

A MATTER OF DEGREE

More doctoral alums—like Natalya Gertsik, PhD '16—are pursuing fields beyond the bench. And the graduate school is helping them get there





Alumni Welcome New Students to Campus

On August 18th, the Weill Cornell Medical College Alumni Association hosted its third annual Alumni and Students Reception during new student orientation week. The event was a wonderful opportunity to introduce the next generation of Weill Cornell Medicine physicians to the alumni network and welcome them to campus. The Alumni Association was pleased to have an excellent turnout from the Class of 2020, as well as a number of alumni and faculty who welcomed this newest group of Weill Cornell Medicine students.

Spencer Kubo, MD '80, former president of the Alumni Association, gave a warm welcome to the first-year medical students. He shared a little of the Alumni Association's history, highlighting the many ways in which the association engages and supports students at the institution.

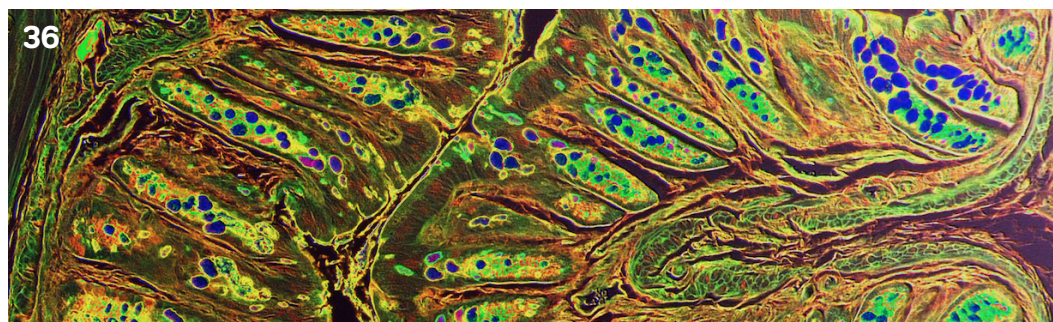
Join us for our next event!

To become more involved with the Alumni Association, please visit

alumni.weill.cornell.edu/programs-events
or contact Vanessa Ball,
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FEATURES

22 **BROADER HORIZONS: NEW OPPORTUNITIES FOR PHDS**

HEATHER SALERNO

Increasingly, as opportunities for postdoctoral and faculty positions have become more competitive, the Graduate School of Medical Sciences is addressing the need to prepare students who want to pursue jobs outside academia. In recent years, it has introduced classes on entrepreneurship, enabled internships, and actively recruited guest speakers to discuss a variety of career options. And perhaps just as importantly, administrators and instructors are offering more open support and encouragement to anyone considering an alternate path.

28 **TRAINING & TEACHING: IMPROVING NEURO CARE IN TANZANIA**

PHOTOS BY ANDRÉ LIOHN

Tanzania, a nation of more than 44 million people, has very few neurosurgeons—just eight at last count. So since 2008, professor of neurological surgery Roger Härtl, MD, has been leading annual, weeklong trips with the aim of improving the East African country's neurosurgical care. But unlike many medical missions, the trips aren't geared toward performing as many procedures as possible. Rather, they're all about training the brightest local neurosurgeons, as well as teaching other physicians to provide basic neurosurgical care.

36 **INNER CALM: GREAT STRIDES IN IBD TREATMENT AND RESEARCH**

ANNE MACHALINSKI

The treatment of conditions like Crohn's disease and ulcerative colitis has improved in recent years. At the forefront of this revolution are the Jill Roberts Center for Inflammatory Bowel Disease and its scientific partner, the Jill Roberts Institute for Research in Inflammatory Bowel Disease. Together, these programs work with WCM surgeons, geneticists, rheumatologists, nutritionists, and others to tackle the often debilitating conditions known as IBD. Says Ellen Scherl, MD, the Center's director: "This entire institution has mobilized to care for the diverse community of patients living with IBD and to cure these diseases."

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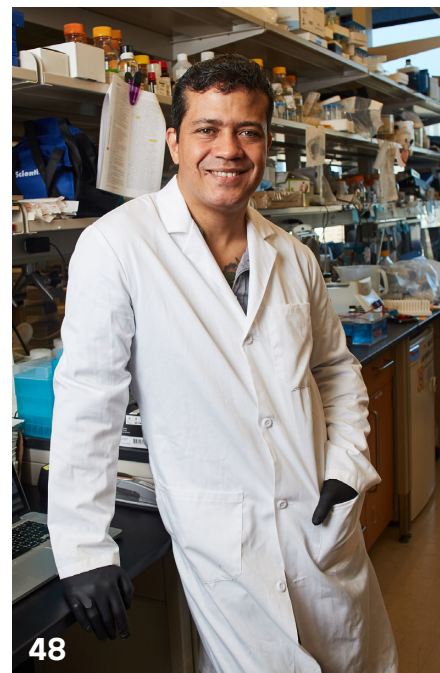
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3 DEAN'S MESSAGE

Comments from Interim Dean Augustine M. K. Choi, MD

4 ALUMNI GIVING AT WEILL CORNELL MEDICINE

6 SCOPE

A "Bridge" to drug discovery. *Plus:* New overseers, a major gift for immunotherapy, cancer metabolism study, dual MBA-MS degree, WCM tapped for national Precision Medicine Initiative, NYP remains best in New York, new award honors former Dean Glimcher, optimizing cancer care, and Bibliowicz writes in *The Hill*.

10 LIGHT BOX

For the Class of '20, a white-coat welcome

12 TALK OF THE GOWN

Robotic cardiac surgery. *Plus:* Community Clinic turns ten, alum's book explores "miracles," a well-matched pair of genomics researchers, and a documentary immortalizes a departed surgeon.

42 NOTEBOOK

News of alumni

47 IN MEMORIAM

Alumni remembered

48 POST DOC

#WeAreWCM: From detective to aspiring physician-scientist

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Augustine M. K. Choi, MD
Interim Dean of Weill Cornell Medicine

The Power of Choice

MD and PhD degrees lead to increasingly varied careers



Anyone who receives one—or both—of these degrees develops a rich and diverse skillset through their training, which is sure to enhance their professional identity and the results of their work, whether or not it occurs in the usual places.

This fall, a new class of students began their studies at Weill Cornell Medical College and the Weill Cornell Graduate School of Medical Sciences. Regardless of what advanced degree they're working toward or what discipline they've chosen to pursue, all of them are embarking on a journey that will provide them with diplomas that are among the most flexible they can attain. This flexibility is important, because while today many of these students plan on becoming physicians, scientific researchers, or teachers—all essential and deeply rewarding professions—statistics show us that some of them will enter related but different fields.

After graduation, some of these students will opt to travel to a developing country and treat patients with infectious diseases or train local physicians. Although this field, called global health, was just a buzzword a few decades ago, today it is a robust and in-demand discipline that incorporates many departments at academic medical centers, including our own. Other students who see the way in which disadvantaged patients with chronic and complicated conditions can fall through the cracks will vow to improve some aspect of the healthcare system, and pursue a career in policymaking or governmental affairs. And other students will be driven to develop less invasive diagnostic tests or find new therapies to treat patients with diseases like cancer or heart disease or diabetes, and go into biopharmaceutical development or become entrepreneurs. All of these career paths—whether they continue inside academic medical centers or in other professional environments—lead to tangible improvements in people's daily lives and health, and demonstrate the utility of the MD or PhD far beyond their traditional applications. This flexibility defines the twenty-first-century physician and scientist, and amplifies their reach.

Anyone who receives one—or both—of these degrees develops a rich and diverse skillset through their training, which is sure to enhance

their professional identity and the results of their work, whether or not it occurs in the usual places. For example, the empathy and compassion that physicians bring to daily interactions with their patients enables them to ask key questions and make thoughtful, impactful recommendations in contexts outside the doctor's office or hospital, such as government. The curiosity, analytical skills, and perseverance that drive scientists to explore the unknown can serve them well if they decide to work in therapeutics and technology development, which thrives on its practitioners' ability to take risks.

In this issue, we provide compelling examples of how flexible MD and PhD degrees can be in the real world. In our cover story we meet Natalya Gertsik, PhD '16, an associate for the global management consulting firm McKinsey & Co., who is focused on the growth of biomedical companies—plus others who have launched careers in fields like healthcare communications. In a photo feature, we explore how Roger Härtl, MD, professor of neurological surgery, brought his empathy to Tanzania, where he and WCM colleagues train local neurosurgeons in the latest techniques. And in a story covering advances in inflammatory bowel disease, we see how an interdisciplinary team of clinicians, researchers, physician scientists, and others in fields like genetics and nutrition have made connections between their respective foci of expertise to advance IBD therapies and improve patient care by moving from the bedside to the bench and back again swiftly and seamlessly.

Here at Weill Cornell Medicine, we believe that the earlier students determine what path they'd like to pursue, the better the position they'll be in to find the career that is right for them. As an institution, we're committed to train, encourage, mentor, and support students as they pursue the path that's right for them, so they're catapulted into successful, enduring, and meaningful careers that benefit patients around the globe.



Weill Cornell
Medicine

Alumni Giving at Weill Cornell Medicine





The Weill Cornell Medicine alumni – 5,800 in total – are some of the most passionate advocates for the institution and also some of its most loyal supporters. In the past five years alone, the alumni have donated nearly \$10 million. Their support has been extensive and broad-based – bolstering efforts in research, clinical care and medical education.

“Our alumni are committed to staying connected and keeping this institution strong,” says Stuart Mushlin, MD ‘80, president of the Weill Cornell Medical College Alumni Association.

During the past few years, alumni donations toward the scholarship endowment have skyrocketed. It is, in part, because of this ongoing alumni commitment that Weill Cornell Medicine students graduate with less debt as compared to their peers.

But scholarship funding is only one critical part of alumni giving. Weill Cornell Medicine alumni have given in areas across the board. One example of this is the Paul F. Miskovitz ‘75 Stethoscope Fund for Medical Students. Started in 2009 by The Buster Foundation, this fund provides a stethoscope to every incoming student – given to him or her at the White Coat Ceremony during the first week of school. In total, nearly 400 alumni have contributed to this fund, which has raised \$180,000.

“There is nothing quite like receiving your first stethoscope – it’s so empowering,” says Raul Martinez-McFaline, student representative to the Board of Overseers. “And knowing that it was given to you from someone who once stood in your shoes makes it even more meaningful.”

Whether supporting the groundbreaking work at the Belfer Research Building, the clinical expertise of the faculty, or educational opportunities for the healthcare leaders of tomorrow, Weill Cornell Medicine alumni continue to make this an even stronger institution every day.

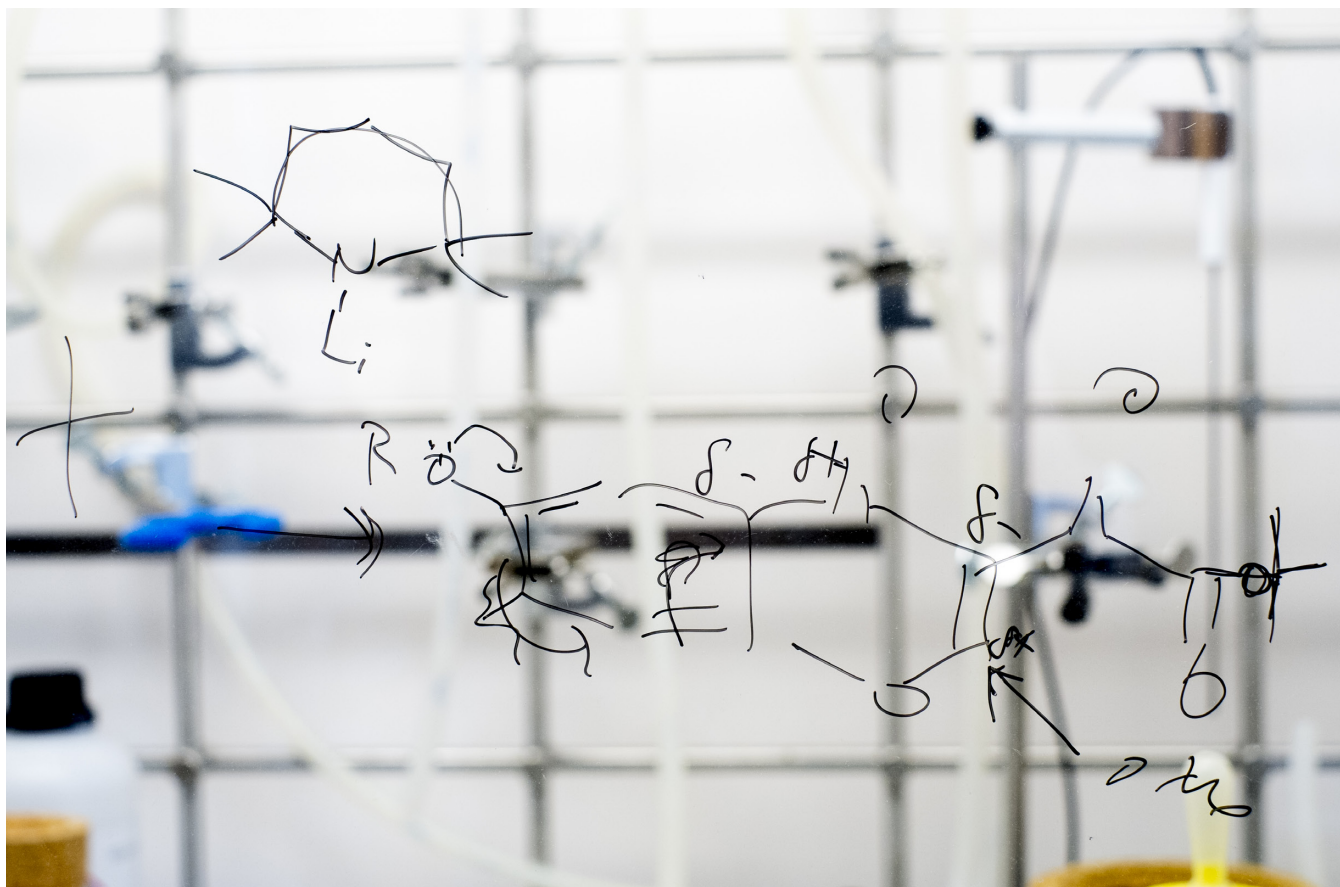
“Our alumni are a critical part of what makes this institution thrive,” says Augustine M.K. Choi, MD, Interim Dean for Weill Cornell Medicine. “We are so proud of everything they have accomplished – and so grateful for their generosity.”

**“There is
nothing quite
like receiving
your first
stethoscope –
it’s so
empowering.”**

Raul Martinez-McFaline,
student representative to the
Board of Overseers

**To support critical research initiatives at Weill Cornell Medicine, please contact:
Lucille Ferraro, Campaign Director, 646-962-9491 or luf2003@med.cornell.edu**

Bridge Medicines Drug Discovery Company Launched



Weill Cornell Medicine, Memorial Sloan Kettering Cancer Center, and The Rockefeller University have established a new drug discovery company. Called Bridge Medicines, the initiative builds upon the work of the independent, nonprofit Tri-Institutional Therapeutics Discovery Institute (Tri-I TDI), which has some fifty early-stage drug discovery projects in progress in such areas as infectious disease, oncology, and neuropsychiatry.

Launched in collaboration with Takeda Pharmaceutical Company Ltd. and venture capital firms Bay City Capital and Deerfield Management, Bridge Medicines completes an unbroken, fully funded, and professionally staffed path from concept to drug candidate. Tri-I TDI projects will be able to graduate to Bridge Medicines, where they'll receive financial, operational, and managerial support to move seamlessly from a proof-of-concept study to a human clinical trial. "The launch of Bridge Medicines is a truly exciting development in New York's biotechnology space," says Michael Foley, PhD, Sanders Director of the Tri-I TDI. "We're tapping into the distinguished talent at Sloan Kettering, Rockefeller, and Weill Cornell Medicine and offering entrepreneurs access to support what's next in biopharmaceuticals. Bridge Medicines will enable us to advance

promising projects farther down the development pipeline, providing new therapies to patients as quickly as possible."

Any project that enters Bridge Medicines will receive funding to develop an investigational new drug (IND) application and submit it to the FDA. Once a project receives IND certification, Bridge Medicines can establish and fund New York-based biopharmaceutical companies to manage individual projects, advancing them to clinical trials. These companies would have the autonomy to chart their own paths, which could include raising additional funds to support research on related targets, or selling or licensing the intellectual property to another biopharmaceutical company to complete the development process. Principal investigators could continue on as equity stakeholders in the new companies, or opt out of Bridge Medicines and pursue other means of developing their discoveries. "Bridge Medicines doesn't want to hold onto projects," Foley says. "It wants to spend one or two years in further development, adding more value, further de-risking, and meeting the needs of patients to improve the odds of success for new therapeutics while simultaneously building a vibrant biotechnology sector in New York City."

