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FALL 2018

IN BALANCE

WCM puts a special focus on medical student and physician wellbeing





Weill Cornell Medicine



Dancing at the Gala



Dr. Mae Jemison (MD '81)
and Dean Augustine M.K. Choi



Dr. Alicia Genisca (MD '08)
and Dr. Estomih Mtui
during the Gross Anatomy
Lab tour.



Alumni
gathered in
Uris Auditorium
for a conversation with
Dr. Mae Jemison (MD '81).

Alumni Reunion

On Friday, October 5, and Saturday, October 6, **over 350 medical college alumni and guests traveled from near and far** to return to Weill Cornell Medicine for Reunion 2018. Thank you to everyone who joined us and helped make this biennial event such a success!



Back row, from left:
Dr. Todd Egner (MD '88),
Dr. Paul Kirchgraber (MD '88)
and Dr. Phyllis Townsend (MD '88)
Front row, from left:
Dr. Theresa Rohr-Kirchgraber (MD '88),
Dr. Kathleen Baldrige Gordon (MD '88)
and Dr. Michael B. Silberberg (MD '88)



From left:
Dr. Joseph Habboushe (MD '07),
Dr. Stuart Mushlin (MD '73) and
Dr. Natasha Leibel (MD '98)



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THE MAGAZINE OF
WEILL CORNELL MEDICINE

FALL 2018



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LETTERS TO THE EDITOR

Weill Cornell Medicine welcomes comments and correspondence from readers. Letters may be edited for length, clarity, and civility. We may not be able to publish all correspondence received, but we would like to hear from you. Please write to: wcm@med.cornell.edu.

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COVER PHOTO: ROCK CLIMBER
SEBASTIAN BIDEgain '22
BY STEPHANIE DIANI

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BETH SAULNIER

As awareness has increased that aspects of medical school and physician practice can contribute to burnout, educators and administrators nationwide are working to create learning environments that optimize student wellbeing and resilience. At Weill Cornell Medicine, initiatives to combat stress have been launched at a variety of levels, from student life to the curriculum to individual clinical departments. As Alice Tang, MD, assistant professor of clinical medicine, notes, open discussion of such issues has come a long way since she graduated from medical school only six years ago. “Back then, burnout was almost conceptualized as for people who are weak and can’t cope, so if you’re burned out it’s your fault,” she says. “We’re lucky that there’s now so much in the media and the medical journals showing that this is a systemic issue.”

32 OPPORTUNITY KNOCKS

MOLLY SCHULSON

A trio of summer training programs at Weill Cornell Medicine have long provided research experience, mentorship, and other benefits to undergraduates who are socioeconomically disadvantaged or who come from minority groups that are underrepresented in the medical sciences. Two of them—Advancing Cornell Career Experiences for Science Students (ACCESS) and Gateways to the Laboratory—mark twenty-five years of service in 2018, while the Travelers Summer Research Fellowship celebrates fifty years. In honor of those milestones, *Weill Cornell Medicine* asked six program alumni to describe how their summers on campus not only informed their careers, but enriched their lives.

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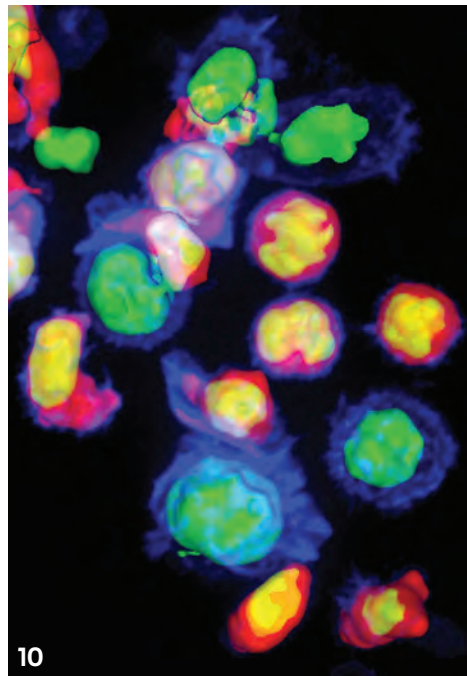
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Immunologists Douglas Nixon, MD, PhD, and Brad Jones, PhD, aim to cure HIV. *Plus:* Studying the economics of drug abuse, curbing diabetes in Qatar, an MD-PhD student makes a gene-splicing breakthrough, Jeffrey Perlman, MD, helps save newborns in Tanzania, Carlo Canepa, MD '12, practices medicine at 14,340 feet, and a pulmonologist describes his battle with a dangerous lung condition while climbing Mount Everest.

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

Be Well: Building a Culture of Resilience



We are a community at Weill Cornell Medicine. It's one in which we work together to provide our patients with the most comprehensive and compassionate care and train the next generation of physicians and scientists to become leaders in healthcare and medicine. We are always striving toward a fundamental goal: to be healers.

Yet an alarming wave of data indicates that doctors and medical students nationwide are in need of some attention themselves. According to a 2009 study in *The Lancet*, 30 to 40 percent of physicians experience burnout—though with widely varying definitions of the term, the actual rate could be zero to 80 percent, researchers wrote in *JAMA* in September. Other research shows that physicians commit suicide at higher rates than people in the general population—1.41 times more often among male doctors than among men in the general population, and 2.27 times more often among

We are always striving toward a fundamental goal: to be healers. Yet an alarming wave of data indicates that doctors and medical students nationwide are in need of some attention themselves.

female doctors than among women in the general population, according to data published in the *American Journal of Psychiatry* in 2004.

The exact reasons aren't clear, and I would argue that it's vital to investigate the causes of physician burnout more thoroughly. But certainly clinicians these days are facing longer hours, rising caseloads, and a spike in administrative tasks because of electronic medical records, resulting in frustration and fatigue. The issue is affecting today's medical students, too, who are experiencing depression at higher rates than their peers. In a more recent study from 2014, 58 percent of medical students screened positive for depression. Nearly 45 percent were emotionally exhausted, and more than

half—about 56 percent—were burned out.

Thankfully, this problem is getting much-needed attention around the country. It's not just important for doctors' well-being; if left unaddressed, burnout can have serious consequences for those we treat, since there is evidence that it can lead to decreased quality of patient care. Professional societies are considering ways we might change the very environments in which students train and doctors practice. And at the individual level, we at Weill Cornell are exploring new ways to reduce stress, promote overall wellness, and increase a sense of belonging—in the classroom, in the lab, and throughout our medical institutions. As noted in our cover story, we have already begun these efforts with initiatives like Well at Weill, which provides resources like free on-campus yoga classes. We've expanded our counseling and mental health services, including hiring two social workers to provide talk therapy. We're also growing the opportunities for our doctors to gather more frequently, so they can benefit from shared experiences and lend each other support. And we're building opportunities for our doctors to teach and conduct research to keep their days varied, their minds active and nimble, and their hearts impassioned.

There are other ways to prevent burnout, too, ones we encourage our patients to partake in but that haven't traditionally fit into the self-sacrificing culture of physicianship. Eat healthy. Stay active. Get enough sleep. Adopt a mindfulness practice, such as meditation. Check in with family, friends, and colleagues. These things might sound simple, but they often fall by the wayside when we're going on rounds, organizing paperwork, or tackling what might seem like an endless list of tasks. All of us must make a point to step back, take a deep breath, and remember the reasons why we became physicians and scientists in the first place. We should always keep in mind the sense of joy and purpose that compelled us to practice medicine, dive into research, and devote our careers to helping others. That can only benefit everyone.



