments, including clinical trials. That’s when Gralow told her about an early-stage trial to test a vaccine for women with metastatic HER2-positive breast cancer. The trial was being led by Nora Disis, M.D., director of the UW Medicine Cancer Vaccine Institute and the Athena Distinguished Professor of Breast Cancer Research. Her immunotherapy research focuses on vaccines to prevent breast cancer and its recurrence.

To enroll, patients had to be in complete remission, with no evidence of disease. One year after her diagnosis, Pollastro qualified — and she signed up.

“I never thought it would come back.”
FROM FRINGE TO FRONTLINE

Can the immune system eradicate cancer? “That’s been the holy grail of cancer treatment,” says oncologist Nora Disis, M.D., FACP, the Athena Distinguished Professor of Breast Cancer Research.

Twenty-five years ago, when Disis started her career, it was also the source of doubt and mockery. “People would say, ‘Why are you even doing this?’” she recalls. “The immune system has nothing to do with cancer.”

Today, Disis is the director of UW Medicine’s Cancer Vaccine Institute and a highly respected researcher in tumor immunology.

“The initial question was, do human tumors stimulate the immune system? We found they do, at very low levels,” Disis says. “Then the question became, can we boost the immune response so it is capable of killing cancer in animals? Yes, we could. From there, we asked, why can’t we do this in people? And that’s when our clinical trials program took off,” she says.

Next, Disis plans to study the connection between inflammatory immunity and disease. She wants to develop a vaccine for obesity that will dampen the inflammation in the fat that leads to diabetes and hypertension. Sound far-fetched? Don’t bet on it.

A Vaccine in the Next Five Years

“Wouldn’t it be nice if, after you’re done having kids, you could get a vaccine that would reduce your risk of developing breast cancer?” asks Disis.

The trial that Pollastro enrolled in was the first Disis-led trial to test the HER2-positive vaccine with Herceptin. But like all early-stage trials, there were many uncertainties — including whether there would be any benefit to the people enrolled in it.

However, nine years after the trial, when Disis and her team followed up with trial participants, they found that over 50 percent of the patients, including Pollastro, were still alive and doing well. Patients receiving the standard course of treatment, by comparison, had an average survival of a little more than three years.

“Our ability to figure out how to use cancer vaccines and design them better has skyrocketed,” says Disis — a fact she attributes to breakthroughs happening across scientific disciplines.

“I do believe there will be a vaccine for breast cancer in the next five years,” she says.
No Time for Cancer

Pollastro has been on Herceptin, an immunotherapeutic drug, for many years now. She gets an infusion every three weeks, her blood tested every six weeks, and an annual scan to make sure Herceptin hasn’t weakened her heart. If this happened, she would have to discontinue therapy.

But Pollastro tries to leave most of the worrying to her doctors at UW Medicine.

“Between Dr. Gralow, Dr. Disis and Dr. Yeung, my surgeon, I feel like I have this great team,” says Pollastro. “They understand that I don’t have time for cancer. Cancer is a little piece of my life, but it doesn’t run my life.”

Pollastro keeps busy. She serves as an advocate in the national Translational Breast Cancer Research Consortium. And she meets with newly diagnosed breast cancer patients, many of whom have young families. But she doesn’t always share her own story. Instead, she listens to what the women need.

“When a woman is diagnosed with breast cancer, she needs a good support team, both from her family and friends and from her physicians. She needs to educate herself about her journey and how she’ll make choices about her treatments,” says Pollastro. “But most of all, she needs a cure. For patients with metastatic cancer, there is no cure, and people don’t understand that.”

Looking Forward

Pollastro’s husband, Gary, is usually the first in the Pollastro family to get up in the morning. Breakfast is important to the household. “We have the best conversations in the morning,” says Pollastro. The Pollastros chat with their youngest daughter, Joelle, about the colleges she might attend. The family dog, Pearl, lies patiently under the table and is eventually rewarded with a piece of ham.

Having stage IV cancer has crystallized what’s most important to Pollastro: her family. She’s grateful to her UW Medicine care team for the gift of time: being able to raise her girls and watch them turn into resilient, accomplished adults.

“I feel so lucky we have UW Medicine here, and that I was able to take advantage of a lot of the things they offered. I feel like everything they did helped. Every little thing,” says Pollastro. “And I feel hopeful,” she adds. “I want to keep moving forward.”

“I believe there will be a vaccine for breast cancer.”

Watch Teri Pollastro’s video uwmedmagazine.org/pollastro >

By Eleanor Licata
Photos: Doug Plummer
You can’t say, ‘he’s going to die’ to the family,” explains Anab Abdullahi. “If you’re a Muslim, you can’t say that. Because you’re not God, and you don’t know. Only God knows.”