PHOTO: MARIO MORGADO/THE ROCKEFELLER UNIVERSITY

Two Campuses to Study Cancer Metabolism

A collaboration between WCM and the College of Engineering on the Ithaca campus aims to understand the mechanisms behind how breast cancer develops, spreads, and responds to therapy. Established with a grant from the National Cancer Institute that could total \$9.3 million over five years, the Center on the Physics of Cancer Metabolism will harness the strengths of interdisciplinary research groups on both campuses. The project is led by Claudia Fischbach-Teschl, PhD, associate professor of biomedical engineering at Cornell, and Lewis Cantley, PhD '75, the Meyer Director of the Sandra and Edward Meyer Cancer Center at WCM. Over the next five years, it will focus on three areas: the mechanisms that regulate tumor metabolism and how obesity affects the process; how membrane-surrounded vesicles produced by tumor cells affect their behavior; and the physical and metabolic constraints influencing tumor cell migration. "There's an opportunity to understand how to prevent metastasis from occurring," Cantley says, "but even if we don't cure cancer, we're going to learn a lot from each other."

Five Join Board of Overseers

Five new members have been elected to three-year terms on the Weill Cornell Medicine Board of Overseers, taking office as of July 1, 2016.

Lewis Cantley, PhD '75, is the Meyer Director of the Meyer Cancer Center at Weill Cornell Medicine and a professor of cancer biology in medicine. A world-class expert on cancer metabolism, he has won numerous major awards including the inaugural Breakthrough Prize in Life Sciences and the Wolf Prize, considered the Nobel of Israel. He joins the board as the full-time faculty representative.

David Cohen has more than twenty-five years of experience in investment banking and private equity. A trusted advisor to industrial companies and leading private equity firms, he is a partner in Centerview Partners LLC and has participated in such notable transactions as Clearwire's sale to Sprint and News Corporation's separation of its publishing business from its entertainment operations. He holds an MBA with distinction from the Wharton School.

David Fischell '75, PhD '80, is an inventor and serial entrepreneur, having founded fourteen biomedical device companies in the last twenty years including Angel Medical Systems, in the final stage of FDA approval for an implantable heart attack detection and patient alerting system. An undergraduate alumnus of Cornell, he also holds a PhD in applied physics from the Ithaca campus. He is a Cornell emeritus trustee and chairman of the advisory board for the Cornell Meinig School of Biomedical Engineering.

Stuart Mushlin, MD '73, is the Master Clinician in Internal Medicine and Primary Care at Brigham and Women's Hospital and an assistant professor of medicine at Harvard Medical School. Previously, he practiced internal medicine and rheumatology in Stamford, Connecticut. Recognized as one of America's Best Doctors for nearly two decades, he joins the board as the new president of the Weill Cornell Medical College Alumni Association.

David Roberts has been involved in the investment business for more than thirty years. A lifelong New Yorker and a *summa cum laude* graduate of the Wharton School, he's currently head of strategy at Angelo, Gordon & Co., as well as CEO of AG Mortgage Investment Trust Inc. and lead director of PRA Group, both publicly traded companies. His other philanthropic work includes serving as chair of the board of trustees of the Riverdale Country School and chair of the board of overseers of the University of Pennsylvania's Graduate School of Education.



Gary and Ellen Davis

Davis Gift Drives Immunotherapy at WCM

With the goal of advancing a powerful cancer treatment strategy that uses immune cells to fight the disease, benefactors Ellen and Gary Davis have generously made a \$2 million gift to Weill Cornell Medicine to drive ongoing research in immunotherapy.

This significant, foundational gift will launch the Ellen and Gary Davis Immune Monitoring Core, a critical research infrastructure that will serve as a repository for patient tumor samples, genomic sequencing and bioinformatics. The core will analyze and provide centralized, sensitive and quantitative patient data that investigators can use to advance their research into immunotherapy. The gift lays the cornerstone for further expansion in immunotherapy research and strengthens WCM's position as a leader in the development of powerful new weapons in the fight against cancer. A portion of the gift will fund research collaborations between investigators at WCM, Cornell University, and Cornell Tech, strengthening the critical bridges between New York and Ithaca. "We are extremely grateful to Ellen and Gary, whose strategic gift establishes an important foundation for immunotherapy research that is befitting of the treatment's promise," said Jessica Bibliowicz, chairman of the WCM Board of Overseers. "Ellen and Gary's generous support will augment our growing immunotherapy program, bolster our rich research communities at Weill Cornell Medicine and Cornell University, and bring us closer to eliminating cancer."

The Davises have a legacy of philanthropy at Cornell, including endowing the Gary S. Davis Professorship of Government, the Gary and Ellen Davis Curator of Photography at the Herbert F. Johnson Museum of Art in Ithaca, and establishing a joint fellowship at the Meinig School of Biomedical Engineering and WCM to advance research into epilepsy. "Immunotherapy represents one of the most exciting avenues of investigation for fighting cancer," said WCM overseer Ellen Davis and Cornell University trustee and alumnus Gary Davis. "We are proud to be able to make this important investment, empowering Weill Cornell Medicine and its unparalleled oncology program, led by Dr. Lewis Cantley, as well as the distinguished investigators at Cornell in Ithaca and engineers at Cornell Tech, to realize the promise of immunotherapy."

TIP OF THE CAP...

Christopher Barbieri, MD, PhD, assistant professor of urology, and **Heather Yeo, MD**, assistant professor of surgery and of healthcare policy and research, winners of Damon Runyon Cancer Research Clinical Investigator Awards.

Roy Gulick, MD, chief of the Division of Infectious Diseases and the Rochelle Belfer Professor in Medicine, named chair of the NIH Office of AIDS Research Advisory Committee.

O. Wayne Isom, MD, the Terry Allen Kramer Professor of Cardiothoracic Surgery, honored with a lifetime achievement award from the New

York Society of Thoracic Surgeons.

Dan Landau, MD, PhD, assistant professor of medicine and of physiology and biophysics, and **James Lo, MD, PhD**, assistant professor of medicine, winners of Young Physician-Scientist Awards from the American Society for Clinical Investigation Council.

Geraldine McGinty, MD, assistant professor of clinical radiology, winner of the J. Arliss Pollock Memorial Award from the American Society of Neuroradiology for her work on socioeconomic issues in neuroradiology.

Kate Meyer, PhD, a recent postdoc in the lab of pharmacology professor Samie Jaffrey, MD, PhD, winner of a Tri-Institutional Breakout Award for Junior Investigators.

Arash Salemi, MD '97, associate professor of cardiothoracic surgery, appointed president of the New York Society for Thoracic Surgery. He previously served as its vice president.

Philip Wilner, MD, professor of clinical psychiatry, given a lifetime achievement award from Planetree for "his tireless work to bring humanity and a holistic approach to behavioral health."

CU and WCM Launch MBA-MS Degree



Rainu Kaushal, MD

Applications are being accepted to a new dual degree program in business and healthcare leadership, to be offered by WCM and the Ithaca campus's Johnson Graduate School of Management starting in fall 2017. Participants will receive a master of science degree from the Weill Cornell Graduate School of Medical Sciences and an executive MBA from Johnson. It is expected to educate leaders of academic medical centers, community hospitals, group practices, and health insurers, among others. "Through this exciting new program, we hope to educate qualified candidates in healthcare leadership to improve lives in a changing medical environment," says Rainu Kaushal, MD, chair of the Department of Healthcare Policy and Research.

New Award Honors Laurie Glimcher, MD

Board of Overseers chairman Jessica Bibliowicz and her husband, Natan Bibliowicz, have established an award in honor of former dean Laurie H. Glimcher, MD. The prize will be given annually to recognize efforts at WCM to mentor women in the medical sciences, a cause that Dr. Glimcher has long championed. Professor of Medicine Dan Fitzgerald, MD, who co-directs WCM's Center for Global Health, is the first recipient. Dr. Fitzgerald is an internationally recognized leader in global health and infectious diseases, primarily in HIV infection and tuberculosis. A major focus of his work has been health disparities between women and men, especially in resource-poor nations.

NYP Again Named Best in New York

For the sixteenth consecutive year, *U.S. News and World Report* has ranked WCM's clinical partner NewYork-Presbyterian as New York's number one hospital in its annual survey. It rated NYP as sixth in the U.S. and put the hospital on its prestigious Honor Roll, which recognizes national excellence in multiple specialties. NYP ranked in the top five in six specialties: cardiology and heart surgery, diabetes and endocrinology, nephrology, neurology/neurosurgery, psychiatry, and rheumatology. Another of WCM's academic partners—Houston Methodist Hospital—also made the Honor Roll. It was named the best hospital in Texas for the fifth year in a row, and nineteenth best in the U.S.

WCM Tapped for Cancer Care Model Program

The Centers for Medicare & Medicaid Services has selected WCM, NewYork-Presbyterian, and Columbia University Medical Center to participate in a care delivery model that encourages higher quality cancer treatment. The institutions join nearly 200 physician group practices and seventeen health insurance companies participating in the Medicare arm of the Oncology Care Model, which will cover some 155,000 Medicare beneficiaries nationwide. The model encourages practices to improve care and lower costs through episode- and performance-based payments that reward high-quality care.

WCM Plays Key Role in Precision Initiative

With an initial \$4 million grant from the NIH, WCM and several partners will participate in a large-scale research effort on ways to prevent and treat disease based on individual differences in lifestyle, environment, and genetics. The WCM project—being conducted in collaboration with Columbia University Medical Center, NewYork-Presbyterian, and NYC Health + Hospitals/Harlem—will enroll participants in the Cohort Program of President Obama's Precision Medicine Initiative. Overall, the Cohort Program aims to engage a diverse group of 1 million or more U.S. volunteers nationwide, who will agree to contribute their health data over many years. "This grant will enable us to detect and delineate the key genetic drivers of disease across the diverse population of patients we serve," says Mark Rubin, MD, director of the Englander Institute for Precision Medicine and the Homer T. Hirst III Professor of Oncology in Pathology at Weill Cornell Medicine, "and move us closer to fulfilling the promise of precision medicine."

Chairman Bibliowicz Pens Precision Medicine Essay

In September, the political news source *The Hill* published an op-ed by Jessica Bibliowicz, chairman of the Board of Overseers. Headlined "Why We Need Precision Medicine—Now," the essay made the case for efforts such as President Obama's Precision Medicine Initiative and work like that at WCM's Englander Institute for Precision Medicine, and encouraged the biopharmaceutical industry to get more heavily involved in the field.

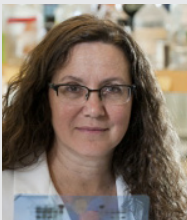


Jessica Bibliowicz

"The goal of precision medicine is simple: to offer individual patients exactly the right medical care at the right time, by taking their genes, lifestyle, and environment into account," she wrote. "However, making that vision a reality will require a significant investment of brainpower, technology, and capital."

FROM THE BENCH

\$1 Million from NIH for Rapid Cancer Test



ETHEL CESARMAN, PHD

A four-year, \$1 million NIH grant will help refine the technology for a quick, in-the-field diagnosis of Kaposi's sarcoma (KS), a cancer frequently related to HIV infections. The award went to researchers—from WCM; Cornell University; the University of California, San Francisco; and Uganda's Infectious Diseases Institute—who are working on a solar-powered system that will allow medical technicians to obtain biopsy samples in the field and easily administer reliable tests for KS. "Our project is developing an easy diagnostic method that can be implemented in small rural clinics, so that diagnosis can be made in the early stages and patients can be cured with available treatments," says Ethel Cesarman, PhD, professor of pathology and laboratory medicine.

Inflammatory Cells Spur Infant Lung Injury

Severely premature infants can have many health problems, including underdeveloped lungs that put them at risk for developing a chronic condition known as bronchopulmonary dysplasia (BPD). An inflammatory response is thought to cause the lung injury—and paradoxically, life-saving oxygen therapy contributes to the problem. "Once these structural changes in the lung are made early on, they don't reverse," says Randi Silver, PhD, associate dean of the Graduate School of Medical Sciences and a professor of physiology and biophysics. "So understanding what is causing the damage is very important." Researchers investigated a potential culprit: an inflammatory cell type, called a mast cell, that had been associated with BPD but never shown to be causative. In a translational study, they showed that mast cells cause lung damage in newborn mice exposed to high oxygen levels and that premature infants receiving oxygen also have high levels of potentially damaging mast cell products in their lungs. The group published their results in the *American Journal of Physiology—Lung Cellular and Molecular Physiology*, with Silver as senior author.

Precision Cancer Test Validated for Clinical Usage



OLIVIER ELEMENTO, PHD

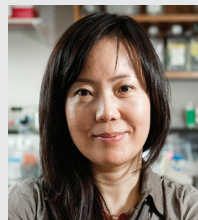
A next-generation genome-sequencing test developed at WCM can detect mutations that guide precision cancer treatment with over 95 percent accuracy, researchers report. They say that their findings, published in *NPJ Genomic Medicine*, validate the test (called EXaCT-1) and demonstrate its feasibility in a clinical setting. Developed by WCM's Englander Institute for Precision Medicine, EXaCT-1 scans 21,000 genes to detect genetic mutations that drive cancer—information that can point to new treatment options and clinical trials that may target patients' diseases. The researchers tested the EXaCT-1 algorithm—which is based on a type of test known as whole exome sequencing—on fifty-seven tumors for any mutation in five genes. "We worked hard to show that the test is reliable and can find mutations that exist while also not falsely find mutations that don't exist," says co-senior author Olivier Elemento, PhD, an associate professor of physiology and biophysics, and associate director of the HRH Prince Alwaleed Bin Talal Bin Abdulaziz Al-Saud Institute for Computational Biomedicine at WCM.

Chemical Tags on RNA Silence X Chromosome

The addition of a chemical tag on an RNA molecule is the critical switch that inactivates one X chromosome in every cell, ensuring healthy development in all female mammals, WCM investigators say. The findings, published in *Nature*, could offer a new avenue to pursue treatments for X-linked chromosomal diseases such as Rett syndrome, in which a mutation causes neurons to make insufficient amounts of a protein needed

for normal neurological development. All cells in female mammals contain two X chromosomes, but only one is needed for proper cell function and development. To ensure the proper expression level of genes on the X chromosome, one of the chromosomes is randomly inactivated in every cell. This occurs during embryonic development; once an X chromosome is inactivated, it stays inactive throughout the lifetime of the organism. The process of X chromosome inactivation is triggered by a type of RNA called XIST; the WCM investigators demonstrated that XIST is not solely empowered to turn off an X chromosome in every cell. Rather, XIST is activated once a chemical tag, called a methyl group, is added all along the length of the RNA. "Our study found that XIST is not functional until methyl groups are attached," says senior author Samie Jaffrey, MD, PhD, professor of pharmacology. "These act as docking sites to recruit proteins that initiate a cascade of events leading to X chromosome inactivation."

Protein's Role in Cancer Described



WEN SHEN, PHD

Scientists have identified a critical function of a protein that is a frequent indicator of cancer when the protein is in its mutated state. They found that the protein, called PTEN, protects the process by which cells divide—a discovery that could lead to therapies that prevent tumor growth. "By studying the fundamental process of how genes are passed from parental cells to daughter cells, we can better understand the altered signaling pathways that may cause tumor development," says lead author Wen Shen, PhD, assistant professor of cell biology in radiation oncology and member of the Sandra and Edward Meyer Cancer Center. The work was published in *Nature Communications*.

Action Needed to Expand Hep C Treatment

Despite the approval of effective hepatitis C virus (HCV) treatment regimens, high costs prevent the drugs from reaching HCV patients, finds Brian Edlin, MD, associate professor of medicine. In a review article in *The Lancet Infectious Diseases*, Edlin examined the current landscape of HCV—a virus that results in chronic liver disease and affects more than 3 million people in the United States—and advocates changes to make treatment more accessible. Treatment regimens that eradicate HCV were approved in 2014; however, Edlin argues, far too few patients have been able to access the medication due to the tremendous cost. Edlin proposes that physicians and government lead development of a consensus process involving legislators, public health authorities, pharmaceutical leaders, clinical experts, patients, and advocates.

Freezing Effective in Early-Stage Breast Cancer



RACHE SIMMONS, MD

A deep-freezing technique known as cryoablation is a viable alternative to traditional surgery in many early-stage breast cancers, researchers report in the *Annals of Surgical Oncology*. "Minimally invasive techniques are becoming increasingly popular in cancer care, and cryoablation represents a valid option for early-stage breast cancer treatment," says Rache Simmons, MD, the Anne K. and Edwin C. Weiskopf Professor of Surgical Oncology. "The results from this trial are extremely promising, and we look forward to exploring the technique for a greater number of patients." In cryoablation, doctors use ultrasound imaging to insert a thin, needle-like device into the patient's tumor. Once inside, the device emits liquid nitrogen, which freezes and destroys the cancerous tissue. The phase II, non-randomized trial examined eighty-six patients at nineteen centers across the country.