**Weill Cornell
Medicine**

Gift establishes Friedman Center for Nutrition and Inflammation



From left, Overseer Vice Chair Barbara Friedman and Dean Augustine M.K. Choi

With a \$7.5 million gift from the Friedman Family Foundation, endowed by Stephen and Overseer Vice Chair Barbara Friedman, Weill Cornell Medicine has established an innovative cross-campus center dedicated to improving human health through research in the complex relationship between nutrition, inflammation and the development of disease.

The Friedman Center for Nutrition and Inflammation will create new programs across Weill Cornell Medicine and Cornell's Ithaca campus, harnessing key resources to study the interaction between diet, the immune system and the microbiome – the genetic material generated by the viruses, bacteria, fungi and parasites that live in or on the human body.

The two Cornell campuses are working together to engage other donors to match the support provided by the Friedmans and the Friedman Family Foundation with the vision of a \$15 million initiative that will foster

groundbreaking research and provide state-of-the-art education in nutrition, inflammation and the microbiome for medical and graduate students and clinicians.

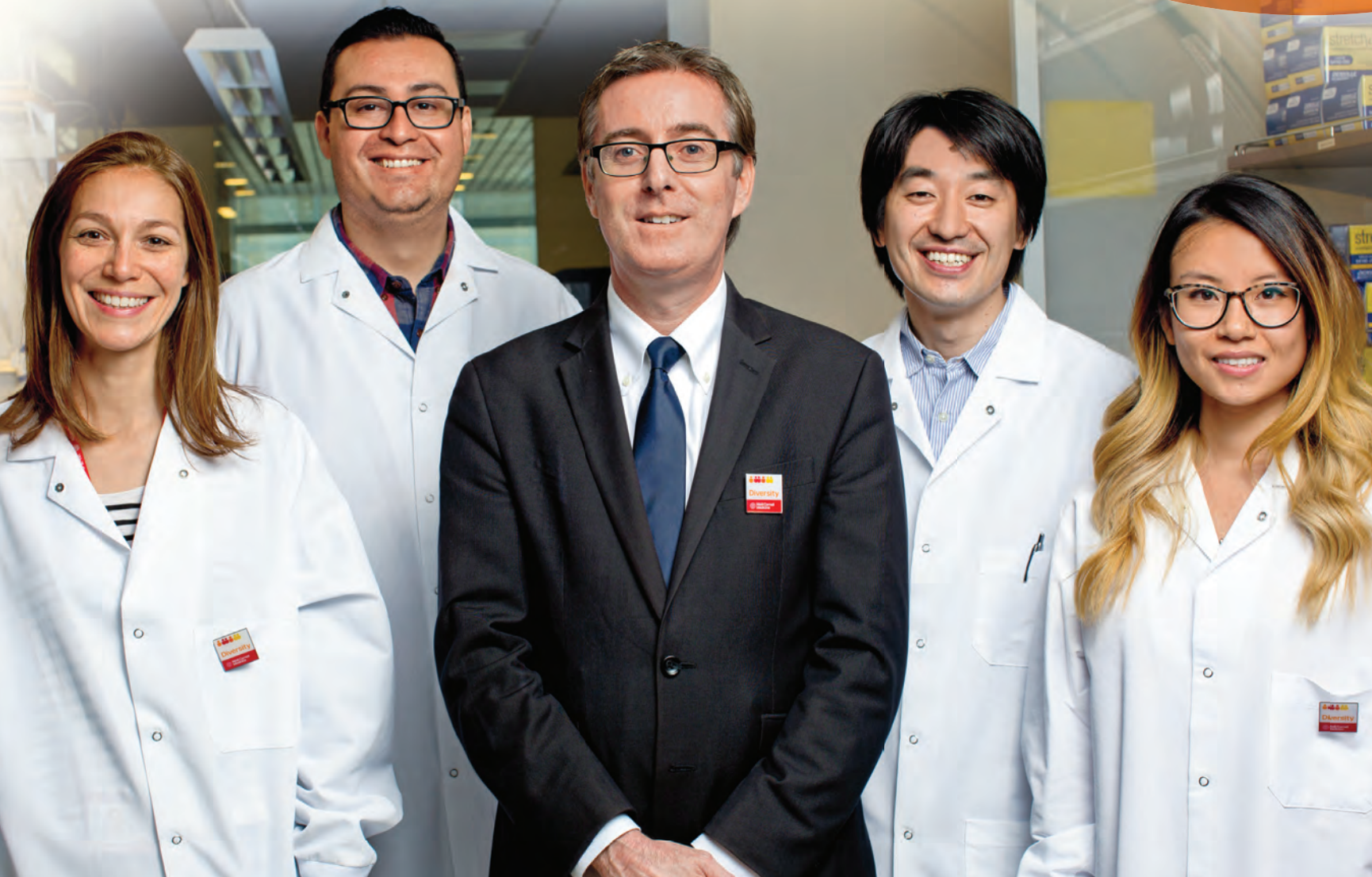
The Friedman Center will be directed by Dr. David Artis, a world leader in immunology, inflammation and microbiome research. He is director of the Jill Roberts Institute for Research in Inflammatory Bowel Disease and the Michael Kors Professor in Immunology at Weill Cornell Medicine.



To support research initiatives at Weill Cornell Medicine, please contact:
Lucille Ferraro, Assistant Vice Provost for Development, at (646) 962-9491 or
luf2003@med.cornell.edu.

“The Friedmans’ generous commitment to establish this important program represents a moment for **Weill Cornell Medicine** to move forward into a new realm of healthcare.”

Dean Augustine M.K. Choi



Laura Riley, MD, Is New Chair of Obstetrics and Gynecology



Laura Riley, MD

A renowned expert on obstetric infectious diseases is the new chair of the Department of Obstetrics and Gynecology at WCM and obstetrician and gynecologist-in-chief at NewYork-Presbyterian/Weill Cornell Medical Center. Laura Riley, MD, oversees one of New York City's busiest labor and delivery units, which currently delivers about 5,000 babies a year. Recruited as the Given Foundation Professor of Obstetrics and Gynecology, Riley helms an ob/gyn enterprise that encompasses seven divisions and fifty-two full-time clinical faculty who deliver care at six practice sites. She will also lead the NewYork-Presbyterian Alexandra Cohen Hospital for Women and Newborns, a state-of-the-art facility that will comprise the top five-and-a-half floors of the NewYork-Presbyterian David H. Koch Center when it opens in 2020. In addition, her work will include NewYork-Presbyterian's locations in Queens, Brooklyn, and Lower Manhattan. Riley—whom Dean Augustine M.K. Choi, MD, describes as “a highly accomplished physician-researcher, a clinical innovator, and a leader in women's health”—came to WCM from Massachusetts General Hospital and Harvard Medical School. In addition to authoring numerous journal articles and book chapters, she has published two general-audience books on pregnancy.