In this case, though, the medical team did know. The 36-year-old Somali man, brain dead after a heart attack, would never wake up. Abdullahi coached his doctors through decision-making with his family members, thousands of miles away. She called the funeral home, the young man’s employer, his friends.

“As caseworkers-cultural mediators, we are the family,” says Abdullahi, who works for the Community House Calls program at Harborview Medical Center. “We hold their hands. We cry, deep down; we don’t show them our emotions. But we’re human beings. We can’t just be numb. This is the way I’d want to be helped if I were in their shoes.”

Beyond Interpretation

“While they interpret, they’re more than interpreters,” says Lea Ann Miyagawa, M.N., R.N. She’s talking about Abdullahi and her colleagues, the eight-person team that staffs the Community House Calls program at Harborview Medical Center. “We hold their hands. We cry, deep down; we don’t show them our emotions. But we’re human beings. We can’t just be numb. This is the way I’d want to be helped if I were in their shoes.”

The House Call

Cano, a Spanish-speaking diabetes navigator at Harborview, also makes house calls. Like the time she went to South King County to figure out why a patient was missing appointments and neglecting her medication.

When Cano visited the woman at home, everything became clear. It took the patient three bus rides to pick up medication. Her young daughter was autistic and had a very specific, school-related bus schedule; her mother had to work around it. And she was facing deportation. “I don’t have time for diabetes,” she told Cano.

“All these things are happening in our patients’ lives,” says Cano. “A lot of our patients are really unstable or the safety net is very thin, so one thing happens, and a person loses a job. Healthcare comes sixth on the priority list.”

Cano set to work to remove some of the hurdles. First, she told the patient about light rail, riding with her to the Tukwila stop. Now it would take less time to get to medical appointments and to the pharmacy. Then, a bit later, the two met up for lunch in Chinatown, talking about vegetables, diet and carbs. “It was a nutrition lesson, on the way to her bus stop, that didn’t feel like a lesson or appointment,” says Cano.

Still, there are some things even Cano can’t fix. The patient’s son, who was killed; the older daughter who was left behind in Central America. Ultimately, Cano hopes she gives her patients tools to help them live their lives, even with diabetes.

“You want someone to feel like they have control over their chronic disease, not that the disease has control over them,” she says.

Re-thinking Boundaries

Although some of Harborview’s patients face one or more barriers to care — a different language, poverty, transportation, homelessness, the threat of deportation — Cano, Abdullahi and their colleagues are there to help. They do so by being nimble and selfless. By listening. And by advocating for patients and their communities and providing culturally sensitive care.

“We can go beyond the boundaries of the consult room,” says Cano. “I think we make a difference.”
MAKING AN EVOLVING PROTEIN

Researchers at the Institute for Protein Design hope to create the future of drug delivery.
You probably shouldn’t compare a carefully engineered protein — one that made it to the pages of Nature not long ago — to a peanut M&M. Still, that’s how I started my interview with two of the lead authors on the Nature paper: Marc Lajoie, Ph.D., and Gabe Butterfield.

“Yeah, okay, maybe I would step that back,” said Butterfield kindly.

Butterfield is a Ph.D. candidate at the Institute for Protein Design (IPD) at the University of Washington; Lajoie is a post-doc. They both work in the lab of David Baker, Ph.D., and they and other researchers at the IPD design new proteins, not found in nature, to solve intractable problems in medicine and other fields.

“In their case, the intractable problem is delivering drugs — especially drugs with terrible side effects, like chemotherapies — to target disease more precisely and effectively, and with less harm to the patient.

“Drug delivery, in general, is a major limitation for medicine. Eight out of 10 of the top-selling drugs are biologics — made out of proteins. And all of them focus on extra-cellular targets,” said Lajoie.

Getting the drugs into cells, he says, is another thing entirely.

“If you could do that very well, that could change the world of drug development,” Lajoie said.

Like a Virus

But back to the beginning: to candy. I was trying to create a mental picture of a protein with the capacity to surround and package its own genetic material. It turns out that this protein does not look at all like an M&M. Rather, it has icosahedral symmetry — much like a soccer ball.

Making an icosahedral protein assembly was still a fairly new idea when Lajoie and Butterfield took on their project. Former student Jacob Bale, Ph.D., had recently figured out how to push enzymes together to form the shape. What interested several researchers at the IPD was that this newly manufactured icosahedral protein resembled something found in nature.

“It’s the shape of the most basic viral shells,” said Butterfield.

Viruses are expert at attaching to cells, breaking into them and taking them over. Which led to the question: could you take a protein shaped like a virus and make it act like a virus?