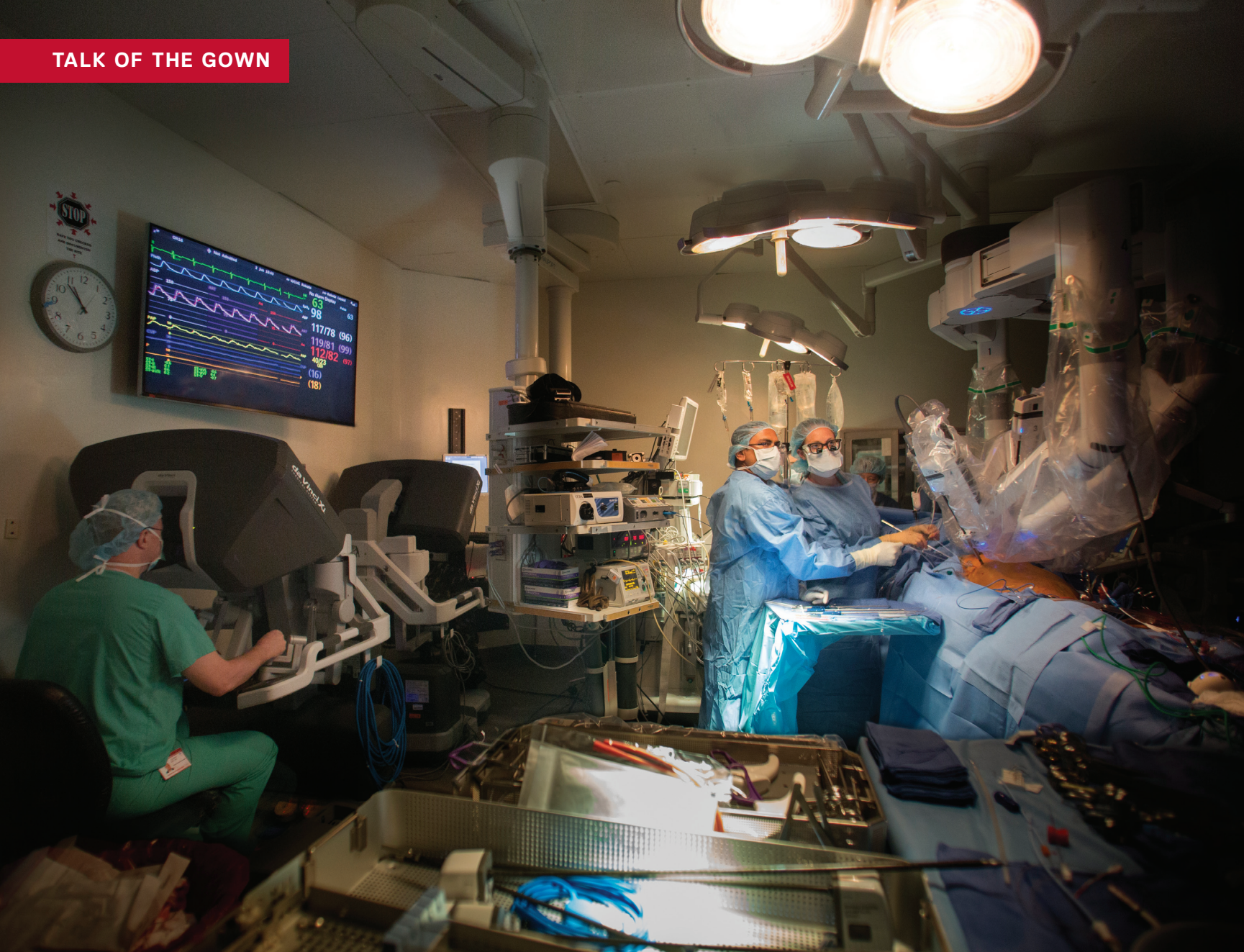
Dressed for Success

At the annual White Coat Ceremony in August, members of the Class of 2020 received the traditional physician's garb, as well as their first stethoscope, provided by the Paul F. Miskovitz, MD '75, Stethoscope Fund. Founded in 2009 by the WCM Alumni Association and the Buster Foundation, the fund has raised more than \$180,000 to help defray first-year students' out-of-pocket expenses. For more White Coat photos, see Notebook on page 42.



PHOTO: TRAVIS CURRY PHOTOGRAPHY





Machine language: WCM surgeons performing a procedure with the da Vinci Xi robot; T. Sloane Guy, MD, is controlling the robot at a console on the far left.

Technical Assist

Weill Cornell Medicine's new robotic cardiac surgery program facilitates quicker recovery

When Deborah learned she'd need surgery to repair her mitral valve, which controls the flow of blood through the left side of the heart, she knew she wanted a minimally invasive operation. But the fifty-nine-year-old New Jersey resident had yet to finalize her choice of a hospital when her condition suddenly began to deteriorate. "I'll never forget it—I just couldn't breathe," says Deborah, who asked that her last name be withheld to protect her privacy. "The decision went out of my hands."

Deborah had been visiting her son in Manhattan, and the closest emergency department was at NewYork-Presbyterian/Weill Cornell. There, the cardiac team told her she needed the procedure soon. T. Sloane Guy, MD, WCM's director of robotic cardiac surgery, was standing by with his team—along with its cutting-edge robotic system, the da Vinci Xi. "I weighed my options, and robotic

surgery was a no-brainer,” says Deborah, who had the procedure in January 2016. “I felt, going in, my chances of recovery were much higher, and my chances of infection less.”

Most patients share Deborah’s enthusiasm when they learn they have the option of robotically assisted surgery, Guy says. “This is the least invasive way to do mitral valve surgery,” he notes. “Patients have less pain. They’re discharged earlier. They have fewer blood transfusions, less time on the ventilator, and earlier return to work.”

A former U.S. Army surgeon, Guy has performed robotic mitral valve repairs since 2002, when he participated in some of the early research trials that led the FDA to approve surgical robots for certain heart operations. After a stint as chief of cardiothoracic surgery at Temple University Hospital in Philadelphia, he came to WCM in November 2015 to found a new robotic cardiac surgery program.

Robotic techniques look quite different from traditional cardiac surgery, which has long involved a sternotomy, or cracking the breastbone to expose the heart. It is also distinct from non-robotic minimally invasive procedures, in which a surgeon—rather than a machine—physically manipulates instruments inside the patient through smaller incisions. Robotic surgery uses five small incisions in the chest, four of which are the diameter of a pencil and one the size of a thumb. These include one for a high-definition digital 3D camera and three for the robotic instruments, which the surgeon controls from a computer console a few feet away from the patient. “It allows you to work in small, confined spaces and have the same dexterity that you would have if you had a big incision,” Guy says.

The increased precision makes cardiac repair easier, with less trauma to surrounding tissue. While the procedure is not appropriate for every patient or every operation, Guy says that for certain fairly common conditions, “it’s a robot-first mentality now, especially for mitral valve disease. I can’t imagine a young, healthy patient undergoing a sternotomy to repair their mitral valve anymore.” The robotic approach can also be used to repair atrial septal defects—a hole in the wall that separates the heart’s top two chambers—and hypertrophic cardiomyopathy, in which the heart’s walls become abnormally thick, and other conditions.

Avoiding sternotomy is also key for Jeffrey Port, MD, a professor of clinical cardiothoracic surgery who has used a da Vinci system to perform some 200 procedures over the past five years. “We are a pretty advanced and mature minimally invasive program,” Port says, “but we were enticed by a few factors to convert to a robotic platform.” Like Guy, he appreciates the improved access to tight areas, including the esophagus—which sits close to

the spine—and the thymus gland, tucked beneath the breastbone. “You are using small instruments in narrow crevices and cavities,” he says. “The robot lets us do things a little bit more elegantly and strategically.”

Robotic surgery has been pioneered at major centers like WCM, where minimally invasive techniques have been the standard for many years. But Port and Guy hope that their clinical work—about which both have published papers in such journals as *The Annals of Thoracic Surgery* and through associations such as the International Society for Minimally Invasive Cardiac Surgery—will inspire a wider embrace of robotic techniques. “There are certain places where open surgery is

‘With open procedures, patients do well, but it’s obviously a lot tougher for them in recovery,’ says Jeffrey Port, MD. ‘The availability of a platform like this may encourage surgeons who weren’t doing minimally invasive surgery to start.’

still an accepted mode,” Port says, largely due to culture and training. He notes that mortality rates are similar in both modes of surgery, and that in some cases—such as when a patient has extensive scars from prior surgery that obscure visibility—robotic techniques are contra-indicated. “With open procedures, patients do well, but it’s obviously a lot tougher for them in recovery,” he says. “The availability of a platform like this may encourage surgeons who weren’t doing minimally invasive surgery to start.”

One factor that may persuade more hospitals to begin offering minimally invasive, robotically assisted surgery is patient demand. And Deborah, for one, is an enthusiastic evangelist, calling the experience “phenomenal.” She spent only twenty-four hours in the intensive care unit after her procedure and was home five days later, compared with a week or more for a sternotomy patient. The five small incisions on the right side of her chest—two for the robot arms, one for the camera, and two for drains—did take time to heal, she says. But while open heart surgery can keep a patient out of commission for six weeks or longer, Deborah was walking a mile a day within three weeks, and by June she was once again racing her sailboat on the Hudson River. “My recovery is very different from what it could have been,” she says. “I feel very fortunate.” ■

— Amy Crawford

Community Outreach

For more than a decade, Weill Cornell Medicine's student-run clinic has been treating underserved New Yorkers



HANDS-ON EXPERIENCE: As Julie Steinberg '17 looks on, internist Magalie Bruneus, MD, assistant professor of medicine, examines longtime clinic patient Selvin Stephenson. The Jamaican-born Queens resident had come in that night to learn the results of a prostate biopsy, which came back clear.

When James Chesson started coming to the Weill Cornell Community Clinic in 2014, he was facing some serious challenges in life. The year before, the civil engineer had ruptured his Achilles tendon, which forced him to take time off work and undergo a painful surgery. Afterward, he nearly lost his foot to a post-operative infection. He was still healing when he was finally cleared to go back to work—just in time to get laid off.

With a major wound on the mend and no insurance, Chesson turned to Weill Cornell Medicine's free, student-run clinic. "It was really a lifesaver for me," says the sixty-six-year-old Manhattan resident. "I figured you get what you pay for—but I was wrong."

For just over a decade, the clinic has provided year-round healthcare for New York's uninsured. Housed at Weill Cornell Internal Medicine Associates in WCM's Helmsley Tower, it offers a

weekly internal medicine clinic plus a monthly psychiatric clinic; it also holds a biweekly women's health clinic a few floors up. "Among the free clinics associated with medical schools, many do short-term or acute care—but we provide longitudinal care with three specialties, which is unusual," says medical director Pam Charney, MD, professor of clinical medicine and of clinical medicine in obstetrics and gynecology.

From its earliest days, the clinic—which launched in its current form in April 2006—has offered high-quality student-directed care at little or no cost to the patient. Its organizers don't have an exact tally of how many people they've treated since its inception, but it numbers in the hundreds: six to eight patients are scheduled during each internal medicine clinic, with about 240 patients seen over the past four years. Eligible patients are uninsured adults

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who live in the five boroughs and make less than 400 percent of the federal poverty limit—which translates into a \$47,080 annual income for an individual or \$97,000 for a family of four. The clinic runs on a \$50,000 operating budget, garnered mostly through private fundraising, which covers referrals and prescription reimbursements.

Appointments are held on Mondays or occasional Wednesdays between 5 and 8 p.m. Typically, a senior clinician—a second- or third-year student—and a first-year junior clinician meet with the patient first, performing a physical exam and taking a history. Then, a social worker pays a visit to discuss insurance options, while the clinicians present to a volunteer attending. After the attending and clinicians meet with the patient as a team, the patient leaves with advice, follow-up instructions, and sometimes a referral. “I’ve seen multiple patients with very serious conditions that wouldn’t be diagnosed if they weren’t here,” says clinical co-director Abigail Kerson ’17, “and also patients with less exciting conditions that wouldn’t get long-term follow-up otherwise.” One patient received a diagnosis for thyroid cancer—something that might have gone undetected for some time—as a result of her regular visits. Others, like Chesson, rely on the clinic for continuing care after serious illness or injury. When patients are diagnosed with conditions beyond what the practice can treat, clinicians try to refer them to other low- or no-cost facilities.

In addition to benefitting underserved New Yorkers, the clinic serves an important educational purpose, offering students valuable hands-on experience. While WCM’s future physicians do get the chance to interact with patients as they progress through school, they don’t typically get to play a lead role in diagnosing them and providing care. “It’s the place in medical school I’ve had the most active responsibility for patients,” Kerson says, adding that the experience feels especially vital since “in a year I’m going to be released into a situation where I’m responsible for patient interactions.” Paul Barone ’19 got involved as a first-year, eager to work with real patients—and found that the opportunity to interact with upperclassmen was just as valuable. “It’s kind of rare that we get to see what we’re going to turn into in a few years,” he says. “It’s inspiring. It’s nice to see where you’re going.”

Clinic organizers note that since the passage of the Affordable Care Act, patients tend to turn over more quickly, as those who once might have stayed uninsured are often able to get insurance through the exchange. During the year that Chesson came to the clinic, Charney and the students monitored his wound, checked his medication, and made outside referrals. Last year, after landing another civil engineering job, he no longer needed the clinic’s free services. But he was so pleased with Charney’s care, he became her patient at Weill Cornell Internal Medicine Associates. ■

— Keri Blakinger



‘It’s the place in medical school I’ve had the most active responsibility for patients,’ says clinical co-director Abigail Kerson ’17.



MEDICAL MENTORSHIP: During a typical night at the clinic, professor Pam Charney, MD (top, at left), chats with Rebecca Demaria ’17, clinical co-director. Above: Angela Jia ’17 (center) confers with fellow student doctor Eliza Genzler ’18.

'Miracle' Workers

In a new book, physicians reflect on remarkable cases that deepened their understanding of medicine—and themselves

When Harley Rotbart, MD '79, was a second-year pediatrics resident at Philadelphia Children's Hospital, two young brothers were brought in unconscious after nearly drowning in a freezing-cold swimming pool. The three-year-old had fallen in first; the seven-year-old had jumped in and pulled him to the edge before going under himself. The younger boy began to recover after just a few hours, but the older remained in a coma for weeks. The family and medical staff began to discuss brain death and organ donation. And then one day, as Rotbart sat by the boy's bedside, he felt the child squeeze his hand. "Most of my colleagues and supervisors attributed it to involuntary muscle spasms," Rotbart writes in an essay on the experience. "Indeed, medically, by all our measures of brain function and assessments of neurologic recovery, there was not even the slightest possibility that this child could have made a conscious effort to squeeze my hand."

That essay, entitled "The Squeeze," is among eighty-five collected in *Miracles We Have Seen*, edited by Rotbart and published this fall by Health Communications. Like many of the book's stories—all written by physicians—Rotbart's tale ends with a recovery that neither he nor his colleagues could explain: the heroic older brother walked out of the hospital two months later as his medical

interpretations of the word "miracle" are as diverse as the doctors who have contributed to the collection. Some dramatic cases may be familiar from media headlines—a Manhattan window washer who fell forty-seven stories and lived; a high school football star who survived cardiac arrest during practice—but the physician authors share medical details that make the tales even more unlikely and compelling. Other pieces recount the first successful uses of then-experimental treatments, like the injections of folinic acid that saved one baby's life in 1979 (and many more in the following decades).

Other essays recount miracles not of science, but of timing—like the priest who had a heart attack in a hospital elevator while visiting a patient and tumbled out onto the floor where cardiologist Dale Adler, MD '79, happened to be waiting. "[I am] grateful that after literally falling at my feet, as if delivered to me, his heart finally responded to our treatment," writes Adler, professor of medicine at Harvard Medical School and executive vice chair of the cardiovascular division of the Department of Medicine at Brigham and Women's Hospital, "treatment which would have been impossible to receive in such a timely fashion had he collapsed almost anywhere else that day."

Not every essay ends with the patient's physical recovery. Instead, the "miracle" of the story lies in the meaning that the family and physician find together in a loss or death. Rotbart himself is especially moved by some of the pieces in sections titled "Difficult Decisions" and "Silver Linings." After a family loses one child to a rare bone disease, they learn that their unborn son has the same condition. They were able to help him live as long and as fully as possible—longer than anyone with the condition had ever survived. Another young boy's death inspires his sister to become a pediatrician, mentored by the physician who cared for her brother. "I still cry when I read some of those essays," says Rotbart, who is donating 100 percent of the net author proceeds from book sales to the sixty-five charities chosen by the essayists.

In a few of the pieces, the physician authors are also the patients. In "The Thin Line Between Miracle and Tragedy," ophthalmologist Robert Buys, MD '79, interweaves two tales: the case of a rural farmer in Tonga whose vision Buys desperately wants to save, and Buys's own inherited heart condition, which nearly prevents him from going on the Tonga mission with his team (in fact, he underwent a heart transplant soon after his return). "We saw dozens of patients on that trip, helping to restore vision and, in the view of the islanders, create miracles they never dreamed possible," Buys writes. "Such is the effect of what we see as our everyday practice of medicine in a part of the world devoid of such blessings."