IN UNIFORM: The 106 members of the Class of 2022 officially marked the beginning of their medical education with the White Coat Ceremony in August. “Since we were founded in 1898, both men and women have studied under the most distinguished clinicians and scientists in their field, and have gone on to achieve great things,” Dean Choi said in his remarks. Class members hail from eighteen countries and speak twenty-nine languages. Women comprise more than half the class, and 24 percent are from groups that are underrepresented in medicine. Three students are past participants in Weill Cornell's summer premedical programs, which seek to expose minority and economically disadvantaged undergraduates to science and medicine. Ten students are Cornell University graduates; another ten have master's degrees, and one has a doctorate. For more photos, see Notebook starting on page 41.

TIP OF THE CAP...

Daniel Fitzgerald, MD, director of the Center for Global Health and professor of medicine, **Francis Lee, MD, PhD**, chair of the Department of Psychiatry and the Mortimer D. Sackler, MD, Professor of Molecular Biology in Psychiatry, and **Virginia Pascual, MD**, the Drukier Director of the Gale and Ira Drukier Institute for Children's Health and the Ronay Menschel Professor of Pediatrics, inducted into the Association of American Physicians, one of the top honors in health and medicine.

Rainu Kaushal, MD, chair of healthcare policy and research at WCM and physician-in-chief

of healthcare policy and research at NewYork-Presbyterian/Weill Cornell, named a Notable Woman in Health Care in New York City by *Crain's New York Business*.

Dan Landau, MD, PhD, assistant professor of medicine and of physiology and biophysics and a core faculty member of the New York Genome Center, winner of the Pershing Square Sohn Prize for Young Investigators in Cancer Research.

Vinod Malhotra, MD, vice chair for clinical affairs in the Department of Anesthesiology

and a professor of clinical anesthesiology, named president-elect of the Academy of Anesthesiology.

Jane Salmon, MD, associate dean for faculty affairs and professor of medicine, elected an honorary member of the European League Against Rheumatism.

Thomas Walsh, MD, professor of medicine, of microbiology and immunology, and of pediatrics, the first recipient of the International Immunocompromised Host Society's Lifetime Achievement Award.

Newman Leads Breast Surgery Division



Lisa Newman, MD

Lisa Newman, MD, has been appointed chief of the Division of Breast Surgery at Weill Cornell Medicine and NewYork-Presbyterian/Weill Cornell. A renowned breast surgeon and researcher, she was recruited from Detroit's Henry Ford Health System (HFHS), where she was a surgical oncologist and director of its Breast Oncology Program. She is also founding medical director for the International Center for the Study of Breast Cancer Subtypes, a collaboration by the University of Michigan, HFHS, and the Komfo Anokye Teaching Hospital in Ghana that will be headquartered at WCM. Newman specializes in advanced surgical techniques, such as skin-sparing and nipple-sparing mastectomies. She also studies why disease risk and outcomes vary by race and ethnicity, as well as the genetics of aggressive tumors including triple-negative breast cancer.

U.S. News Lauds NewYork-Presbyterian

For the eighteenth consecutive year, *U.S. News & World Report's* annual survey has ranked NewYork-Presbyterian as the number-one hospital in New York State. The hospital has also been included again in the survey's Honor Roll, which recognizes national excellence in multiple specialties. NewYork-Presbyterian was ranked tenth in the U.S. overall, and in the top five in four specialties: cardiology and heart surgery, neurology/neurosurgery, psychiatry, and rheumatology (a collaborative program with Hospital for Special Surgery).

Center on Aging and Behavior Founded



Sara Czaja, PhD

WCM has established a new Center on Aging and Behavioral Research, with Sara Czaja, PhD, as its inaugural director. Czaja, one of the world's leading experts on technology and aging, and her team are developing and testing innovative strategies to keep older adults independent and engaged. As she notes, an estimated 80 million people in the United States—about a fifth of the population—will be over sixty-five by 2040. "One does not stop learning or growing intellectually, cognitively, and emotionally at their sixty-fifth birthday," says Czaja, who was recruited as a professor of gerontology in medicine. "We need to find ways to maximize the contributions of this population, while ensuring their quality of life and independence." An engineer and psychologist, Czaja spent nearly three decades at the University of Miami before joining the WCM faculty. The center's current projects include examining factors that predispose older adults to financial exploitation and studying ways to encourage sedentary older people to be more physically active.

PHOTOS: NEWMAN, BARBIERI, AND SCHNAPPINGER, PROVIDED; CZAJA, JONES; CESARMAN, ABBOTT

FROM THE BENCH

Promising Prognosis for Cancer Subtype



CHRISTOPHER BARBIERI, MD, PHD

While a high level of the prostate specific antigen (PSA) protein in men with prostate cancer generally means a poor prognosis, that may not hold true for one subtype of the disease. Researchers found that patients with high PSA and tumors with a mutation in a gene known as SPOP may have a less threatening form of disease. In the *Journal of Clinical Oncology Precision Oncology*, co-senior author Christopher Barbieri, MD, PhD, assistant professor of urology and a urologist at NewYork-Presbyterian/Weill Cornell, and colleagues evaluated databases containing information on tumors from more than 8,000 men.

'Good' Pollution Levels Still Bad for Smokers

Levels of air pollution defined as "good" by the EPA may still harm cigarette smokers, reports a study in the *American Journal of Respiratory and Critical Care Medicine*. In a study of 158 volunteers, researchers found that cells lining the small airways of smokers' lungs respond abnormally even to low levels of pollution—causing disease—while those of non-smokers do not. Says senior author Ronald Crystal, MD, chairman of the Department of Genetic Medicine, the Bruce Webster Professor of Internal Medicine, and a pulmonologist at NewYork-Presbyterian/Weill Cornell: "One of the lessons of this study is, don't smoke."

A Way to Speed TB Treatment?



DIRK SCHNAPPINGER, PHD

By sabotaging one of the TB bacterium's defenses against antibiotics, investigators may have found a way to accelerate treatment and overcome resistance to existing therapies. In *Science Translational Medicine*, Dirk Schnappinger, PhD, associate professor of microbiology and immunology, and colleagues report they've subverted the waxy coating surrounding Mtb, the bacterium that causes TB, making it easier for antibiotics to kill them. They tested the strategy in culture with an experimental drug, and in mice that were infected with genetically manipulated Mtb. They found that the approach made a known TB drug more potent, potentially speeding up treatment.

Immunotherapy for Early-Stage Lung Cancer

In *JCI Insight*, researchers report that treating early-stage lung cancers with drugs that unleash the immune system's ability to attack malignant cells may hinder tumor growth and improve survival. The study suggests that immunotherapy that blocks PD-1—a protein that inhibits immune response to tumors—could be successfully incorporated into treatment for early-stage non-small cell lung cancer. The senior author was Vivek Mittal, PhD, professor of cell and developmental biology in cardiothoracic surgery and director of the Neuberger Berman Foundation Lung Cancer Laboratory at WCM.

Successful Field Test for Cancer Detector



ETHEL CESARMAN, MD, PHD

Researchers from WCM and Cornell's College of Engineering have teamed up to create a portable, solar-powered detector for Kaposi sarcoma, a type of cancer often associated with AIDS in the developing world. It was developed by a team led by David Erickson, PhD, the Sibley College Professor of Mechanical Engineering, and Ethel Cesarman, MD, PhD, professor of pathology and laboratory medicine and a pathologist at NewYork-Presbyterian/Weill Cornell. Early testing has resulted in about 94 percent agreement with traditional methods, with results generated in hours. Results of field testing in Uganda were detailed in *Nature Biomedical Engineering*.