Could you borrow certain properties — surviving in blood circulation, getting into a specific cell, delivering cargo — that could work in drug delivery?

These are complex traits that are still difficult to rationally engineer.

So Lajoie and Butterfield did it by creating a protein with the capacity to evolve.

Evolution: The Best Engineer

“My old advisor used to use this analogy to smart phones,” said Lajoie. “They’re great because you can engineer every aspect of them, but they’d probably be a lot better if you could evolve them. Because the engineers can only make one of them. But, if you can make millions of them with evolving designs, you’re going to get one that’s faster and better.”

I asked them to break down the steps of their project for me, and Lajoie jumped up and started writing on the white board.

First, Bale used Rosetta software developed in Baker’s lab to design an icosahedral protein assembly from inert enzymes. Second, Butterfield and Lajoie introduced mutations so it would package its own genome. Third, they manipulated the protein to make it evolve into something tougher, with a stronger protein shell, capable of resisting degradation in blood and circulating for a longer time in mice.

A protein that can package its own genome, that can evolve — as a non-scientist, I couldn’t resist asking the pair to explain what differentiated their protein from something alive.

“That’s a loaded question,” said Butterfield. “Most scientists would say that viruses aren’t alive, and these proteins aren’t even viruses. They don’t have mechanisms to get into cells, they don’t have mechanisms to get out of cells, and they don’t have mechanisms to replicate on their own.”

So, these researchers stopped far short of creating a virus. And this protein is decidedly not alive. But they did create something special.

“That we were able to take these otherwise inert proteins, and create this autonomous system that can evolve with part of its life cycle inside a living mouse? That’s crazy,” said Lajoie.

Living to Work

This project took only three-and-a-half years. Or about eight-and-a-half years, when you count the truly foundational work done by IPD researchers Neil King, Ph.D., William Sheffler, Ph.D., ’09, and Bale.

“We made this thing that can package cargos, and it can circulate in mice,” said Lajoie. “So the next step that we’re really excited about is delivery.” To package therapeutic cargos. To target specific cells. And to deposit therapeutics inside those cells.

“To create something that has never existed before, that’s pretty cool. And the idea that it could actually solve medical problems one day is really exciting,” said Butterfield.

“I live to work,” admitted Lajoie. “The thing is, what else would I enjoy doing more? You get to discover new things that nobody ever knew, and then those new things can be useful for humanity.

“This is the best job in the world,” he said.

By Delia Ward
Eldon E. Lee, M.D. ’55, writes, “We are keeping the faith up here in B.C. My class members are all over 90 years old, and I turned 95 in May. I teach Attic Greek, ride my ATV and generally keep active with my wife of 65 years, six children, 11 grandchildren and six great-grandchildren. I think the UW has the greatest medical school in the world, and I am eternally grateful that they choose me to be a member of the fourth class.”

Terrance A. Chinn, M.D. ’70, recently won the most masterpoints (122.54) earned at the local club level in 2017 for Ruby Life Masters. He notes that lunchtime bridge in medical school with Dick Ferse, M.D. ’70, Stan Harris, M.D. ’70, Bob Johnston, M.D. ’70, and Gary Matsumoto, M.D. ’70, is finally paying off!

Charles Maas, M.D., Res. ’70 (pediatrics), writes, “Graduation from the pediatric residency program was a long time ago: 1970! After three years in Okinawa, I pursued a dual career in public health and pediatrics. Since it seemed impossible to do justice to both, I settled on general pediatrics, practicing in Visalia, California, for 12 years and then for nine years in San Luis Obispo. Thirty years later, I morphed into child psychiatry without a psych residency. For the last 17 years, I have worked in child psychiatry clinics in Sacramento and now in Yuba City. At nearly 78, I am working half-time and enjoying it still.”

Steven Alberts, M.D. ’90, writes, “Education at the University of Washington provided all of us with a solid foundation to build on and allowed me to become chair of the Division of Medical Oncology at the Mayo Clinic in Rochester, Minnesota, and to take on the role of deputy director for clinical research in the Mayo Clinic Cancer Center. At the same time, I am able to spend part of my time in a rewarding, demanding practice focused on gastrointestinal oncology. I have also been able to maintain my ties to Alaska through research and practice education directed toward cancer care in the Alaska Native population.”

Capt. Abhik K. Biswas, M.D. ’91, writes, “Still working as a pediatric intensivist at the Naval Medical Center in Portsmouth, Virginia, and at Cape Fear Valley Medical Center in Fayetteville, North Carolina. Also getting some flight time in with the critical care air transport team at Cape Fear. Now to work on the pilot’s license!”