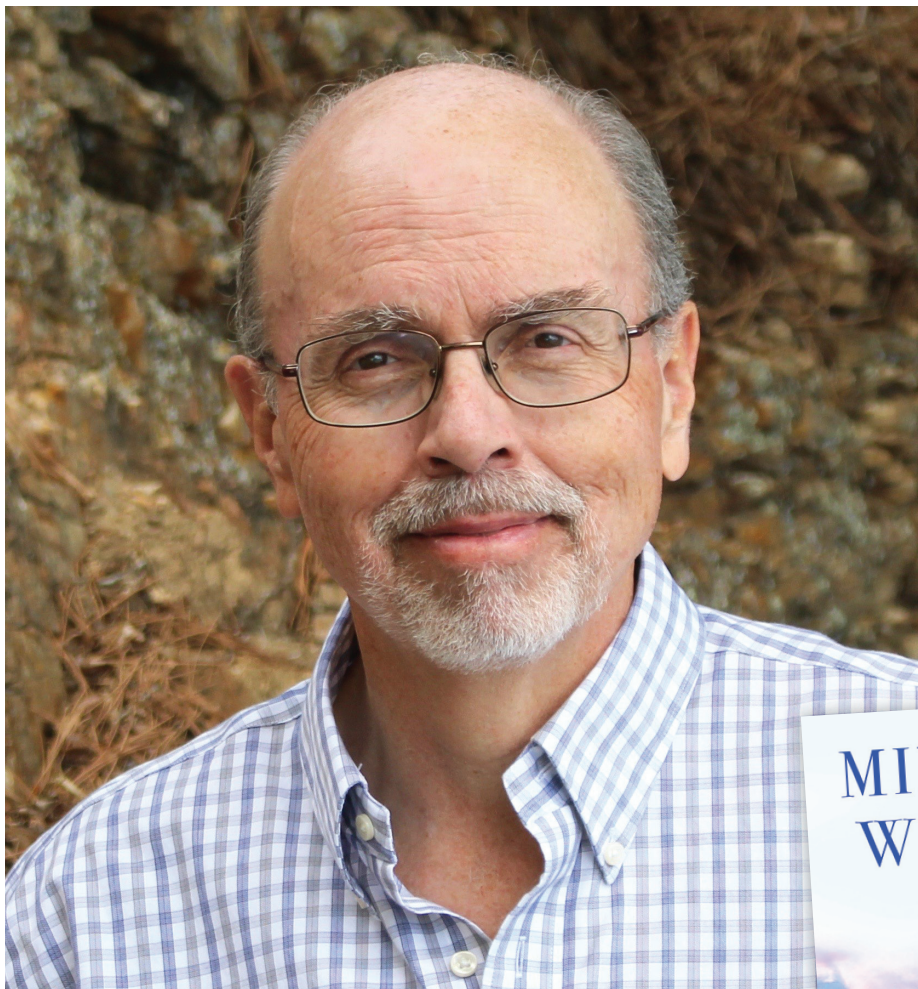
Despite the vocabulary of "blessings" and "miracles," Rotbart emphasizes that the collection doesn't focus on religion. While

'Throughout my career, I've been struck by how often we, as physicians, are stunned by recoveries and encounters that truly seem miraculous.'

team and family cheered and cried. "That case changed everything for me," says Rotbart, professor and vice chair emeritus of pediatrics at the University of Colorado School of Medicine and Children's Hospital Colorado and author of several books on parenting and family life. "It opened my eyes, as a young doctor, to how much we don't know or understand. And throughout my career, I've been struck by how often we, as physicians, are stunned by recoveries and encounters that truly seem miraculous."

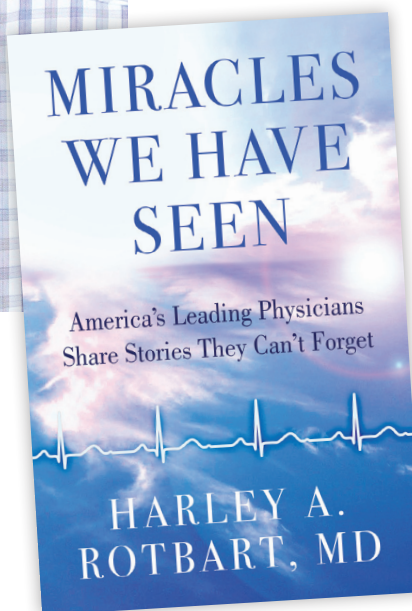
Rotbart began asking colleagues if they'd had similar experiences, and searched the professional literature and lay publications for stories that medical knowledge alone couldn't explain. About five years ago, he began to put some of his personal memories into words and invited other physicians—including a dozen fellow Class of 1979 graduates and three WCM faculty—to write essays of their own.

Spanning from the Fifties to the present, the stories and their



Harley Rotbart, MD '79

'We need to recognize that we are both powerful and powerless; that awareness can help us be more compassionate and respectful to our patients.'



the book has received kudos from Timothy Michael Cardinal Dolan, Archbishop of New York, and Rabbi Harold Kushner, author of *When Bad Things Happen to Good People*, it's also been praised by past presidents of the American Medical Association and the American Pediatrics Academy, as well as other reviewers with medical and scientific perspectives. "I left it to the essayists to decide how much of their personal beliefs they wanted to express," Rotbart says. One author writes about his Christianity; another, his Judaism; another, his atheism. What all of the authors share, Rotbart says, is a sense of awe. "Everyone whom I approached for this collection is a physician whose expertise is beyond repute, and yet that expertise exists alongside a profound sense of wonder," he says. "Whenever you see something you can't explain, you feel humble. As physicians, we need to recognize that we are both powerful and powerless; that awareness can help us be more compassionate and respectful to our patients. And it's never too early or too late in our careers to experience the miraculous and be transformed by it into better doctors."

While Rotbart has edited the book's medical content to be accessible and meaningful to a lay audience of patients and families, he also hopes that *Miracles We Have Seen* can be a tool for

instilling a sense of humility during a student's medical education. The final essay is by Carol Storey-Johnson, MD '77, former senior associate dean for education at WCM and now associate professor of clinical medicine and senior advisor on medical education. In her piece, "A Doctor's Work: The Miracle of Professional Transformation," she reflects upon the remarkable process by which a student, immersed in learning the science of medicine, can also become a responsive, open-minded, and caring physician. "Ultimately," Storey-Johnson writes, "the doctor's relationship with his or her patients is the true metric by which a physician's merit and standing should rest." ■

— C.A. Carlson



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Gene team: MD-PhDs Dan Avi Landau (left) and Marcin Imielinski have joint appointments at WCM and the New York Genome Center.

Tracing Cancer's Roots

Two early career physician-scientists are using genomics to better understand—and combat—tumors

In a light-filled office, two young physician-scientists study how cancer forms, spreads, and recurs after remission. They meet once or twice a week where—amid leftover take-out containers and white-boarded walls—they write code, work through complex problems, and share recent triumphs and challenges.

The researchers—Marcin Imielinski, MD, PhD, an assistant professor of computational genomics, and Dan Avi Landau, MD, PhD, an assistant professor of medicine and of physiology and biophysics—met several years ago as postdocs at the Broad Institute, a multi-institutional biomedical and genomic research center affiliated with Harvard and MIT. Last year they were recruited by WCM and the independent, nonprofit New York Genome Center—which, like the Broad, is multi-institutional and collaborative in nature—to continue their work in New York. While Imielinski is focused on building new algorithms and tools to better understand complex genomic data derived from solid tumors, Landau uses existing ones to study cancer's genesis and persistence. “We’re interested in questions that are very complementary,” says Landau. Adds Imielinski: “There are so many aspects of cancer genomics waiting to be explored.”

Imielinski, who came to WCM in July 2015, is a computational biologist with a medical specialization in pathology and a background in computer science. As a member of the Caryl and Israel Englander Institute for Precision Medicine and the HRH Prince Alwaleed Bin Talal Bin Abdulaziz Alsaud Institute for Computational Biomedicine, he is trying to improve the quality of information that scientists can obtain after sequencing malignancies. While investigators have gotten fairly good at detecting and understanding small-scale changes that occur in tumors—like minor typos and single-phrase deletions in the genome—he is most interested in the more complicated, and less understood, large-scale tumor variations. These include changes that occur when 100 million letters are deleted or amplified in a person's genome, or whole pieces of genetic code are rearranged. “It's like editing a Word document and moving paragraph one to page three,” he says. This type of change can likely help cancer evolve in different ways than those little typos, but scientists still don't understand this phenomenon well.

To understand today's sequencing and analysis capabilities, Imielinski says, it helps to think of a tumor as being a document whose blocks of text have been haphazardly shuffled out of order, with individual letters changed or deleted. When this document is sequenced, instead of clearly showing where these changes have taken place, the genetic code is spit out in hundred-letter fragments that need to be pieced back together. “These reads give us a very short-sighted, myopic picture of the overall genomic structure,” Imielinski says. “Yes, it's a detailed piece of the picture, but it's not

enough to make any sense of the whole.” With new algorithms that Imielinski is working on now, the goal is to piece together larger and larger blocks of text, and learn more about the mechanisms by which cancer progresses.

As an oncologist, Landau—who earned his doctorate in Paris and did his medical training in Israel, where he spent four years as an Air Force physician—builds on what's uncovered when a tumor is sequenced, and investigates the intricacies of how cancer evolves. “Once we know as much as we can about what's occurring within a patient's disease, I investigate how we can overlay that genomic map with an evolutionary tree of their cancer,” he explains. “I want to see what mutations came first and which ones came later—and with this information, determine how to best optimize treatment.” As part of this work, Landau—who joined

‘We’re interested in questions that are very complementary,’ says Landau. Adds Imielinski: ‘There are so many aspects of cancer genomics waiting to be explored.’

WCM in November 2015 and, like Imielinski, is a member of the HRH Prince Alwaleed Bin Talal Bin Abdulaziz Alsaud Institute for Computational Biomedicine—is among the first to study how one tumor can have various types of cells, each with its own evolutionary path and methods of adaptation. “As these malignant populations grow, they become very diverse,” Landau says, “and all of these individual cell populations work together to find ways to grow faster and overcome therapy.” We now know that even within one patient, cancer is never a single disease, he says, but a multitude of diseases that all require targeted treatments.

To extend this research, Landau is studying individual tumors before treatment, to try to predict what genetic changes might take place during and after it. He's also creating tumor clones, and studying how different cell populations respond to combination therapy in real time, with the goal of developing more individualized treatments. “Right now, our one-size-fits-all approach to therapy would be like giving a type 1 diabetic a constant dose of insulin without first checking their glucose levels,” Landau says. “We want to take the personalized, real-time approach used in diabetes and realize that vision in cancer care.” ■

— Anne Machalinski

Last Words

In the wake of a terminal diagnosis, a documentary chronicles an alumnus's journey from surgeon to patient



Scenes from a life (clockwise from above): Jeffrey Piehler, MD '73, in the operating room; with Peter Warren (seated at left), the woodworker who helped him build his coffin; and being interviewed for the film shortly before he passed away.

"I 'll give you the punch line right now," retired cardiothoracic surgeon Jeffrey Piehler, MD '73, tells the camera. "The punch line is I'm OK with dying. And I can say that because I am so grateful for what the process has given to me."

Piehler was sixty-seven when he passed away in November 2014 after battling advanced prostate cancer for more than a decade. But he lives on in the documentary *Patient: A Surgeon's Journey*, about his experiences on the other side of the medical equation. In the film, which was inspired by a deeply moving lecture he gave to medical students at the University of Kansas in the last year of his life, Piehler shares his thoughts on death and dying—touching on issues of spirituality, work-life balance,

'He was the most peaceful person I've ever met,' says director Aimee Larrabee. 'He thought accepting one's mortality was one of the greatest achievements any human can attain.'

and more. "Opening oneself to discussions of death, of leaving this world, of leaving everything that one has," he says, "is fundamentally key to living more fully."

Earlier in his life, Piehler had been a hard-charging cardiothoracic surgeon working at what he calls "an insane pace." He was at one point the busiest surgeon in the Mayo Clinic system, performing some 1,000 heart surgeries a year—running procedures in three or even four ORs simultaneously. But everything changed in 2002, when Piehler—who had moved from Mayo to the University of Kansas in a not entirely successful attempt to slow down—was diagnosed with stage 4 prostate cancer after a routine life insurance physical.

Initially, Piehler tried to keep up his brisk schedule, having radiation treatments between surgeries. But when chemotherapy dulled sensation in his fingers, he stopped operating. The shift sparked an embrace of living at a more measured pace—not only focusing on family, travel, and photography, but contemplating the essential nature of the physician's calling and the doctor-patient relationship. "He was the most peaceful person I've ever met," says director Aimee Larrabee, a documentarian who was recruited to the project after Piehler's colleagues lamented that his University of Kansas lecture hadn't been recorded. "He thought accepting one's mortality was one of the greatest achievements any human can attain, in that you understand that every day is a gift."



Much of *Patient*—which premiered at the Carmel International Film Festival in 2014 and which a foundation established in Piehler’s memory now aims to screen at medical schools nationwide—consists of its subject sharing his thoughts directly to the camera. But toward the end, some other key players appear, including Piehler’s longtime oncologist. “As a physician, I was equally as guilty as many of my colleagues in the assumption that curing someone of a disease, prolonging life in terms of calendar space, is the only end point that we think about,” Piehler tells him in an emotionally charged moment. “As they told us in medical school, life is a fatal condition, and there’s so much to be said for the whole issue of quality. We’re all going to die, and what I’ve learned through the gift that you’ve given me is that quality is so much more important than quantity.”

The film also chronicles Piehler’s resolve to build his own coffin—a project, completed with the aid of a woodworker, that he described in a February 2014 op-ed in the *New York Times*. “It’s pretty much impossible to feel anger at someone for driving too slowly in front of you in traffic when you’ve just come from sanding your own coffin,” Piehler wrote. “Coveting material objects, holding on to old grudges, failing to pause and see the grace in strangers—all equally foolish. While the coffin is indeed a reminder of what awaits us all, its true message is to live every moment to its greatest potential.” ■

— Beth Saulnier

‘As they told us in medical school, life is a fatal condition, and there’s so much to be said for the whole issue of quality,’ Piehler said.



PROVIDED

The film can be purchased on DVD and as a digital download at patientthemovie.com; it’s expected to become available on additional platforms.



t	V
145	+10 mV
45	-91 mV
115	-61 mV

Broader Horizons

More PhD students are pondering a wide range of careers—and the graduate school is helping them get there

By Heather Salerno

Photos by John Abbott

One day shortly after Natalya Gertsik, PhD '16, began her doctoral work in biochemistry at the Weill Cornell Graduate School of Medical Sciences, she and her classmates sat down with a professor to talk about their career goals. But Gertsik kept mostly quiet after listening to the others speak about their future plans—because unlike them, she didn't want to pursue a faculty or research position at an academic institution, the typical ambition for someone with a doctorate. "This was six years ago, but I still remember it. Every single person said they wanted to be a postdoc or a professor," says Gertsik. "I think that job would be an amazing one to have, but to get there, you need to do many, many years of research where you're sitting at the bench." She saw herself using her PhD in a different way.

The graduate school's fundamental mission is to rigorously train the next generation of top biomedical scientists whose research can advance scientific knowledge and patient care. And though many of her peers stayed on the academic track, Gertsik wasn't alone in her desire to look at other professional possibilities—and the graduate school is increasingly addressing the need to prepare students like her who want to pursue jobs outside academia. In recent years, it has introduced classes on entrepreneurship, enabled internships so those interested in careers outside academia can gain such experience, and actively recruited guest speakers to discuss a variety of >

Sarah Kishinevsky, PhD '16, director of the new Dean's Entrepreneurship Lab in the graduate school



The graduate school's Matt Cipriano (left), David Christini, PhD, and W. Marcus Lambert, PhD

career options. And perhaps just as importantly, Gertsik says, administrators and instructors are increasingly offering more open support and encouragement to anyone considering an alternate path. "That has definitely changed from the time I started to the time I graduated," adds Gertsik, who now works as an associate for the global management consulting firm McKinsey & Co., focused on the growth of biomedical companies. "I feel like I lived through a bit of a transformation."

There are several reasons behind this shift. While in the last five years an estimated half of the graduate school's alumni have pursued jobs at a university or other educational setting, according to its alumni relations office, competition for academic jobs has become stiffer than ever. The opportunities for postdoctoral and faculty positions in the biomedical sciences have become more competitive in the last two decades, partly because of decreased funding from the National Institutes of Health. According to a 2014 report by the National Science Foundation, the number of people getting PhDs in biomedicine rose from about 105,000 to nearly 180,000 between 1993 and 2010, yet those obtaining employment in academia during that period dropped from 58 to 51 percent.

As those opportunities have shifted, student interest in non-academic fields—ranging from data science to biotech to consulting—has grown. The NSF report found that while the percentage

employed in academia decreased, the number of biomedical doctorate holders employed in the private sector rose by 8 percent.

Other factors make an academic career more challenging than in the past. Most graduating PhDs interested in staying in academia must spend two to five years doing postdoctoral research, meaning biomedical scientists are typically in their thirties before they land a tenure-track position.

"I think of academics as a calling," says Gary Koretzky, PhD, the graduate school's dean. "We are training the next generation of scientists who are going to lead academic medical centers, but we realize not everybody will. We're much broader in our thinking out of respect for the qualities and talents of our students—and also out of the recognition that there are many more things you can now do with a PhD in biomedical sciences." Adds Interim Dean Augustine M.K. Choi, MD: "With a PhD you can do practically everything. You can do research, you can become a policy maker, you can do entrepreneurship, you can get an MBA—there are no limitations."

Doctoral candidates are taking notice. In a study from Cornell University and Georgia Tech published in *Science* in May, more than a third of nearly 6,000 PhD students surveyed at thirty-nine U.S. research universities said they had more interest in careers outside academic research. At WCM, an estimated half of the graduating PhD students have opted for non-academic jobs, such as

in healthcare, medical consulting, and at pharmaceutical companies. And the graduate school's location in New York City provides a natural and rich resource of professional exposure and networking opportunities for students to capitalize on as they nurture their ambitions. "By improving what we're offering and how we are educating our students about careers outside academia during their PhD years, the hope is to get them going from their PhD directly into the career of their choice at a much earlier stage after graduation," says Matt Cipriano, manager of enrollment and education operations.