Life Savers

For the members of Weill Cornell Medicine's Class of 2022, orientation week began with some valuable hands-on lessons: on their first day of medical school, they mastered basic bleeding-control techniques. In a workshop in the Weill Education Center, the 106 physicians-in-training learned how to pack wounds, deliver continuous pressure, and apply tourniquets to help injury victims who are bleeding severely. The event was part of Stop the Bleed, a program from the American College of Surgeons that trains the general public to treat bleeding victims—since bystanders to trauma may be able to help save lives before first responders arrive.

In a short lecture, the students learned the program's basic steps, which include calling 911, ensuring their own safety, identifying the source of bleeding, and then covering it with a clean cloth and applying pressure. They then divided into small groups and practiced the bleeding-control techniques on mannequins and on each other, supervised by second-year students who are certified Stop the Bleed trainers. "The need for immediate help in a bleeding emergency can't be overstated, whether the cause is an automobile or pedestrian accident, severe fall, gunshot or stab wound, or even a terrorist attack," says Mayur Narayan, MD, an assistant professor of surgery (interim) at WCM and a trauma surgeon at NewYork-Presbyterian/Weill Cornell Medical Center, who led the training. "This program is an outstanding tool for saving lives."



PHOTOS: ASHLEY JONES



Men on a Mission

Recently recruited to Weill Cornell Medicine, immunologists Douglas Nixon, MD, PhD, and Brad Jones, PhD, set their sights on curing HIV



PHOTO: JOHN ABBOTT

Douglas Nixon, MD, PhD (left), and Brad Jones, PhD

When longtime research collaborators Douglas Nixon, MD, PhD, and Brad Jones, PhD, arrived at Weill Cornell Medicine last summer, they brought with them an ambitious goal: to find a cure for HIV. The two, who came to WCM's Division of Infectious Diseases from The George Washington University, have decades of combined experience in studying the ways in which HIV survives by evading the human immune system. Thanks to a five-year, \$28 million grant from the NIH, the two researchers—along with more than a dozen colleagues in the U.S., Canada, Mexico, and Brazil—are working together to find ways to harness the body's own defenses to eradicate HIV; Nixon is principal investigator of the project, dubbed BELIEVE (for Bench-to-Bed Enhanced Lymphocyte Infusions to Engineer Viral Eradication). Nixon, a Brit who was recruited as a professor of immunology in medicine, and Jones, a Canadian who was recruited as an assistant professor of immunology in medicine, each runs his own lab at WCM, conducting both joint and individual research projects. In July, Jones gave the basic sciences plenary lecture at the 2018 International AIDS Conference in Amsterdam.

What drew you to HIV as a research focus?

NIXON: I was a medical student in London in the early 1980s, a time at which a mysterious new disease was affecting young gay men in Los Angeles and New York. I was given an epidemiological project to investigate the limited literature of this new problem, and it piqued my interest. Then, early in my internship at St. Thomas' Hospital in London, I went into the room of a nineteen-year-old man who had fever and symptomatology of what we would later know to be acute HIV infection. I was twenty-two or twenty-three, and I could imagine the fear and issues that were facing him, and I felt that this was something I really wanted to work on. As it happened, six weeks before I was due to start my PhD program in immunology at the University of Oxford, two seminal papers came out in the journal *Nature* describing cell-mediated immunity to HIV.

JONES: For me there was never any doubt that I would end up working with HIV. It was something I was really passionate about. As a gay man, I was quite scared of HIV. Even though it wasn't the bad old days of the 1980s—there was treatment—it was something I was very conscious of, and my way of confronting that was through basic science research. In addition to being frightened of the virus, I was fascinated by how it found a way to get around some of the antiretroviral drugs we used to try to stop it. HIV was interesting as an adversary.

What makes HIV such a formidable opponent?

NIXON: When HIV was first discovered, it was thought that a vaccine might be developed easily. But it wasn't—and that identifies one of the big problems we have with HIV, which is that it mutates and changes. It's like the ultimate in clothes shopping;

it likes to go out and get a new coat every day. To make a vaccine, we tend to need one static "coat" that we can immunize against. But the virus has a very clever mechanism that it uses to hide from constant immune attacks, almost like a weapon that can bury into a bunker and stay there until it's woken up.

JONES: In some ways, it's the virus's sloppiness that gives it its great strength. Because it's mutating in so many ways at once, even though most of them are dead ends it's going to find a path to escape the things we throw at it—although we do think there are ways to outsmart it.

Given that drug regimens have made HIV a manageable disease, why is it still important to find a cure?

JONES: One reason is that drug therapy is not a perfect solution. It's expensive, it's a lifelong commitment, and health disparities persist; even people who are successfully treated develop more co-morbidities related to cardiovascular disease, renal disease, and malignancies than those who are not. The second reason is that HIV still has lessons to teach us. When we pursue different biomedical approaches to cure HIV infection, we learn lessons that can be translated to other conditions; for example, the understanding that a molecule called PD-1 suppresses T-cells in humans came from HIV research, and that is now a pathway that's targeted in cancer and is saving lives. The third is that on an aspirational level, this

'In some ways, it's the virus's sloppiness that gives it its great strength,' Jones says. 'Because it's mutating in so many ways at once, even though most of them are dead ends it's going to find a path to escape the things we throw at it—although we do think there are ways to outsmart it.'

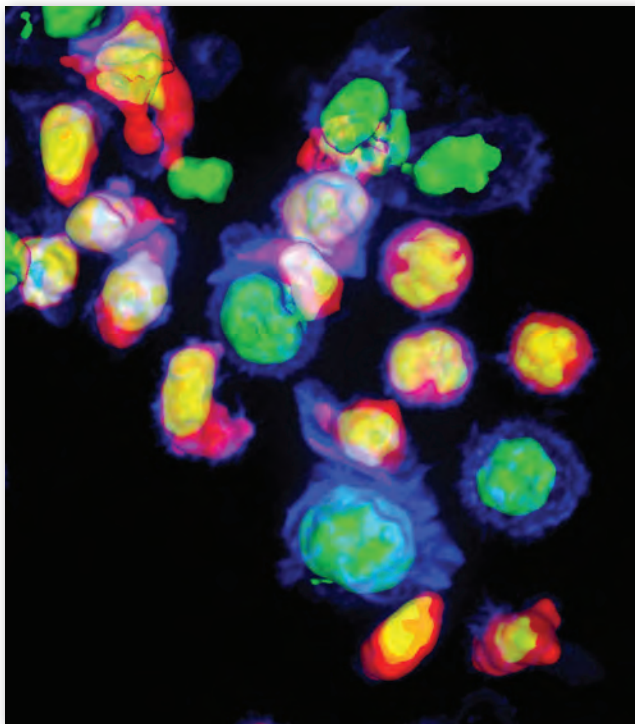
is a disease that has caused so much loss and grief over the years. Isn't a cure the ultimate victory over this epidemic?

NIXON: In many countries around the world, there is still a real stigma of HIV infection; if we can cure people, that would be partially resolved. And as Brad mentioned, even in people who receive drug therapy and have the virus suppressed for a long period of time, there still appears to be a mortality gap. The other thing is that more people continue to be infected. During the course of the conversation we're having right now, unfortunately thousands more people will acquire the virus around the world. To stop that, we either need a vaccine, we need a cure, or we need to treat enough people so the virus is undetectable and they can't transmit it to others—or some combination of the above. >

'We've worked together for some time, and we've found that we're both really curiosity-driven,' Nixon says. 'That makes it easy to work with someone, because they don't automatically discount crazy ideas.'