Where UW School of Medicine alumni share stories and accomplishments. Submit a note at uwmedalumni.org/classnotes or medalum@uw.edu.
Edward Kelly, Ph.D. ‘96 (biochemistry), writes, “Since graduating from biochemistry, I completed a post-doc in molecular toxicology in the lab of our graduate-school dean (David Eaton). I then had a brief foray into the Seattle biotech scene (Targeted Genetics) before returning to the UW, where I am now an associate professor of pharmaceutics in the School of Pharmacy. My research is focused on preclinical biology and drug safety testing, developing ex vivo models as alternatives to animal testing. This includes a project jointly funded by NIH and NASA to send our kidney “chip” to the International Space Station, highlighted at the Northwest Kidney Centers’ annual gala.”

Dawanda Pesicka, PA-C (Seattle Class 35), recently ran the New York City Marathon, raising over $3,000 for Building Bridges Worldwide, a nonprofit that helps impoverished communities around the globe. It was her first marathon after completing several half-marathons. Next up: running a half in Scotland this spring. She works in a surgical subspecialty in Seattle.

Wendy Hofman, M.D. ‘04, writes, “My husband, Eric, and I have been full-time missionaries at a nonprofit hospital in Gabon (Africa) for the last eight years. I run the ophthalmology department and he runs the hospital accounting. Our hospital has other departments as well, has 159 beds and sees 40,000 patients a year. We do 70 percent of all the cataract surgeries done annually in Gabon. I have started an ophthalmology residency program (so far with one graduate and one current resident). Patients come from all over Gabon to see us, often traveling for days. We received a $600,000 grant from USAID to construct a new building, recently completed. The predominant language here is French. We raise our own support and often need donations of ophthalmic medical equipment and supplies. You can find us online at bongolohospital.org. When we first arrived in 2009, we had no kids; now we have three children, ages 6, 5 and 2, whom we homeschool.”

Meghan E. McGarry, M.D. ’09, was awarded a K23 Career Development Award from the National Heart, Blood and Lung Institute to study health disparities in Latino children with cystic fibrosis.

Margarita Shanks, PA-C (Seattle Class 42), writes, “Life since graduation has been wonderful — full of challenges and heartache, but also full of tremendous opportunities to serve others. I have been blessed to work as a family practitioner at Providence Urgent Care in Everett, Washington. In April, I traveled to Guatemala to provide medical care to the Chicaman Mayan-speaking population, a great opportunity through Faith in Practice International and Providence Hospital. In May, I went to Ecuador and Colombia again. I want to take this opportunity to say "thank you" to the UW School of Medicine’s MEDEX program for allowing this Central American girl to fulfill her dream of becoming a physician assistant. Your faith in me will not go unnoticed. Much love until we meet again.”

Capt. Abhik K. Biswas, M.D. ’91

Looking for your classmates?
All notes are published online at uwmedmagazine.org/classnotes.
Q & A WITH BENJAMIN W. SLIVKA

Chair, Promise of Protein Design Campaign Council
Trustee, Wissner-Slivka Foundation
Formerly of Microsoft Corp., Amazon.com

Tell us about Internet Explorer.
In 1994, I decided Microsoft needed to build a web browser. Many people at Microsoft felt the Internet was a threat to Windows and Office — which it was — and my effort was unpopular. Fortunately, the leaders of my group shared my views, so they supported my efforts to build the first three versions of IE.

What are the benefits to being a rule-breaker?
Well, there are mostly disadvantages to challenging the status quo! Human beings — and the cultures and organizations they create — love rules.

What interests you about the Institute for Protein Design (IPD)?
Most of the drugs available today were stumbled upon — natural molecules that happen to address some medical need. The promise of protein design is the ability to use software to quickly design proteins to solve problems which nature has never solved.

What do you hope your gift to the IPD will do?
David Baker’s work at IPD is a perfect match for me and my wife, Lisa: it’s a combination of sophisticated, ever-evolving software with the latest wet lab techniques. We made unrestricted gifts because those are the most difficult to raise.

What could machine learning bring to protein design?
IPD research projects start with theories, and each involves exploring millions or billions of possible solutions via software. Wet lab testing verifies the design. But our protein “rule book” is far from complete, so protein design today is very limited and very slow. Machine learning should allow us to speed up the learning cycle dramatically, allowing us to flesh out our “rule book”.

As our protein “rule book” improves, what happens?
It will allow us to design proteins that are inconceivable today. We will be able to design a universal flu vaccine, or a drug that targets and kills only cancer cells. And instead of hunting around in nature for decades, these designs could be created and verified in weeks.

Words to live by?
Ask for forgiveness, not permission.
Swirling skirts, fiddles, stamping feet: in the fall issue, we explore the touching connection between square dancing and Alzheimer’s research at UW Medicine.
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