Entrepreneurial Training

To that end, the graduate school now offers electives that go beyond basic science, such as "Bench to Bedside: Business Fundamentals for Entrepreneurial Scientists," a twelve-week seminar series that invites professionals from all backgrounds to lecture and advise participants at all stages of study. During the course, those enrolled form two- to three-person cross-disciplinary teams and write business plans based on biomedical technologies approved by the licensing offices of the Tri-Institutional entities (Weill Cornell Medicine, Memorial Sloan Kettering Cancer Center, and The Rockefeller University). "It's a life sciences entrepreneurship crash course," says Sarah Kishinevsky, PhD '16, who started Bench to Bedside as a student club in 2011. The club became so popular that Kishinevsky helped the school turn it into a formal class two years ago. Her work with the initiative altered her career trajectory, too, leading to Kishinevsky's own non-traditional position in academia as director of the Dean's Entrepreneurship Lab, a new program at Weill Cornell Medicine. "The lab is directed toward helping foster and grow a biomedical entrepreneurial ecosystem," says Kishinevsky. "The class was one indicator that students were very interested in this."

Bench to Bedside now draws up to 150 students each semester, culminating with a "pitch day" event during which each team presents its business plan to a group of venture capitalists. So far, four projects have received funding from investors since 2011, including Immunovent, an allergy diagnostics venture co-founded by Kate Rochlin, PhD '14. The company is developing a needle-free test that can more accurately pinpoint airborne and food allergies using a small sample of cells collected from the inside of the nose or mouth, rather than through blood or skin testing; the test was invented by William Reisacher, MD, an associate professor of otolaryngology at WCM who specializes in allergies and serves as Immunovent's medical advisor. "It's much less invasive, so it's great for kids and the elderly," says Rochlin. "You can also test for multiple allergies from a single swab."

Throughout graduate school, Rochlin kept an open mind about possible careers. Yet before Bench to Bedside, she had no idea how to go about starting her own enterprise. "The class gives you such an exciting new way to look at science. It's a breath of fresh air," says Rochlin. "This lets you pick your head up and look around to see that there are all these different ways science can be used. It's really liberating and empowering."

Even if a project doesn't mature into a company, graduates like Bill Mills, PhD '15, say the course provides important lessons. His team's plan for a molecular diagnostic test for kidney transplant patients showed promise as a start-up at first, but the endeavor didn't end >



"We're much broader in our thinking out of respect for the qualities and talents of our students—and also out of the recognition that there are many more things you can now do with a PhD in biomedical sciences," says Dean Gary Koretzky, PhD.

'It's a life sciences entrepreneurship crash course,' says Sarah Kishinevsky, PhD '16, who started Bench to Bedside as a student club in 2011 and now directs the Dean's Entrepreneurship Lab.

'Research is always moving forward, never doing the same thing day to day, but it's such a slow process,' says Tracey Van Kempen, PhD '14. 'I really enjoy doing things with tighter deadlines and shorter projects, and I was drawn to the opportunity to learn a ton of new and different things about health and science.'

up moving forward. Still, he has no regrets. "I learned a lot," says Mills, who decided to get an MBA from the Ithaca campus after earning his doctorate in pharmacology and now works as an analyst at Camber Capital Management, a Boston-based hedge fund that invests exclusively in healthcare. "The Bench to Bedside class was by far one of the most valuable things I did during my PhD program. There are tons of amazing things going on in science, but you get so insulated in the lab."

For Tracey Van Kempen, PhD '14, the decision to pursue a non-traditional path was partly spurred by the financial crisis of 2008, which happened at nearly the same time as when she began her doctoral program. Prior to that, she worked as a research assistant for three years at Williams College—her undergraduate alma mater—and loved it. "I thought, 'This is exactly what I want to do,'" she says. But after the economy plunged, and encouraged by peers who'd taken jobs in medical education, she landed a post at a medical advertising firm after receiving her degree. Now she's the associate medical director of DDB Health, a New York-based network of healthcare communications companies, where she helps create marketing strategies for pharmaceutical companies and other clients. "Research is always moving forward, never doing the same thing day to day, but it's such a slow process," says Van Kempen, whose degree is in neuroscience. "I really enjoy doing things with tighter deadlines and shorter projects, and I was drawn to the opportunity to learn a ton of new and different things about health and science. That's what clinched it for me."

Hands-On Experience

At WCM, external internships are now part of some students' graduate-level training, enabling them to obtain outside work experience while still in school. Internships had generally been discouraged in the past, in part because they took time away from a student's primary training in the laboratory, says W. Marcus Lambert, PhD, director of diversity and student services. But now, he says, the value that some external internships bring to a student's overall training and dissertation work is clear, and the graduate school allows them on a case-by-case basis as long as the internship is in line with the student's thesis research.

For Han Yuan, a fourth-year PhD student in computational biology and medicine, that change was a blessing. This past summer, he interned for three months at the IBM Watson Research Center in Yorktown Heights, New York, where he was assigned to projects related to cancer genomics, which may help oncologists develop more personalized patient care. Yuan says he may stay in academia, but working at IBM short-term has helped him envision other possibilities. "As an undergrad, I didn't have a chance to do an internship, so to be able to do this during grad school gives me more information to make a better decision," he says. Either way, Yuan says, the internship has helped him polish his interviewing and interpersonal skills. "I got to meet with people in different areas. Some were working on software, some on hardware," he says. "It was a broader range—not everyone was in research. I think that's also good."

The school's Three-Minute Thesis contest is another new way students can ready themselves for all kinds of workplaces. First held



Tracey Van Kempen, PhD '14, associate medical director of a network of healthcare communications companies

last fall, the competition challenges PhD candidates to explain their research in 180 seconds—and in a way that any non-specialist can understand. No animations, electronic media, or props are allowed, and they're permitted only a single PowerPoint slide to assist with their presentation. This teaches a "real world" style of effective communication that emphasizes broad strokes over technical details, says David Christini, PhD, the graduate school's associate dean for programmatic development. "You have to get to your point quickly, clearly, and impactfully," he says. "If you're in the scientific business world or the startup world, you need to be able to convince people fast. This is geared for that."

And when it comes to career guidance, Cipriano says that the school has recently ramped up efforts to bring in more speakers to provide first-hand knowledge of different industries. A series called Alumni Career Talks launched in June 2016, with as many as a dozen events anticipated for each academic year going forward. The series is organized by Sharon Meiri Fox, alumni director for the

graduate school; its inaugural session featured Cristina Ghenoiu, PhD '12, a biotech equity research associate at investment banking firm Cowen and Company—and though mostly fifth-years and up were expected, a more diverse crowd wound up attending.

WCM has committed, too, to funding more career outreach activities organized by student groups, such as networking events. And it's working to produce a single calendar that lists job-related programs and events, so aspiring PhDs aren't seeing the school's offerings piecemeal. "There are more opportunities than ever before," says Gertsik. "I'm almost a little jealous of people starting grad school now."

For Christini, these efforts combine to create a powerful recruiting tool that will hopefully entice the best and brightest to the graduate school. Regardless of which paths students ultimately choose to leverage their biomedical science training, he says having a diversity of interests on campus benefits everyone. "It energizes the student body," he says. "Whatever you can do to make sure students are happy and excited is contagious." ■

An X-ray shows the skull of a patient who suffered a traumatic brain injury (TBI) after being shot in the head. The patient, notes Härtl, was being treated on a regular nursing floor. While people with TBI in the developed world are generally admitted to the ICU, he says, in Tanzania they often aren't, "partially because of the lack of capacity and partially because of the lack of understanding."





Training & Teaching

In Tanzania, Weill Cornell Medicine's Roger Härtl, MD, leads a different kind of medical mission: empowering the country's neurosurgeons.

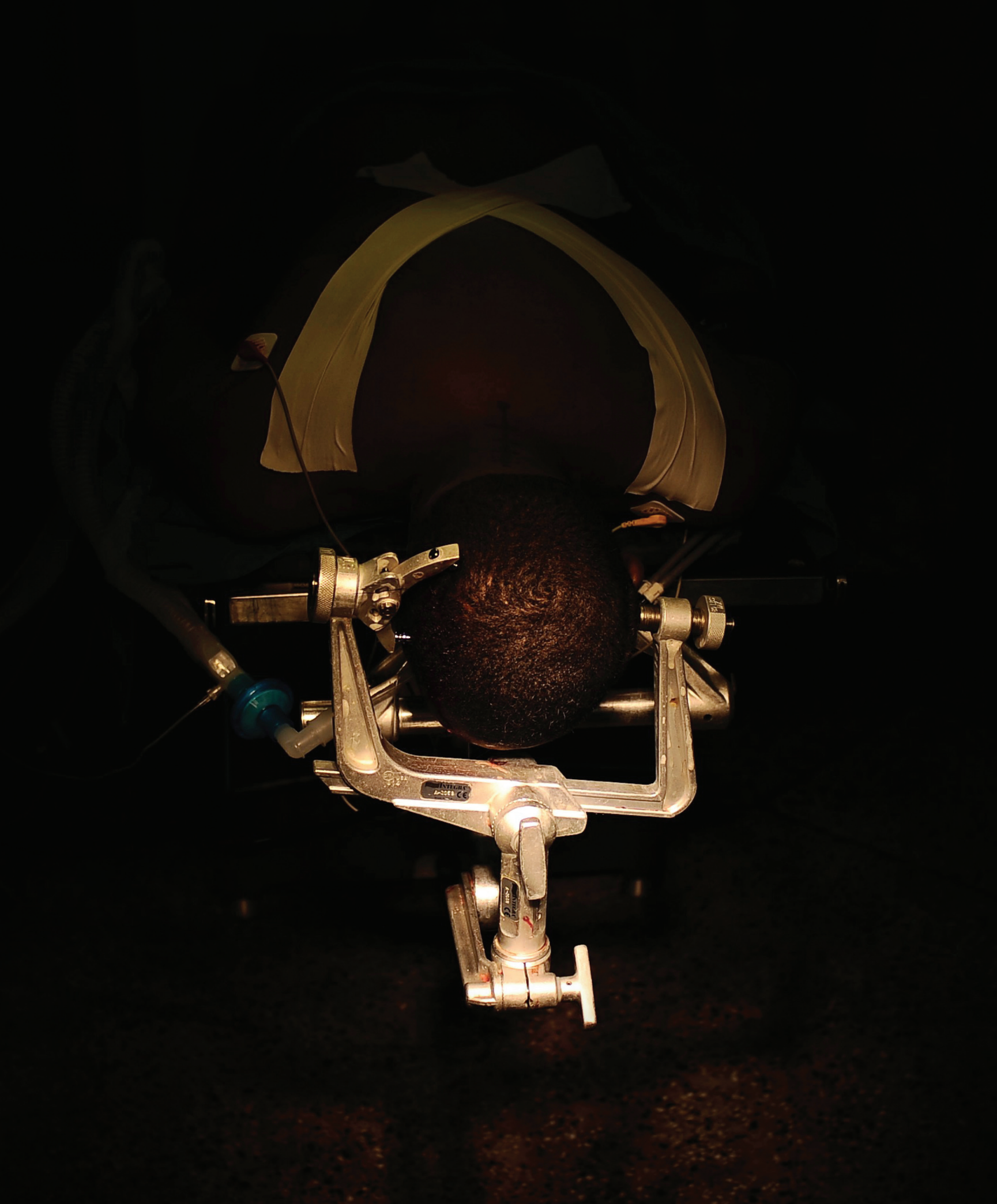
BY BETH SAULNIER

PHOTOS BY ANDRÉ LIOHN

Tanzania, a nation of more than 44 million people, has precious few neurosurgeons—according to WCM professor of neurological surgery Roger Härtl, MD, just eight at last count. Härtl first visited the East African country as a medical student; he later treated a Tanzanian patient in New York, who invited him for a visit a decade ago. “I ended up spending the whole time at the hospital,” he recalls. “I saw conditions like traumatic brain injury and hydrocephalus, and nobody knew how to treat them. There was a huge need.” So since 2008, Härtl has been leading annual, weeklong trips with the aim of improving Tanzania’s neurosurgical care, which he calls “very, very basic.”

Unlike many medical missions, the trips aren’t geared toward performing as many procedures as possible. Rather, they’re all about training the best and brightest local neurosurgeons, as well as teaching other physicians to provide basic neurosurgical care. “Initially we tried to bring over a lot of equipment for the operating room and the ICU, ventilators and so forth—but that had absolutely no impact, because there wasn’t adequate maintenance or support,” Härtl notes. “We realized early on that that was not a good way to help, so we focused on training and teaching.”

The program concentrates on three conditions that are especially pressing in Tanzania: traumatic brain injury, hydrocephalus, and spinal trauma. The WCM team—comprising surgeons, anesthesiologists, nurses, and sometimes medical students—works with staff at two facilities: Weill Bugando Medical Centre in Mwanza and the university hospital in Dar es Salaam. “We team up with surgeons who are very smart and promising,” Härtl says. “We let them operate, and we supervise.” The program also includes a course in Tanzania for medical professionals from around East Africa and a three-month mini-fellowship in New York. The latter, says Härtl, “is for surgeons we consider champions—smart, young, and motivated.”





"If you want to go fast, go alone; if you want to go far, go together," says Härtl (seen at center, seated at blue table, conferring with WCM team members and local medical staff), quoting an African proverb. "You have to create bonds. Without having really close relationships with the people in Tanzania, especially the surgeons, we wouldn't be able to do anything." In addition to its work on hydrocephalus and brain and spinal injury, the WCM team has trained two Tanzanian neurosurgeons in New York and helped increase their familiarity with brain tumor and aneurysm surgery; they are now routinely taking on more complex cases. Neurological surgery chairman Philip Stieg, PhD, MD, routinely reviews films and discusses surgical approaches with these physicians using telemedicine.

Among the pieces of surgical equipment brought from WCM a decade ago was this head-holding clamp, known as a Mayfield, which is still in use today. When the attachment that connected the clamp to the OR table broke, hospital staff built their own in the machine shop.



The pre-operative area at Weill Bugando, where patients wait before being taken into the OR. While the room used to be open, a recent push to increase patient privacy prompted the installation of curtains.

The exterior of Weill Bugando Medical Centre, a 900-bed tertiary care hospital in Mwanza that's affiliated with WCM, and one of two visited during the neurosurgical teaching missions. Each annual mission costs about \$70,000, mainly funded through the generosity of foundations and patients in New York.



At Weill Bugando, WCM global neurosurgery fellow Maria Santos, MD (opposite page, at left), operates with University of Cambridge neurosurgeon Karol Budohoski, MD, one of the non-WCM faculty who volunteered for the most recent trip. Santos, who spent a year in Tanzania, introduced a less invasive procedure to treat hydrocephalus, a condition that causes cerebrospinal fluid to build up in the brain. The technique, which is routine in many parts of the world but previously was seldom used in Tanzania, reduces the risk of infection that comes with treating the condition using catheters. Härtl is tracking infection rates and outcomes for children treated before and after Santos's introduction of the procedure.



THEATRE 4

THEATRE

IV



The most recent trip included about ten surgical cases and 100 patients seen in the clinic. In one of those surgeries, Budohoski (opposite page, at right) trained colleagues at Weill Bugando in how to perform a brain tumor procedure. "We can't change the world," Härtl says. "We're not going to buy a new ICU or hospital for them. But we try to influence individual physicians and surgeons so they have an understanding that the standard of care could be better, and they know what to ask for."



Attending neurosurgeon and former WCM fellow Japhet Ngerageza, MD (right), and two residents in the OR at the university hospital in Dar es Salaam. "This is a great example of how we help them do a case—we're not even there," Härtl says. "Sometimes we don't even scrub in. We talk to them, assist them."



Inner Calm

At WCM's Jill Roberts Center and Jill Roberts Institute, a bench-to-bedside approach offers new hope for patients with IBD

By Anne Machalinski

PORTRAITS BY JOHN ABBOTT

It was near the start of a new year, around February 2012, when Ottavio Roseto started worrying he was dying. In the previous year, Roseto, a director at a financial services firm, developed unrelenting mouth sores, started having bouts of uncontrollable diarrhea, and watched as his arthritis and psoriasis—a skin condition he'd lived with for as long as he could remember—went from bad to worse. What concerned the Staten Island man most, though, was that he'd lost more than eighty pounds from his 225-pound frame in a matter of months. "I had to go and buy new clothes every week," says Roseto, now fifty-nine. "I got to the point where I couldn't even sit, stand, or walk. It was horrible. I thought this was it."

After tests ruled out lymphoma, a colonoscopy in summer 2012 revealed that Roseto had Crohn's disease, a chronic, inflammatory condition that can lead to symptoms both far-reaching and diverse. Soon after that diagnosis, Roseto was referred to Weill Cornell Medicine's Jill Roberts Center for Inflammatory Bowel Disease, where his path to recovery began.