Why did you choose to bring your research to Weill Cornell Medicine?

NIXON: There were a few big reasons. First, I knew of the work of Roy "Trip" Gulick, who is chief of the Division of Infectious Diseases and has a very strong clinical program in HIV research. Overall, Brad and I were trying to find a location that has strengths in basic, translational, and clinical science, and where our work would have relevance for local populations. At Weill Cornell there are outstanding scientists who are working in different areas, but have the potential to really contribute to HIV research—though they may not know it yet. (*He laughs.*) And as Brad said, HIV is a master educator; it knows more about the immune system than we do. HIV has helped drive the study of immunology in a way that is still permeating into gastroenterology, neurology, neuroscience, and a number of other areas that are very strong at Weill Cornell. The Tri-Institutional element of collaborating with outstanding people at The Rockefeller University and Memorial Sloan Kettering Cancer Center was also a draw.



ON THE OFFENSIVE: So-called "killer" T-cells (seen in pink and yellow) attacking cells that are infected with HIV (seen in blue and green).

JONES: During our interviews at Weill Cornell—and since we arrived—we encountered people who are brilliant and inspiring, but also friendly and welcoming. I think it has a "best of both worlds" balance, where people are successful and driven, but also open to working together. And Trip is an inspiring figure—he had one of the most prominent roles in the first triple-drug therapy for HIV,

which led to the success of medications as we know it.

How do you complement each other as research partners?

JONES: Doug brings a depth of experience, but also a fresh enthusiasm for new ideas. I've learned a lot from him about science and how the field works in practice.

NIXON: We've worked together for some time, and we've found that we're both really curiosity-driven. That makes it easy to work with someone, because they don't automatically discount crazy ideas.

Could you give an overview of your work with BELIEVE?

NIXON: We have a spectrum of ongoing research, from the test tube to clinic. We have not yet conducted our first clinical trial, but we're hopeful that next year we will do so.

JONES: A lot of our efforts are based around harnessing the immune system. We think it actually does a pretty good job against HIV; the T-cell response is probably one of the major reasons it can take six, seven, eight years to progress to AIDS instead of just a few weeks. What we want to do is enhance that. Maybe it's not going to take much to tip the balance to where the immune system can control HIV for life, or eradicate the reservoir. In T-cell therapy, we take the person's own cells and manipulate them in vitro to try to redirect them against parts of the virus that we think are more vulnerable, or can't escape as easily. We think that's going to be a powerful approach.

What do you find most gratifying about working in this field?

NIXON: I have been studying this virus for thirty years, and it has been an educational path for me. When I started, we didn't know what this virus was—we were at the beginning of a new disease for which there was no treatment. Then combination therapy came; now, we have a program to see if we could potentially cure this. It's a microcosm of time in which you progress. There have been positive benefits for people, but you also realize that many people did not have that benefit.

JONES: For me, it's the chance to interact and be inspired by people living with HIV. Our work is all based on using samples from them, often collected through a procedure in which people have a needle put into each arm and are hooked up to a machine for about two hours. We have people who have done this ten-plus times. They're healthy; they're not doing it because they need different treatment, they're doing it for altruistic reasons. To me, this is a remarkable cross-section of the general population—people who, even though they often come from marginalized communities, show this unusual generosity. ■

— Beth Saulnier

PHOTO: SUDHA KUMARI

The Bottom Line

Center studies the economic costs of substance use disorder



GROUP EFFORT: Bruce Schackman, PhD (fourth from right), with fellow members of CHERISH

By now, many people are familiar with the grim statistic that opioid overdoses are killing more than 115 Americans every day. But the ongoing crisis has another toll, one that's less talked about but still highly damaging to society: a financial cost of \$78.5 billion per year, including nearly \$29 billion to cover substance use disorder treatment and related healthcare. At Weill Cornell Medicine, researchers in the field of health economics work to find solutions to this crisis by developing interventions that save lives while remaining economically feasible—aiming to help people with substance use problems by encouraging policymakers to support initiatives that effectively treat addiction and prevent overdoses.

Historically stigmatized, substance use disorder has only recently begun to be seen as a chronic disease. But states may hesitate to invest in treatment unless doing so will save taxpayer dollars in the long run. “In the U.S., we are starting to care more about treating people with substance use disorder and realizing that we need to use scientific approaches—but resources are constrained, and resources to spend on people who are stigmatized are unfortunately even more constrained,” says Bruce Schackman, PhD, the Saul P. Steinberg Distinguished Professor of Healthcare Policy and Research. “So we need to make sure we are getting the biggest bang for our buck.” Schackman is director of the multi-institutional Center for Health Economics of Treatment Interventions for Substance Use Disorder, HCV, and HIV (CHERISH) funded by the National Institute on Drug Abuse. Established in 2015 within the Department of Healthcare Policy & Research, it does health economics research that's aimed to inform policymakers on the bottom-line realities of substance use disorder treatment, as well as of hepatitis C and HIV care for people who use drugs.

One recent project looked at ways to increase access to naloxone, a life-saving prescription medication that reverses the effects of opioid overdoses. Currently, it can only be obtained from pharmacists, which limits its reach. Making naloxone available over the counter could save lives—but it might increase consumers' out-of-pocket costs if insurers subsequently refuse to cover it, or if manufacturers

raise the price. To estimate how making naloxone available over the counter would affect sales, CHERISH parsed data on pharmacy sales of naloxone, and studied shifts in price and demand for nicotine gum and patches—products to curb substance use that have switched from prescription-only to over the counter. The study's lead author, Sean Murphy, PhD, associ-

ate professor in the Department of Healthcare Policy & Research, notes that the researchers found that consumers were unlikely to be price-sensitive when it comes to naloxone. They also found that sales would grow by between 71 and 171 percent, says Murphy, who directs the CHERISH Consultation Service, which helps scientists incorporate economic analyses into studies on substance use.

A current CHERISH project involves syringe exchanges—sites where people who use drugs can obtain sterile syringes and receive other services. Researchers are examining the potential benefits of incorporating medical care and substance use disorder treatment into the exchange programs. “The idea is that if they are receiving services onsite, they may be less likely to go to an emergency room or be hospitalized,” Schackman says. “So that could save the system some money as well as improve quality of life.” Another advantage, he notes, would be the opportunity to treat hepatitis C infections, whose recent increase has been linked to the opioid crisis, and thus prevent their long-term health effects—again reducing healthcare

'In the U.S., we are starting to care more about treating people with substance use disorder and realizing that we need to use scientific approaches,' says Bruce Schackman, PhD.

costs while potentially saving lives.