Sixty-eight-year-old Brian O'Byrne is also a patient at the Roberts Center, being treated for another type of inflammatory bowel disease, ulcerative colitis. While in Crohn's healthy parts of the intestines can be found between diseased areas, which can present anywhere in the gastrointestinal tract, in ulcerative colitis the inflamed tissue is continuous and localized to the colon. O'Byrne, who lives in Rye, New York, and is a consultant in the beverage industry, was diagnosed at thirty-five—meaning that for almost half of his life, he has seesawed between periods of relative health and flare-ups that cause persistent, bloody diarrhea that can strike up to a dozen times a day. Over the years, he'd been treated by various gastroenterologists and gone on and off a number of alternative and mainstream therapies. "I'd tried almost everything," O'Byrne says, "and nothing worked."

Ellen Scherl, MD, the Jill Roberts Professor of Inflammatory Bowel Disease and the Center's director, eventually selected both men as excellent candidates to enroll in separate clinical trials. Her hope was that new, experimental and more personalized treatments would help these patients induce and then maintain a long-term disease-free state of remission, always the clinical goal when dealing with either Crohn's or ulcerative colitis, which are considered incurable, she says. Although they were similarly hesitant and concerned about the drugs' side effects, Scherl was able to explain to them why the treatments' potential benefits outweighed the risks.

'Within two days of starting in the trial, my symptoms cleared,' says IBD patient Brian O'Byrne. 'I'm finally in remission, and without any side effects.'

With this support, Roseto entered a trial in July 2013 and O'Byrne in January 2016. In both cases, their treatments worked. "I'm feeling fantastic and living a normal life," says Roseto, whose diarrhea, mouth sores, psoriasis, and arthritis resolved within weeks—some symptoms within days. He remained on a maintenance arm of the drug's trial until it was FDA approved earlier this fall. "It's been a miracle for me," Roseto says. O'Byrne's response to a different targeted therapy was just as swift. "Within two days of starting in the trial, my symptoms cleared," he says. "I'm finally in remission, and without any side effects." >

Roseto and O'Byrne exemplify how the diagnosis and treatment of Crohn's disease and ulcerative colitis have improved in recent years. At the forefront of this revolution are the Jill Roberts Center for Inflammatory Bowel Disease, which opened more than a decade ago to treat patients, and its two-year-old scientific partner, the Jill Roberts Institute for Research in Inflammatory Bowel Disease. Together, these multidisciplinary programs work with WCM surgeons, geneticists, pediatricians, rheumatologists, nutritionists, and other medical professionals to tackle the chronic, common, and often debilitating conditions known as IBD. As the Center's physicians treat thousands of patients with the best available therapies, Institute scientists conduct basic research to better understand the underpinnings of the conditions. And as investigators make new discoveries, they hope to rapidly translate this research to the clinic, and to contribute to meaningful therapies and cures. "Everything is coordinated, so that we can investigate what's going on with our patients in the laboratory and then translate innovative discoveries and new cutting edge therapies back into their lives," says Scherl. "But we've done more than just create this wonderful bridge. This entire institution has mobilized to care for the diverse community of patients living with IBD and to cure these diseases."

Contemplating a Cause

Although Roseto and O'Byrne are in remission, neither has the answer to a central question: why did they get inflammatory bowel disease in the first place? Although some of the 5 million people worldwide and 1.6 million Americans living with IBD have an inherited form of the disease, neither man has that family history—which means that their conditions were influenced by other factors, like non-inherited genetic alterations or environmental exposures that impacted the microbiota, or beneficial microbes, that live in their guts. "There are literally trillions of bacteria and viruses that

are essential to our health," says David Artis, PhD, the Michael Kors Professor in Immunology and director of the Roberts Institute. But in patients with IBD, he says, the composition of those microbial communities shifts, which can open the door to more inflammation. "We're trying to understand how these communities change in diseases like IBD," Artis says, "and how those changes are promoting the disease and introducing immune cell activity that's destroying intestinal tissue."

As researchers in the Roberts Institute continue to study why patients develop IBD and what the specific types of the disease are,

'This entire institution has mobilized to care for the diverse community of patients living with IBD and to cure these diseases,' says Ellen Scherl, MD.

scientists have already determined how immune system dysfunction can lead to uncontrolled gastrointestinal inflammation and its ensuing symptoms. It goes like this: The job of the immune system is to recognize infections, bacteria, viruses, or fungi in the body, and mount an inflammatory response when necessary to eliminate these intruders. But in people with IBD, the immune system goes awry and remains constantly turned on and at high alert. The result is ongoing and chronic inflammation, which can cause a variety of side effects including mouth sores; abdominal pain; ulcers in the intestines and colon, which can result in bloody diarrhea; lesions that can tear through intestinal tissue and create holes, called fistulas; and systemic inflammation throughout the body that can cause related issues from arthritis to psoriasis to cancer.

INFLAMMATORY RESPONSE: A color-enhanced image shows tissue damage in a mouse model of intestinal inflammation (seen in orange).

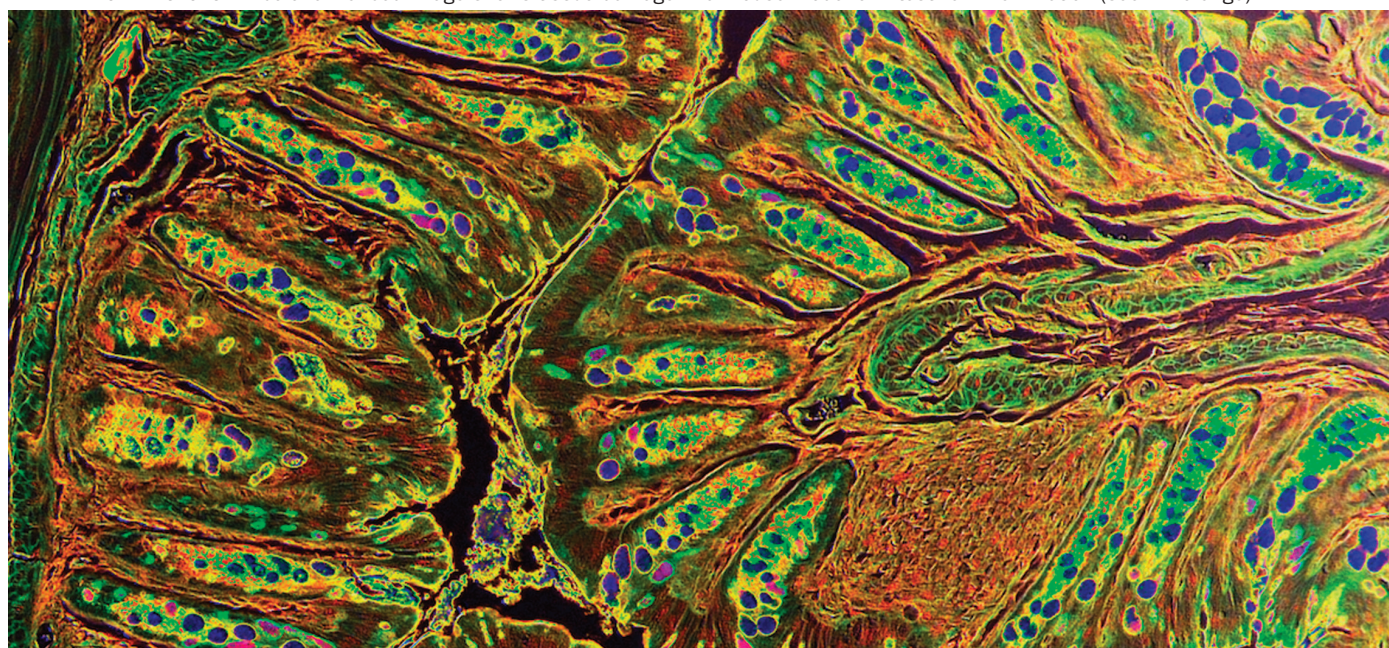


IMAGE: LAUREL MONTICELLI, PHD, AND DAVID ARTIS, PHD



Ellen Scherl, MD

Treatment History

The first IBD treatments, available since the Fifties, targeted the symptoms of the disease but not the root cause of the inflammation. It wasn't until 1997 that the first type of immune-suppressing therapy, known as anti-tumor necrosis factor alpha agents, or anti-TNF, came on the scene. These drugs work by decreasing T-cell production of the tumor necrosis factor protein, which is released as part of a normal inflammatory response. Approved by the FDA in 1998, "these anti-TNF drugs changed the way we treat inflammatory bowel disease by allowing us to control inflammation and change the disease's trajectory before it progresses and becomes chronic inflammation, or 'wounds that do not heal,'" Scherl says.

Although anti-TNF therapies were a pivotal discovery—and are still used in many cases—they have no effect on one-third of Crohn's patients. Even with some response, many IBD patients remain stuck on steroids or other medications to try and stave off inflammation. It was only in 2014, almost twenty years after anti-TNF therapies entered clinical practice, that a second type of immune-altering therapy was approved for treating IBD. Rather than decrease inflammatory proteins, this drug, called vedolizumab (Entyvio), prevents white blood cells that make pro-inflammatory small proteins, called cytokines, from being recruited to tissues in the gut. "There's been a

natural evolution of therapies," says Scherl, "which has made this a time of hope for patients with IBD, the clinicians who treat them, and the researchers who study the disease."

That evolution of therapies continues, as additional drugs that alter the body's immune response are being tested and FDA approved. The drug that's helped Roseto, called ustekinumab (Stelara), was approved by the FDA in September after more than a decade of testing through international, multi-center clinical trials, for which Scherl was the principal investigator from the beginning. Although it works by altering the body's immune response in a slightly different way from the anti-TNF drugs, the intended outcome is the same: normal, rather than sustained, inflammation, says Scherl, who has also served as a paid member of an education and advisory board for Janssen, the maker of Stelara and sponsor of the ustekinumab trial. "Some patients that would have ended up in surgery had such a positive response that their intestinal tissue was salvaged," she says.

O'Byrne, who tried two anti-TNF medications as well as "every single diet possible," finally reached remission with a different type of immune-altering therapy, which is also only available as part of a clinical trial. This drug, called etrolizumab, inhibits production of a molecule that has been found at high levels in the gut during inflammatory episodes. By blocking the pathway that produces it, >

white blood cells are kept from the innermost layer of the intestinal tract, called the mucosa, and inflammation is reduced. “After thirty years without a remission, he’s finally there,” Scherl says of O’Byrne’s response to the therapy. “Now we can try and maintain it for him.” Despite promising new drugs, like the one that’s helped O’Byrne, Scherl noted that remission rates for ulcerative colitis patients remain under 30 percent. “There is still a critical unmet medical need for these patients,” she says, “which is why additional research in this field is so important.”

A Bridge to Research

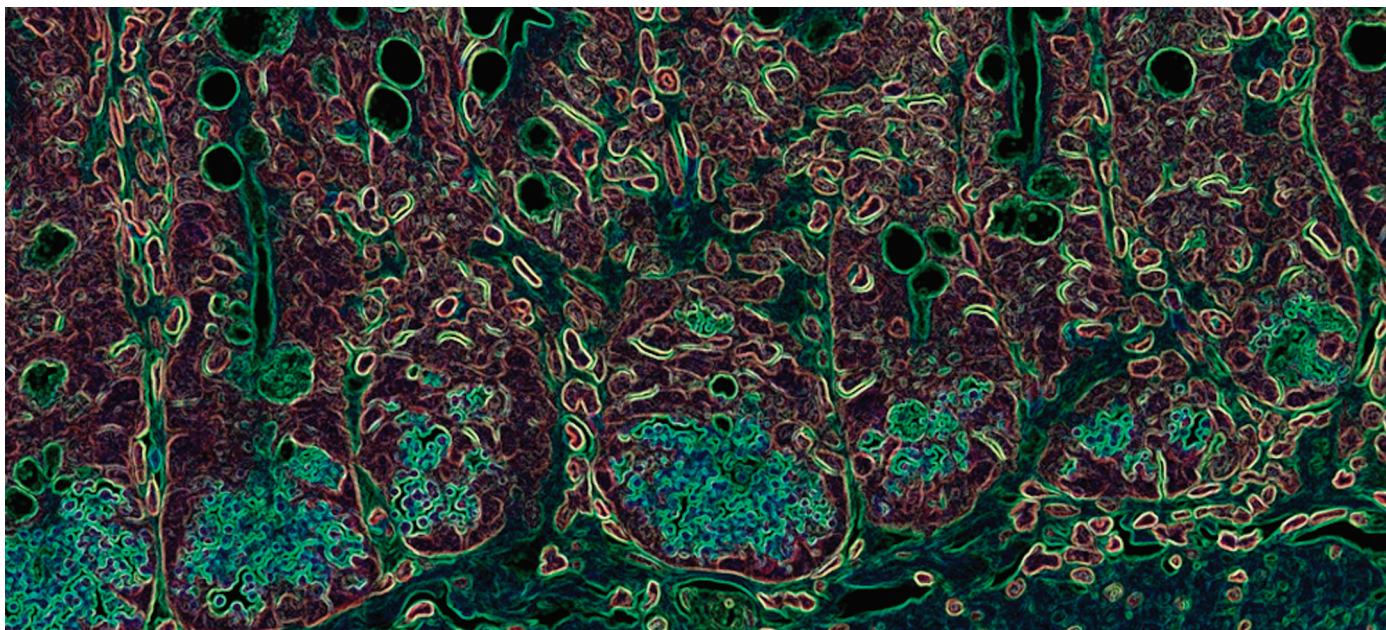
Along with using new immune-suppressing drugs to treat IBD patients, scientific inquiry focused on how gut microbes contribute to inflammation has led the Center and Institute to launch a joint clinical trial using what principal investigator Vinita Jacob, MD, an assistant professor of medicine, calls “the ultimate probiotic” to treat the disease: human feces. The small pilot study, which began in fall 2015, is using a method known as fecal microbial transplant to correct the altered microbial community in ulcerative colitis patients’ intestines by first cleaning them out and then introducing fecal

matter from a healthy donor. Although it may sound outlandish, it’s a process that has worked about 94 percent of the time in people with a sometimes difficult to treat bacterial infection in their colon, called *Clostridium difficile* colitis, Jacob says. So far, it seems to hold promise for patients with moderate to severe ulcerative colitis, too. “This procedure is extremely appealing to most young IBD patients who are going to have this chronic disease for their lifetime,” Jacob says. “Many of my patients would rather do a fecal transplant—as unappealing as it may sound—than be on long-term immunosuppressive therapy.”

While other academic medical centers have run similar clinical trials and used fecal microbial transplant on a small number of patients with IBD, WCM’s study is different because investigators are collaborating with Institute scientists to not only determine whether the treatment is safe and effective, but also why it might work. Jacob regularly meets with the twenty study participants who’ve already undergone the one-time fecal transplant to assess their IBD symptoms and collect stool and blood samples, which assistant professor of medicine Randy Longman, MD ’07, PhD, then analyzes to determine what’s happening at the molecular level.



David Artis, PhD (left), and Randy Longman, MD '07, PhD



LINE OF DEFENSE: A color-enhanced image of a mouse intestine includes the intestinal barrier, depicted in red and green.

This three-year follow-up process should answer some basic questions: How can scientists take a fecal microbial community and use it to repopulate someone else's gut? If the transplant takes, how long does it last? And, most importantly, why does it work? The idea is that with this knowledge, scientists will be able to develop a drug to mimic the benefit of fecal transplants without actually having to use fecal material, Artis says.

Other IBD Insights

Longman, an assistant professor of medicine, who splits his time between clinical work with the Center and scientific research through the Institute, is spearheading a number of lab-based efforts to better understand what his IBD patients experience. The first is a study of joint inflammation and a condition called spondyloarthritis, which causes pain in up to 30 percent of Crohn's patients, Longman says. He's investigating if specific bacteria in the microbiome and genes in those bacteria, which control immune cell activation, might be to blame for this inflammation and pain. With additional knowledge in this area, he says, scientists will develop a diagnostic test to determine how alterations within the microbiome contribute to each patient's disease, which clinicians could then use to select the most effective type of immune-suppressing therapy at the start of treatment. "This is really the first time we've shown that you can stratify Crohn's disease," Longman says. "It's an important advance that could elevate how we deal with this disease."

Another way that the Institute is working to further classify the various types of Crohn's disease and ulcerative colitis is by studying the more than 500 patient samples of intestinal tissue, blood, and stool that make up WCM's ever-growing IBD live cell bank. Since it opened in July 2015, consenting adult IBD patients have allowed researchers to collect these samples so that they can study aspects of their immune system and their gut microbes. While many institutions have biobanks, which store frozen samples of

blood and tissue for later analysis, this live cell bank relies on an Institute-developed protocol to isolate and freeze immune cells in a way that keeps them in a kind of suspended animation—preferable for running experiments—until investigators are ready to thaw them to study molecules and pathways that might be therapeutic targets for IBD, Artis says. Along with these samples, investigators keep extensive data on each donor's symptoms, family history, medications, and other factors. "The live cell bank allows us to scientifically capture every person who comes through our IBD practice and endoscopy suite," Artis says. "It offers us a sort of quantum leap in terms of the type of analysis we can do with these patient samples."

'We're heading toward a place where we treat IBD patients as individuals with their own series of symptoms, microbiota, and genetic history,' says David Artis, PhD.

Many of the other research projects that the Institute is overseeing use tissue from the cell bank in their experiments. These include studies on how inflamed intestinal tissues can repair themselves; how genetic pathways contribute to disease; and a deep dive into the little-studied role that the intestines' good fungi play in immune activation and inflammation. "We're heading toward a place where we treat IBD patients as individuals with their own series of symptoms, microbiota, and genetic history," Artis says. "Rather than just tagging patients with a clinical label, soon we'll be able to use this information to better treat each person." ■

NEWS OF MEDICAL COLLEGE AND GRADUATE SCHOOL ALUMNI



Dear Alumni,

I recently watched *The Music of Strangers*, a documentary about Yo-Yo Ma's exploration of the music of the Silk Road. The film was beautifully shot, and its visual beauty and haunting music intensified the story of Ma's increasing interest in the intersection of cultures, music, and shared humanity.

What struck me most about the film was Ma's frank exploration of his crisis of confidence in his career and life. He was a man who had established a "safe zone" both for his musical repertoire and his relationship with fame. Then, in midlife, he became tired of the "same old, same old" and embarked on a search for something new. While casting about for he really didn't know what, Ma happened upon the music of the ancient Silk Road—and it has proven to be a source of inspiration, exploration, and growth for him for the past fifteen years.

As I reflected upon his journey, I thought of our preparation at Weill Cornell Medicine. We were given the tools to develop our medical repertoire. But we were also given implicit license to go beyond this; to continuously grow. Many of my classmates have had multiple careers, all of them marked by expertise and professional reputation, but many of them sharp departures from their previous lives. I don't believe this is an accident. We were all selected for being more than merely good students; we had the potential to excel and become more than we then imagined.

The same is true of the students at WCM today. They are ever more able, both in terms of their test scores and grade point averages—but, more impressively, by their potential to make a difference to their profession.

Those of you who attended the recent Reunion and were exposed to these students could see it for yourself. And you also saw the incredible facilities that are available to them to foster their learning in a creative and safe environment. Our Reunions are an opportunity to reconnect with old friends, rediscover the core values of WCM, and exchange ideas with students and the Office of Alumni Relations. For those of you who did not attend, I encourage you to consider a trip to New York City in 2018 for the next Reunion.

The Alumni Association is your association. We are here to engage and assist you. We are involved with many student initiatives at WCM and plan to assist even more in the future. We aim to facilitate alumni supporting alumni—especially our recent graduates, many of whom train in some of the most prestigious programs in the country.

I am honored and pleased to be your president, and I encourage you to speak to me with any questions or concerns during my tenure.

Yo-Yo Ma once said that "one of the wonderful things about music is that we are always learning." Of course, the same is true about medicine.

I look forward to hearing from you.

Stuart Mushlin, MD '73
President, Weill Cornell Medical College Alumni Association
stuartmushlin@icloud.com

1950s

Bernie Siegel, MD '57: "I'm still keeping busy lecturing and writing books and plan an autobiography about my life as a physician and all the mystical experiences and true education life has presented me."

1960s

Anthony Saidy, MD '62: "As medical advisor I accompanied the favorite US Team to the Chess Olympiad in Baku, Azerbaijan, nimbly skirting four war zones. I am expecting an invitation to the Brooklyn Book Fair to sign my book, 1983, *a Dialectical Novel*."

John Ziegler, MD '64, UCSF emeritus professor of medicine, was inducted as an honorary fellow of the Royal College of Physicians (London) in June in recognition of his "significant contribution to the medical profession." This is one of the highest distinctions bestowed by the 500-year-old institution, which identifies 20 recipients each year as exceptional among their peers.

Edgar J. Kenton, MD '65: "I am recently transitioning from a stint as director of neurology, co-director of neurosciences, and director of the stroke program of the Geisinger Health System, Danville, PA. I remain active as a fellow of the American Academy of Neurology, chairing its Vascular Neurology Resources Workforce charged with the recruitment and retention of vascular neurologists. I also serve on the board of directors of the Great Rivers Affiliate of the American Heart/American Stroke Association (AHA/ASA), which provides cardiovascular disease and stroke resources for Pennsylvania, Delaware, Ohio, Kentucky, and West Virginia, and serve as chair of the Health Strategies Committee and chair of its Stroke Taskforce and a fellow of the AHA/ASA. Otherwise, I continue traveling, recently to the Czech Republic, Austria, Singapore, and Australia. Best wishes to the Class of 1965."

N. Reed Dunnick, MD '69: "I received the Visionary Leadership Award from the Society of Chairs of Academic Radiology Departments at their annual meeting in April."

1970s

Ivan Login, MD '71: "I'm joining many of our 70-year-old alums to learn the new career of retirement from academic neurology. I saw my last patient in June. We plan to remain in Charlottesville as long as we are fit and then consider moving closer to daughters for whatever help we might need. Getting blasted with requests to do locums, but not interested. Best to all."



WHITE COATS: Michael Cheng '20 (left) and Molly Chodakewitz '20 receive the physician's uniform from Senior Associate Dean for Education Barbara Hempstead, PhD (far left), and Interim Dean Augustine M.K. Choi, MD.

Richard Lynn, MD '71, received the Presidential Citation Award in recognition of exemplary service from the Society for Vascular Surgery at the society's 70th annual scientific meeting.

David Daniel Hunt, MD '73: "After nine years serving as the co-secretary of the Liaison Committee on Medical Education (accreditation for US and Canadian medical schools) at the Association of American Medical Colleges, I and my wife have moved to our home in Northern California. I will remain half-time with the association continuing to assist with domestic accreditation, but have more time to provide international consultations to countries setting up their own educational quality management systems. Last fall, at the annual AAMC meeting, I was surprised and honored with the 2015 Distinguished Service award from the Group on Regional Medical Campuses. That was very special because before moving to Washington, DC, for the accreditation job, I oversaw the educational program for the University of Washington School of Medicine for 17 years with its five-state partnership of WWAMI (Washington, Wyoming, Alaska, Montana, and Idaho). After that, I moved to northern Ontario as the founding academic activities dean of their first new medical school in 30 years; this new school, like WWAMI, was community based with multiple regional campuses, so the award from the group on regional campuses was very special. I will be keeping the same e-mail address, dhunt@ aamc.org, so I hope you will keep in touch."

Allan H. Ropper '70, MD '74, has become a deputy editor of the *New England Journal of Medicine*. "I have been in neurology for more than 35 years and have written about my experiences with brain disease in *Reaching*

Down the Rabbit Hole (St. Martin's Press), which was a *Times of London* best seller and is short-listed for the British Medical Association book of the year award. A new book about the separation of mind and brain is in the works with Avery/Penguin Press."

Warrick L. Barrett, MD '75: "Both of my sons were married this year. Galen married the lovely Ashley Siler in Atlanta in March. Gregory married the equally lovely Alyssa Colbert in Edgartown, MA, in June. My daughter, Stephanie, and my son-in-law, James Wilkins Jr., have provided me with three grandchildren. Their oldest, my grandson Darius, served as a student assistant football coach for North Carolina A&T State University. During this past season, his team defeated Alcorn State University in the inaugural Air Force Reserve Celebration Bowl in Atlanta. By doing so, the 'Aggies' won the national championship of Historical Black College and University (HBCU) football programs. Darius, who had been a member of the football program at Old Dominion University before his playing career was short-circuited by an injury, will graduate from A&T this December. **Patricia Treadwell, MD '77,** again earned a Top Doctor award as recognized by *Indianapolis Monthly* magazine. She is an outstanding pediatric dermatologist and has become a perennial winner of this award."

Richard E. Greenberg, MD '76: "I was selected as the 2016 Annual Resident Teaching Award recipient at the American Urological Association's annual meeting in San Diego in May."

Alan C. Brown, MD '77: "My new position is retired grandfather. I spent my career as an ophthalmologist first doing corneal surgery then general ophthalmology at St. Luke's/Roosevelt with my office at 70th Street and West End Avenue. Now I ride my bike and play with my grandkids."

Steven Koenig, MD '77: "I am still working



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full bore at the Eye Institute of the Medical College of Wisconsin. My practice is focused on cataract, refractive, and corneal surgery, with a particular interest in endothelial keratoplasty (DMEK). I grow cold-hardy vinifera grapes and maintain an apiary in my spare time. I am thrilled that my daughter joined the WCM Class of 2020 this fall."

Thomas Kosten, MD '77: "I continue to work at the Texas Medical Center and collaborate with China as a professor at Peking University in developing vaccines for addictions including cocaine, methamphetamine, and nicotine. My new company for making these vaccines is called Kadvox and is located here in Houston. I am working at Baylor with another graduate of WCM and The Rockefeller University, **Peter Hotez, MD '87**, who develops vaccines for tropical diseases as president of the Sabin Vaccine Institute, which is also now located in Houston. It would be great to hear from any Cornellians working in immunology or vaccine development. I seem to have moved quite a way from the psychoanalytic psychiatry of Cornell back in the 1970s."

Jeffrey Gold '74, MD '78: "**Robin Hayworth '75, MD '78**, and I are so proud that our daughter, **Stephanie Gold, MD '16**, received her degree from WCM in May. She continues her education at NewYork-Presbyterian, following yet another family tradition. It was great to join her and her classmates at Carnegie Hall for a remarkable event. We are grateful and incredibly proud."

Harley A. Rotbart, MD '79: "My new book, *Miracles We Have Seen: America's Leading Physicians Share Stories They Can't Forget*, is a collection of 85 essays that eloquently attest to the awe and wonderment many of us have been fortunate to experience during our careers as physicians. Preeminent physicians in many specialties, including deans and department heads on the faculties of the top university medical schools in the country, describe in everyday language and with moving testimony their very personal reactions to the remarkable clinical cases and outcomes they have witnessed. Among the contributors of these powerful and inspiring accounts are 13 members of the WCM Class of 1979 as well as 1977 and 1985 alums, and three distinguished current WCM faculty." *For more on the book, see "Miracle Workers," page 16.*

1980s

Jim Blankenship '76, MD '80: "I climbed Mt. Kilimanjaro last summer with my three adult kids. The hardest part was getting the kids to go along."

Jeffrey Bluestone, PhD '80, a UCSF immunologist, serves as president and CEO of the Parker Institute for Cancer Immunotherapy, a national initiative launched with a \$250 million grant from the Parker Foundation, a private philanthropy established by Silicon Valley entrepreneur Sean Parker. Jeffrey, who was named to a Blue Ribbon Panel that is helping to guide Vice President Joe Biden's National Cancer Moonshot Initiative, is the A.W. and Mary Margaret Clausen Distinguished Professor at

UCSF, and will continue to oversee an active research program at the University.

Miryam Zahavy Wahrman, PhD '81, recently published her second book, *The Hand Book: Surviving in a Germ-Filled World* (2016, University Press of New England/ForeEdge Press), which makes the case for hand hygiene in healthcare settings and in everyday life. Wahrman is professor of biology at William Paterson University, where her research focuses on the interaction and transmission of bacteria on textiles and other surfaces. She is an award-winning science journalist and professor who has served as chair of the biology department, director of general education, and chair of the Faculty Senate at William Paterson University. She has published peer-reviewed articles in the areas of reproductive biology, development, cancer research, microbiology, and bioethics. Her previous book, *Brave New Judaism: When Science and Scripture Collide*, received many accolades, including a starred review from *Publishers Weekly*.

David A. Houghton, MD '84: "Plans for this fall's exhibition of my new landscape paintings of the western coast of Vancouver Island, 'Fear, Hope, and Longing III,' coalesced nicely. Visual Space Gallery was the location. I've invested in new LED lights (much cooler—for those who attended my last show in the Dunbar location) with special LED spotlights for smaller works. I finished a number of the paintings while in Tofino with Lyne the last two weeks of April."

Frederick J. Barnes, MD '86: "I continue to enjoy teaching orthopaedics to medical students from the Commonwealth Medical College in Scranton, PA. Virginia and I both have clinical faculty appointments with the college. I continue to serve as chief of the Department of Orthopedic Surgery at Pocono Health System, enjoying the lifestyle the mountains offer. Charles is attending Loyola University of Maryland, and Lillian Rose has begun her senior year at the Moravian Academy in Bethlehem, PA."

Abigail Falk, MD '89: "As an interventional radiologist and a fellow in the Society of Interventional Radiology, I am pleased to announce that I am now a fellow in the American Society of Diagnostic and Interventional Nephrology. My work with patients with end stage renal disease and involvement with ASDIN has been very rewarding."

Scott Rodeo, MD '89, and **Christine Frisora '85, MD '90**, are delighted to inform the Cornell community that Scott A. Rodeo Jr., Cornell Arts and Sciences Class of '18, is a Cayuga's Waiter and spent the summer in Rome studying at the Paideia Institute for the Humanities—exploring the Latin language including the late antique, Patristic, medieval, Renaissance, and modern periods. Sarah Rodeo (Vassar '17) is a music major studying at the



TOOLS OF THE TRADE: Shenzhen Shi '19 (left) and Christine Yang '19 distribute complimentary stethoscopes to Stephanie Tsai '20 (center) and Francesca Voka '20.

Choral Music Institute at Oxford. Mark Rodeo (St. Bernard's '19) is an avid quarterback, and Caitlyn Rodeo (Hewitt '23) is a young ballerina dancing at the Jacqueline Kennedy Onassis School of Ballet at the American Ballet Theater. At 12, she has already danced with the NYC Ballet, the Bolshoi Ballet Academy, and the School of American Ballet. Scott is the head team physician for the New York Giants and remains the physician in chief for US Swimming. He was at the Olympic Games in Rio with the US Swim team. Christine is a full-time faculty member in the Division of Gastroenterology at WCM. "Our classmates just turned 50—come on in for your colonoscopy."

1990s

Carolyn Eisen, MD '91, is a radiologist on staff at Weill Cornell Imaging and NewYork-Presbyterian Hospital specializing in breast imaging. She lives in Manhattan with her husband, **Mark Schwartz, MD '84**, a plastic surgeon also on staff at NYP, and her two daughters, Rebecca, 12, and Alexa, 11.

Avram Mack, MD '98, and his family moved from Washington to Philadelphia this past year when he became an associate chairman in the Department of Psychiatry at the Children's Hospital of Philadelphia (CHOP) as well as professor of clinical psychiatry at the University of Pennsylvania. Earlier in 2016 he was able to spend time on the NYP/WCM campus when he visited the pediatric ICU team to learn about their approach to delirium in young children. In his spare time, Avram co-edited the 4th Edition of *Clinical Textbook of Addictive Disorders* and has been a psychiatric expert witness in venues around the country.

'Robin Hayworth '75, MD '78, and I are so proud that our daughter, Stephanie Gold, MD '16, received her degree from WCM in May. She continues her education at NewYork-Presbyterian, following yet another family tradition.'

— JEFFREY GOLD '74, MD '78



CAPTURE THE MOMENT: Samantha Phillips '20 (right) poses in her coat alongside her mom, Nancy Phillips.

Dinah Miller, MD '98: "I'm excited about the release of my new book, *Committed: The Battle Over Involuntary Psychiatric Care*, and I enjoyed being a journalist while I conducted months of interviews and observations, rode along with the police, and went to mental health court. It's an insider look at the complex issue of forced care and psychiatry's role in preventing violence and mass murder, written for anyone who might be interested (not just psychiatrists)."

2000s

Michael S. Irwig, MD '00, has a growing practice of transgender patients in the D.C. area and recently authored a review article entitled "Testosterone therapy for transgender men," which appeared in the *Lancet Diabetes & Endocrinology*.

Joshua S. Dines, MD '01: "I was promoted to associate professor of orthopaedic surgery at WCM and continue to be an assistant team physician for the New York Mets and a sports medicine consultant for the New York Rangers. In August, I traveled to WCM affiliate Aspetar Sports Medicine Hospital in Doha, Qatar, to operate."

Chandra Ivey, MD '01: "My present job is at Peak Woo, MD LLC. After hours I still love my book club, which mixes interest in literature with my enthusiasm for wine. I'm restarting to garden and love every minute I get to do this. I still love to sing (No-tochords) and now add watching my kids play sports, dance, and sing. I have two wonderful children who keep me aware of what is really important in the world. We have recently moved out of New York City to the suburbs and love having a yard and neighborhood again, but we miss the restaurants. I would rather be traveling the world with my husband, sampling food from every country, or

going Zen in an ashram or something far, far away. I remember hanging out with my roommates **Jill Zimmer, MD '01,** and **Matt Prout, MD '01,** space shuttle rolls at Japan East, exercising at the gym after general surgery rotation, gross anatomy, AFAR research in Boston between first and second year, a trip to Vienna in the fourth year with awesome colleagues, and minority mentoring/annual Career Day participation. I'd like to hear from Matt, as I've not heard from him lately."

Marisa Rodriguez, PA '03, is one of only 220 certified physician assistants nationally to recently earn a specialty credential called a Certificate of Added Qualifications (CAQ) from the National Commission on Certification of Physician Assistants (NCCPA). Marisa was awarded a CAQ in pediatrics, a distinction earned by meeting licensure, education, and experience requirements and then passing a rigorous exam in the specialty. She is the only certified PA in New York State to earn a CAQ in pediatrics since the program's inception in 2014. CAQs are also offered to certified PAs in six other specialties: cardiovascular and thoracic surgery, emergency medicine, hospital medicine, orthopaedic surgery, nephrology, and psychiatry. Marisa has been employed at PM Pediatrics in Syosset, NY, for eight years. She has lectured at conferences on basic and advanced wound care, including the Pediatric Urgent Care Conference in New York City.