CHERISH staff also help investigators from other research institutions; for example, Schackman and colleagues assist researchers in calculating the cost of implementing substance use disorder treatments in real-world scenarios. In addition, the center connects researchers with policymakers, so scientists can develop studies that take financial considerations that policymakers care about into account. But Schackman says that CHERISH's ultimate goal is to destigmatize substance use; although the public perception of addiction as a moral failing has changed to some extent, the view continues to linger. “We want to change hearts and minds,” says Schackman, “so people realize that this is a medical condition.” ■

— Agata Blaszczyk-Boxe

Epidemic Proportions

Researchers at WCM-Q hope to help Qatar curb its looming diabetes crisis



Laith Abu-Raddad, PhD (left), and Susanne Awad

Qatar is a tiny nation, barely the size of Connecticut. But it's the world's richest country, with an average per-capita income topping \$125,000, thanks to its vast gas and oil reserves. In just two generations, Qatar has gone from a modest Gulf state to an affluent nation whose citizens enjoy a privileged lifestyle. The capital city of Doha, where Weill Cornell Medicine established Qatar's first medical school in 2001, has quickly transformed into a modern metropolis filled with glass skyscrapers, five-star hotels, and designer stores. "It's been a rapid economic expansion," says Laith Abu-Raddad, PhD, a professor of healthcare policy and research at WCM-Q, "but such wealth can also bring its challenges."

One of the biggest problems currently facing the Middle Eastern nation—and other countries that have become more westernized in recent decades—is an epidemic of Type 2 diabetes. A chronic illness in which glucose (sugar) levels build in

the bloodstream, diabetes can lead to serious and potentially lethal complications that include heart disease, stroke, and kidney failure. In 2012, the country's first national survey on the topic revealed that nearly 17 percent of adult Qataris suffer from the disease—more than twice the global average. Those figures so alarmed Abu-Raddad and PhD candidate Susanne Awad, an epidemiologist and senior research specialist at WCM-Q, that they decided to predict what that meant for the country's future. The results, published earlier this year in *Diabetes Research and Clinical Practice*, painted a bleak picture. Using a mathematical modeling approach that they developed, the researchers forecast that diabetes prevalence will soar to at least 24 percent by 2050—meaning that about one in four Qataris will likely have the disease by then. They also calculated the economic costs of such a dramatic rise, estimating that diabetes care will make up one-third of the country's total health expenditures in thirty years, with diabetes-related

PHOTOS: RESEARCHERS, WCM-Q; SPORTS DAY, COURTESY OF QATAR FOUNDATION



GET MOVING: Scenes from Qatar's National Sports Day, an annual event that encourages residents to be more active

spending projected to reach as high as \$400 million. “This shows just how serious the problem is, and how much more serious it will continue to be,” says Abu-Raddad, the study’s principal investigator. “It confirms that this should continue to be the number-one health priority in Qatar.”

The study also concluded that the main driver of the diabetes crisis is obesity. Currently, more than 40 percent of Qatari adults are considered obese—compared to one-third of Americans—and the study projects that this number will leap to 51 percent in the next three decades. Though the researchers noted that factors like genetics, smoking, and physical inactivity played a role, they found that obesity was by far the leading cause of diabetes in two-thirds of all patients. Some reasons behind the country’s massive weight gain? Abu-Raddad points to lifestyle changes and an uptick in the consumption of junk food, with one recent survey finding that 45 percent of Qataris eat fast food more than three times a week. Qatar’s hot weather also makes it difficult to walk places or exercise outside, especially in the summer when highs easily exceed 100 degrees. “There are months when the temperature makes it impossible to do any outdoor activities,” says Awad, the study’s first author.

Abu-Raddad says that since people are living longer and diabetes risk increases with age, it will be difficult to reverse the disease’s prevalence moving forward. So he and Awad believe that public health policies should focus on trying to prevent new cases from developing. Qatar now has a number of campaigns intended to promote the importance of fitness and a healthy diet, including National Sports Day, a public

‘This shows just how serious the problem is, and how much more serious it will continue to be,’ principal investigator Laith Abu-Raddad, PhD, says of a study on diabetes’s increasing prevalence. ‘It confirms that this should continue to be the number-one health priority in Qatar.’

holiday in which everyone is encouraged to participate in various sporting events held around the country. But the two investigators point out that interventions relying on individuals to change their behavior have had spotty long-term results when targeting the public at large. For instance, since fast food is so affordable and accessible, “it’s not easy to convince people to start eating healthier,” says Abu-Raddad. “With one phone call, I can order a fast-food meal and it will be delivered in twenty minutes.”

He and Awad wonder if other strategies, such as taxation and marketing restrictions, might make more of an impact. Foods high in fat, salt, and sugar already have been banned from cafeterias in public schools and state-run hospitals and clinics, and the Qatari government expects to soon pass a so-called “junk food” tax on fast food, soda, tobacco, and alcohol. Abu-Raddad, Awad, and their colleagues plan to study the effectiveness of these interventions, as well as programs from other countries that show promise. “We hope to inform policymakers on where they should invest their resources,” Abu-Raddad says. “This is a critical situation.” ■

— Heather Salerno

A Kinder Cut

An innovation in gene-splicing technology lands MD-PhD student Alex Pérez, PhD '17, on *Forbes's* '30 Under 30' list

In 2013, scientists at MIT and at UC Berkeley optimized a way to use bacterial gene sequences to cut and change DNA at precise locations. The genome-editing system, called CRISPR, is cheaper and simpler than previous methods, and it has led to breakthroughs in diagnostics and the creation of more accurate disease models. And because it can permanently modify a living organism's DNA, CRISPR technology may one day allow physicians to treat genetic diseases—anything from congenital deafness to cancer—by correcting the mutations that cause them.

But around September 2015, Alex Pérez, PhD '17, a student in the Tri-Institutional MD-PhD Program, realized that there was a major flaw in the method scientists were using to determine the specificity with which CRISPR would cut a given genomic sequence—a flaw that sometimes caused experiments to fail. To solve the problem, Pérez led the development of an open source software package and web interface that ensures far greater precision. He worked under the mentorship of two researchers at Memorial Sloan Kettering Cancer Center—Christina Leslie, PhD, professor of computational and systems biology, and Andrea Ventura, MD, PhD, associate professor of cancer biology and genetics, who also hold appointments at the Weill Cornell Graduate School of Medical Sciences—and collaborated with postdoctoral scientists Yuri Pritykin, PhD, and Joana Vidigal, PhD. The resulting tool, released in September 2016 and dubbed GuideScan, is already being used by some 3,000 researchers around the world—and it won Pérez a spot on the 2018 *Forbes* "30 Under 30" list for science.