Michael Repucci, PhD '04, completed his thesis work with **Jonathan Victor, MD '80,** where he built a software platform for visual stimulus generation. He later worked with Dr. Daniel Gardner and Dr. Victor to expand development of the Spike Train Analysis Toolkit (STAToolkit), a compiled Matlab package for information-theoretic analysis. He currently leads software development at Evoke Neuroscience, a health startup in NYC. He lives in Brooklyn, NY, with his wife, five-year-old daughter, and one-year-old son. He is an active member of the meditation community at the Brooklyn-based Vajradhara Meditation Center.

Alexis Tapanes-Castillo, PhD '04, was just promoted to assistant professor of biology at St. Thomas University in Miami Gardens, FL. Her research focuses on neuronal differentiation and connectivity. One project uses *Drosophila melanogaster* as a genetic model organism to study the branching patterns and circuitry of sensory neurons. A second project, done in collaboration with the University of Miami Human Institute of Human Genomics, studies how genes that are differentially expressed between control and autistic patients affect the cellular

and molecular biology of neurons derived from induced pluripotent stem cells.

Sophie Bartsich '97, MD '05: "I opened two new offices at 960 Park Ave. and 281 Broadway in New York City. I am also credentialed at Hospital for Special Surgery and a board member of Voyager Med, a referral system for international patients. I am accepting new patients both uptown and downtown. Visit me at www.doctorsophie.com."

Maria Barna, PhD '07, is an assistant professor in the departments of developmental biology and genetics at Stanford University. She completed her thesis work in the lab of Dr. Lee Niswander in the developmental biology department at Sloan Kettering Institute. Maria was subsequently appointed as a UCSF Fellow through the Sandler Fellows program, which enables exceptionally promising young scientists to establish independent research programs immediately following graduate school. She has received a number of distinctions including being named a Pew Scholar, Alfred P. Sloan Research Fellow, and top "40 under 40" by *Cell Journal*. She has received the Basil O'Connor Scholar Research Award and the NIH Directors New Innovator Award. In 2015, she was the recipient of the Rosalind Franklin Young Investigator Award, an award given to two female scientists in the world every three years in the field of genetics.

Ross MacDonald, MD '08, is currently serving as chief of medicine for the newly created Division of Correctional Health Services of NYC Health + Hospitals and assistant professor in the Division of General Internal Medicine at Albert Einstein College of Medicine. Ross and his wife, Jenny, live in Manhattan with their two-year-old son, Ian, and welcomed a daughter, Lily, in May.

Meghan Garofalo Bates, PA '09: "I am currently living in Orlando, FL, and practice in adult hematology and oncology. My husband, Warren, and I welcomed our first child into the world in April. His name is Warren Wesley Bates IV, but he goes by 'Gus.'"

2010s

Prabhjot Singh, MD '11: "I was just named chairman of a new department at Mount Sinai School of Medicine—Health System Design & Global Health—which is the first of its kind in the nation. In addition, my first book came out in September, entitled *Dying and Living in the Neighborhood: A Street Level View of America's Healthcare Promise* (Johns Hopkins Press). It was covered by NPR and other news outlets, and I'd welcome the opportunity to discuss the book at institutions where our alumni network reaches."

Cristina Ghenoiu, PhD '12, recently left her position as a biotech equity research associate at

Cowen and Company to join Longitude Capital as a vice president in Menlo Park, California.

Eleni Greenwood, MD '12, completed her residency training in ob/gyn in June. She will be continuing as a clinical fellow at UCSF in reproductive endocrinology and infertility.

Naira Rezende Simmons, PhD '12, is a patent agent at Wilson, Sonsini, Goodrich & Rosati, PC. She lives in San Francisco with her husband, Nate, and daughter, Beatriz.

Andrew Pollock, PhD '14, played an instrumental role in the scientific and product development for variant curation at Recombine before joining Phosphorus as a variant curation scientist.

Tracey Van Kempen, PhD '14: Since completing her doctoral work at Weill Cornell at the end of 2014, Tracey decided to stay in New York City and has been enjoying the variety and excitement of working in medical advertising as assistant medical director at Flashpoint Medica. Although she is now away from the bench, Tracey's work in promotional and medical education allows her to stay on the cutting edge of science and medicine. The excitement in medical advertising is not limited to the science. This July, Flashpoint Medica merged with AgencyRx and three other agencies to form DDB Health. Tracey is looking forward to her role in the new DDB Health and was recently promoted to associate medical director.

Dandan Xu, PhD '14, is the chief scientific officer for SolveBio, a genomics data informatics company based out of New York.

Judith A. Dattaro, MS '15: "I completed my master's in clinical investigation in August 2015 and participated in the Commencement ceremonies at Carnegie Hall in May 2016. Interestingly, it was 25 years ago that I walked across the same stage to get my medical degree [from SUNY Downstate]."

Christopher Way, MS '15: "I began work at FAIR Health as a data analyst in November 2015. FAIR Health is a national, independent, nonprofit corporation whose mission is to bring transparency to healthcare costs and health insurance information through comprehensive data products, consumer resources, and the support of health services research."

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IN MEMORIAM

ALUMNI

'39 BA, MD '43—Mervin G. Olinger of Fairfield, NJ, formerly of Verona, NJ, June 17, 2016; internist; pulmonary specialist; clinical associate professor at the College of Medicine and Dentistry of New Jersey; medical director, Mountainside Hospital; veteran; avid golfer; active in civic, professional, and alumni affairs. Tau Delta Phi.

'47 MD—Nelson R. Niles of Portland, OR, April 25, 2016; pathologist, University of Oregon Medical School (now Oregon Health Sciences University); taught pathology to medical students and residents; as a professor emeritus he taught pathology at the School of Dentistry; physician at Madigan Army Hospital, Fort Lewis, WA; veteran; tennis player; singer with the Balladeers; lover of limericks and poetry, baseball, mystery novels, histories, and Gilbert and Sullivan operettas.

'52 MD—Sidney L. Werkman of Washington, DC, February 28, 2016; clinical professor of psychiatry, Georgetown Medical School; professor of psychiatry, University of Colorado School of Medicine; senior psychiatric consultant, US Peace Corps; physician, Canadian Everest Expedition in 1983; veteran; author; jazz clarinetist; flautist; skier; active in community, professional, and religious affairs.

'54 MD—Ronald H. Allen of Mahwah, NJ, and Palm Beach Gardens, FL, April 10, 2016; obstetrician and gynecologist; veteran; champion golfer; poker player; New York Mets fan.

'54 MD—James W. Mosley of Los Angeles, CA, November 26, 2015; expert in transfusion medicine and the epidemiology of hepatitis viruses, HIV, and other food, water, and blood borne infections; emeritus professor of medicine at the Keck School of Medicine of the University of Southern California; principal investigator, NIH's Transfusion-transmitted Viruses Study; instrumental in developing the NIH Transfusion Safety Study; medical epidemiologist and director, Acquired Immune Deficiency Syndrome Program, Los Angeles County Dept. of Health Services; chief of the hepatitis unit, Centers for Disease Control; officer and later medical director of the Public Health Service; worked on the World Health Organization's Polio Elimination Program and USAID Relief Mission for Smallpox and Cholera; Fogarty Senior International Fellow; author; editor; lover of food and wine; gardener; book club member; traveler; mountaineer; whitewater rafter; devotee of

opera, classical music, theater, and art; visited archeological sites around the world.

'58 MD—Robert G. Brayton of New York City, March 8, 2016; WCM professor; expert in internal medicine and infectious disease; medical director of Irving Trust Bank and the Bank of New York; collector of American art and antiques; painter; carver; furniture restorer; taxidermist; conservationist; active in community and professional affairs.

'59 BA, MD '63—Alfred N. Krauss of New York City, May 30, 2016; professor emeritus of clinical pediatrics, Weill Cornell Medicine; active in professional and alumni affairs.

'68 MD—Charles D. Semel of Orlando, FL, July 24, 2015; psychiatrist for the Public Health Service and in private practice.

'80 MD—Gregory J. Naus of Vancouver, BC, December 25, 2015; senior consultant pathologist at the British Columbia Cancer Agency; clinical professor of pathology at the University of British Columbia; professor of pathology, University of Pittsburgh School of Medicine; medical director of gynecological and breast pathology at Magee-Women's Hospital of the University of Pittsburgh, and residency, fellowship, and education program director for the Dept. of Pathology; research associate at MIT; member of the Academy of Master Educators; traveler; avid reader.

FACULTY

Takeo Iwamoto, MD, PhD, of Cresskill, NJ, June 28, 2016; retired professor of clinical ophthalmology; leading ophthalmic electron microscopist; published more than 145 articles and chapters; accomplished artist; masterful in the strategy game GO; student of judo.

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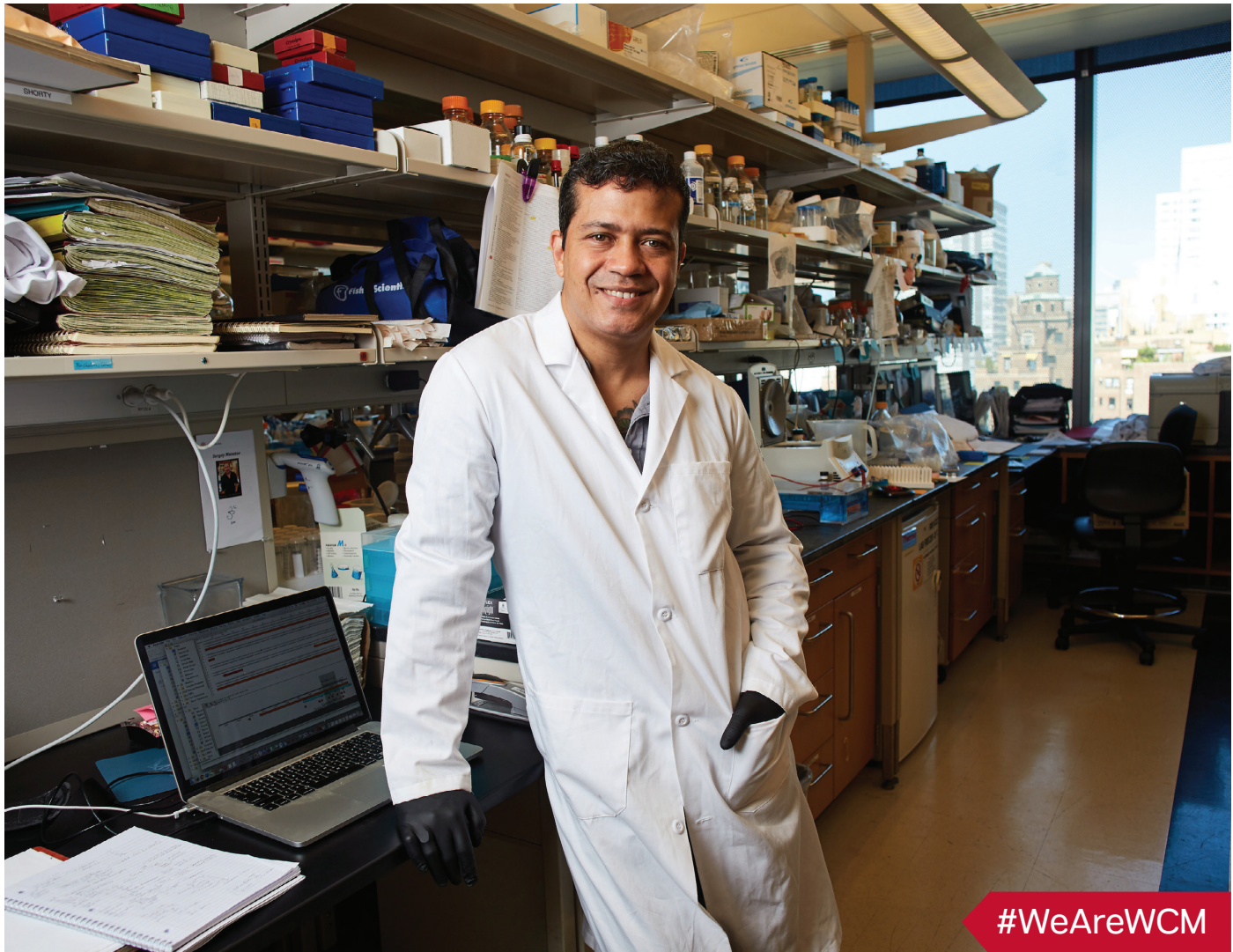
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After a career in law enforcement—and childhood struggles with learning disabilities—first-year student Christian Saffran is launching into the life of the physician-scientist



As a kid I was strong in math and science, but I read slowly and careers involving higher education didn't seem open to me. After high school I realized I was willing to be the person who runs toward danger, so I joined the NYPD. I worked as an undercover detective in the Organized Crime Control Bureau, but I was raising my daughter myself and eventually decided to become a private investigator. In the meantime my daughter was growing up; she was very smart, but had problems getting through assignments. I got her tested and it turned out she and I had similar learning disabilities. She got help and thrived, and it made me think I might be able to go

back to school. I earned a 4.0 in community college, got a bachelor's in biophysics from Columbia—where my daughter was also a student—and went to work in the lab of Michael Kaplitt, MD '95, PhD, in WCM's Department of Neurological Surgery. He's both a P.I. and a practicing neurosurgeon, and he's so brilliant. Whenever he'd consider a research proposal he'd always ask, 'How would this work in a human being?' That spoke to me, and I realized I wanted to earn an MD-PhD—even though, at forty-six, I'm looking at many years of being a novice. I'd always thought this was a life I couldn't have. Now, having learning be my principal occupation is the most exciting thing in the world." ■

PHOTO: TRAVIS CURRY PHOTOGRAPHY



A Legacy Gift inspired by a special bond

“Over the past 13 years, psychiatry has completely changed my life. It’s been a transformational experience,” Brooks Betts says of her work with Judith Tanenbaum, MD ‘88, clinical assistant professor of psychiatry. She adds, “I now share a special bond with Dr. Tanenbaum, both spiritually and professionally.”

With a bequest in her will of \$3 million to establish the endowed Betts Tanenbaum Chair in Clinical Psychiatry, Ms. Betts hopes to underscore the importance of psychotherapy in the field of psychiatry – and honor her longtime psychiatrist.

Ms. Betts supports the arts, healthcare, and human services throughout New York. She currently serves as the vice president of her parents’ foundation, the Robert B. and Emilie W. Betts Foundation, and is a trustee of Helen Keller International. So when it was time for Ms. Betts to redo her will, she decided to support Weill Cornell Medicine and honor Dr. Tanenbaum, who has helped her improve her quality of life for over a decade.

“Brooks wants to enable psychiatrists at Weill Cornell Medicine to pursue their clinical dreams,” Dr. Tanenbaum said. “Her gift brought tears to my eyes. Brooks has worked incredibly hard on her personal development and is so brave to share her story. But for me, watching her transform 180 degrees is a gift in and of itself.”

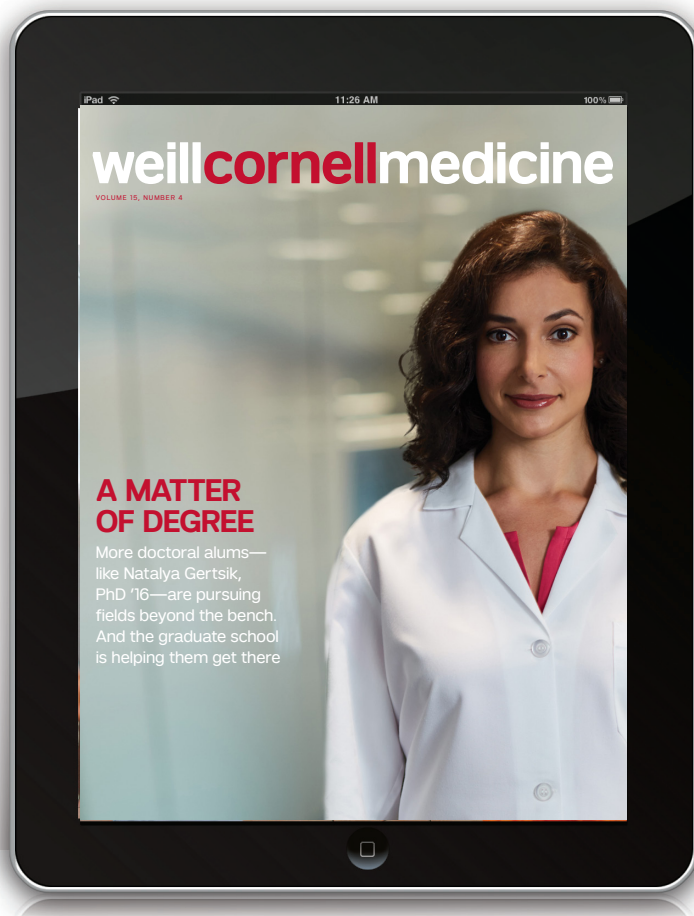
Both Ms. Betts and Dr. Tanenbaum hope that this gift will not only support the careers of future psychiatrists, but will also inspire other patients to share their own experiences with psychotherapy.

To learn more about how you can create a legacy to support Weill Cornell Medicine through planned giving, please contact:

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