The basic method for CRISPR genome editing involves targeting segments of a genome with a small piece of RNA, called a "guide RNA," and a protein, known as an endonuclease, that scans DNA for matching sequences of twenty or so base nucleotides. If it finds a target, the endonuclease will cut the DNA there, allowing the insertion or deletion of genetic information. But given that a human, for example, has a genome consisting of 3.3 billion base pairs, parts of which are repetitive, the chances of the same or similar sequences

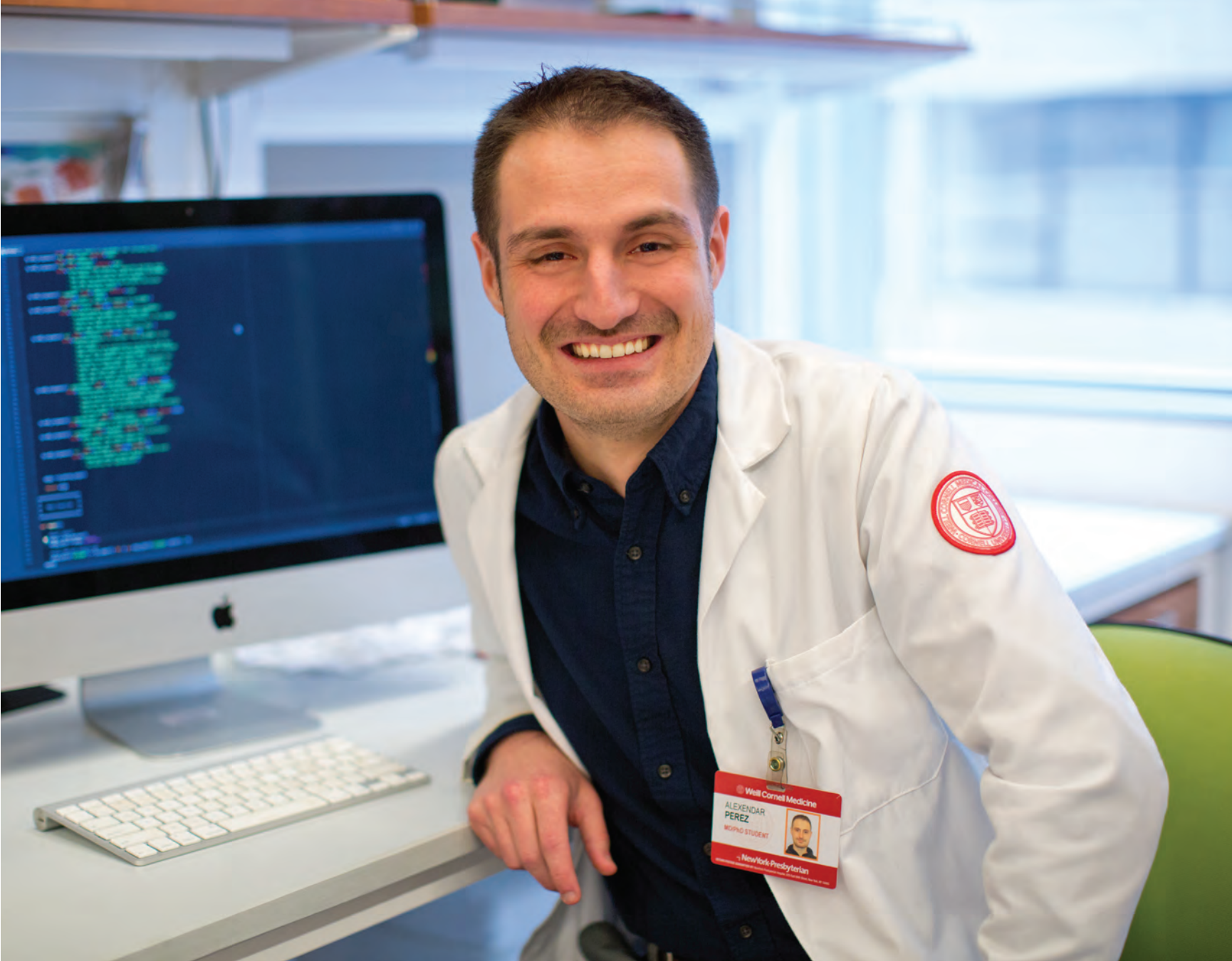
of twenty bases appearing at more than one place is rather high. "The question then becomes, for a given guide RNA, is it unique, or does it have any potential off-targets?" Pérez says, referring to these unintended matches.

To address this, researchers may use what's known as a genome aligner—software that compares a piece of DNA with a reference genome based on genetic information from a representative sample of individuals. But genome aligners are optimized for speed, and a reference genome by definition does not match the individual genome a researcher is working with. It turns out that false negatives are common with genome aligners: the software might say that a given guide RNA would only identify one or two sites to cut in a genome, when in reality there were many more. "The previous tools said that the guides were unique and had no off-targets, but they did," Pérez explains. "Researchers didn't know that there were other sites that a given guide was hitting." And if sites on two different chromosomes get cut accidentally, the cell may try to repair itself by binding half of one chromosome with half of the other—and this error, called translocation, can cause diseases or defects. "So when you cut at more than about ten of these sites, you will kill the cell just by inducing massive DNA damage—and you won't know why," Pérez says. "It is an enormous problem."

In spring 2017, Pérez, along with colleagues in Leslie's and Ventura's labs, published a paper in *Nature Biotechnology* announcing

'The reaction to our paper was kind of intense,' Pérez says with a laugh, marveling at how quickly the new technology was adopted. 'People tell us it's been applied to all types of science.'

that they had developed GuideScan, a software that could guarantee the precision of guide RNAs. It works by taking a sequenced genome from an individual organism and creating a guide RNA database that can be queried instantaneously, and it guarantees that a given guide RNA will cut in unique locations. "The reaction to our paper was kind of intense," Pérez says with a laugh, marveling at



Alex Pérez, PhD '17

how quickly the new technology was adopted. “People tell us it’s been applied to all types of science. Neuroscientists, geneticists, and some biotech companies are using it. People trust our tool because of the methodology behind it.”

Now out of the lab and completing his final year of medical school, Pérez is not where he imagined he would be when he was an undergraduate majoring in computational biology on Cornell’s Ithaca campus. His original plan was to get a PhD in computer science, but heartbreak at home turned his thoughts toward medicine. The husband of a close friend, a woman whom he considers a surrogate grandmother, was diagnosed with a devastating disease called multiple system atrophy. “It just shuts down your muscles, and they couldn’t do anything for him,” he recalls. “He died a slow, painful, scary death. It was terrifying for his family. Medicine gave a diagnosis, but there was nothing else they could do—and I realized I couldn’t let that stand. So at the last second, I changed my

mind and went with an MD-PhD.”

Pérez—who ultimately plans to pursue a career as a physician-scientist, though he hasn’t yet chosen a specialty—has found that his programming skills are much in demand in the world of biomedical research. In addition to joining Leslie’s computational biology lab, he worked with Ventura, whose team uses CRISPR in experiments with mouse models of cancer. Ventura says he has been pleased by the feedback on GuideScan from colleagues around the world, and confesses that he was sorry to see Pérez return to medical school once the project was complete. Talented MD-PhD students with a strong interest in the computational side of research are a rare find, he says, and he’s hoping to recruit more. “These kinds of people are extremely valuable as physician-scientists,” Ventura says. “They can understand the hardcore computational aspects of medicine as well as the medicine itself.” ■

—Amy Crawford

Baby Steps

Pediatrician Jeffrey Perlman, MD, has spearheaded simple, low-cost efforts to save newborns in Tanzania—with dramatic results



Jeffrey Perlman, MD, grew up in South Africa and attended medical school there. But by 2006, when he was tasked with helping set up the pediatrics program at Tanzania's Weill Bugando Medical Centre—then newly affiliated with Weill Cornell Medicine—he'd been living and working in the U.S. for decades. So coming face to face with the reality of how many newborn lives are lost in Africa's medically under-resourced nations was both shocking and heartbreaking. "I saw all these babies dying unnecessarily," says Perlman, a professor of pediatrics who directs the neonatal ICU at NewYork-Presbyterian/Weill Cornell Medical Center. In America overall, according to figures released by the CDC in 2015, the neonatal mortality rate averages four for every thousand births—and at a state-of-the-art hospital such as NewYork-Presbyterian/Weill Cornell, Perlman says, the number is just .7 per thousand. In Tanzania, by contrast, Perlman encountered a rate of thirty-nine per thousand births—or roughly two newborns dying every hour.

Perlman resolved to change that. So he spearheaded implementation of a program that had recently been developed by the American Academy of Pediatrics to train midwives—who attend the majority of births in Tanzania, as in many developing countries—in the fundamentals of resuscitating a newborn. Called Helping Babies

Breathe, the program is geared toward resource-limited communities—those that lack the advanced equipment and trained medical personnel found in wealthier nations. The program offers detailed instructions, such as how to ventilate an infant with a bag and mask; it also stresses the key concept of the "golden minute"—the time after birth by which it's essential that a baby be breathing well on his or her own or with assistance. In an article published in *Pediatrics* in February 2013, Perlman and Tanzanian colleagues reported that the program was highly effective: in the eight hospitals in which it was implemented, neonatal deaths dropped an average of 47 percent.

But for Perlman, that was just the beginning. In recent years he has focused on saving the lives of an especially vulnerable infant population: those who are born prematurely. A full-term pregnancy ideally lasts about forty weeks, and a baby is considered premature if it's born before thirty-seven weeks of gestation. In Tanzania, the limit for viability is around twenty-eight weeks (compared with twenty-four in the U.S.); Perlman and colleagues concentrated on improving outcomes during the span from twenty-eight weeks to just shy of thirty-five. "In those babies, about one an hour dies in Tanzania," he says. "The hospitals don't have facilities to breathe for the babies if they have any problems, like we have here in New York."

PHOTOS: BABY, IN THE LIGHT PHOTOGRAPHY/SHUTTERSTOCK; PERLMAN, PROVIDED

The aim, then, was to prevent those respiratory problems to begin with. In spring 2015, Perlman launched a pilot study (funded in part by Bloomberg Philanthropies) to evaluate the efficacy of what he calls a low-cost “care bundle” for mothers and babies: giving antenatal steroids to women in preterm labor to aid the baby’s lung development; administering antibiotics to those in active labor and to newborns; and keeping the infant’s body temperature from dropping below 36 degrees Celsius (96.8 Fahrenheit) immediately after birth. Conducted at four Tanzanian hospitals including Weill Bugando, it ran for two years and involved nearly 3,000 premature babies. As Perlman and colleagues reported in *PLOS One* in March, when all elements of the bundle were used, preterm infant mortality dropped a striking 70 percent—saving about 175 lives during the study period alone. And one of the most promising details of all was the modest price tag. “It’s about \$7,” says Perlman. “For the cost of a couple of lattes, that’s a baby you can potentially save.”

In spring 2018, Perlman went to United Nations headquarters to report his findings and pitch the program to potential funders including UNICEF, the World Health Organization, USAID, and the Gates Foundation. He ultimately hopes to spread the care bundle program to several countries in southern Africa, including an under-resourced region of his home nation. Based on the data in the *PLOS* article, Perlman and his group have developed an app that guides midwives to the appropriate treatment for each patient, using a model of predicted survival; they’re currently evaluating its efficacy at several sites in Tanzania. “It’s a no-brainer. This is not rocket science,” he says, stressing the program’s ease of use, low cost, and life-saving potential. “My philosophy is, ‘What can I do in a simple way?’ That’s why I’m passionate about this project.”

For the past decade, Perlman has been returning to Africa regularly to visit Weill Bugando and the other hospitals where the programs are being tested and implemented, as well as to review the data from each site during a day-long meeting in the Tanzanian capital Dar es Salaam; he now goes for about two weeks twice a year, in March and August. He stresses that working closely with front-line clinical staff, as well as Tanzanian government officials, has been essential to the projects’ success—a sentiment echoed by Prisca Ringia, a veteran midwife who has been instrumental in implementing both Helping Babies Breathe and the premature care bundle at Weill Bugando. “Jeff really recognizes that the midwives are key—we are the first people to touch the babies in their first seconds in the world,” says Ringia, who has worked with Perlman since 2006. “We really appreciate that, and his enthusiasm, commitment, and dedication to Tanzanians.”

Ringia was a co-author on the *Pediatrics* and *PLOS* papers; in fact, her name came before Perlman’s. It’s his long-standing practice not only to share credit with his Tanzanian collaborators, but to put their names first. “I’m at the end,” he says, “because it’s not about me; it’s about them.” And, he stresses, when he visits labor



BEST PRACTICES: Jeffrey Perlman, MD (center), makes regular trips to Tanzania to conduct research and train healthcare providers in fundamental techniques for saving the lives of newborns.

Of premature babies born at twenty-eight weeks of gestation to just shy of thirty-five, Perlman says, ‘about one an hour dies in Tanzania. The hospitals don’t have facilities to breathe for the babies if they have any problems, like we have here in New York.’

and delivery rooms at the various hospitals, he doesn’t treat patients personally. “I don’t intervene, I coach,” he says. “If a baby comes out and is not breathing, I tell the midwife what to do. I’ll show them how to apply a mask to help the baby breathe, but I won’t do it myself—because once I walk out that door, I’m not going to be there to do it. So they get the baby back and crying, and they feel good because they did it. There’s nothing more rewarding than to see people feeling like they’ve accomplished something so very important: they’ve saved a baby.” ■

—Beth Saulnier

At His Peak

Carlo Canepa, MD '12, spent an Everest climbing season practicing emergency medicine at one of the world's highest clinics



Climbing—and for an intrepid few, summiting—Mount Everest has an iconic place in the human imagination. But each year, a much larger number of people set a more modest but still lofty goal: hiking up to Everest Base Camp. “It’s at 17,500 feet, so just getting to Base Camp is like climbing a mountain anywhere else in the world,” says emergency medicine specialist Carlo Canepa, MD '12. “A large portion of people don’t make it all the way up.”

Last climbing season, it was Canepa’s job to safeguard the health of some of those who attempted the trek. As part of the yearlong Massachusetts General Hospital Wilderness Medicine Fellowship, Canepa spent two months—mid-March to mid-May—as one of three volunteer physicians in a tiny nonprofit clinic in Pheriche, a village in eastern Nepal that’s 14,340 feet above sea level. “It’s one of highest-altitude clinics in the world,” he says. “So you get a lot of exposure to high-altitude medicine and physiology, and you see things that you normally wouldn’t see anywhere else in the world, at least in those numbers.”

Located about three-quarters of the way up to Base Camp, Pheriche is a stop on a decades-old trekking route; Sir Edmund Hillary and Tenzing Norgay spent the night there during their historic Everest ascent in 1953. Hikers—some 10,000 per month in

peak season—generally start the trek in Lukla, a town about 9,400 feet above sea level. (Canepa himself flew into Lukla and hiked up to the clinic, which is run by the Himalayan Rescue Association and has no road access.) On the forty-mile trip to Base Camp, trekkers sleep in rustic lodgings known as teahouses, breaking up their journey as they hike ever higher, generally walking for five or six hours per day. “You can’t gain much altitude every day or you’ll get sick,” Canepa explains, “so people trek, then they sleep at that altitude, then trek to the next teahouse.”

Trekkers commonly suffer headaches as the altitude increases, but sometimes that progresses to acute mountain sickness, which is a headache plus other symptoms such as lightheadedness, dizziness, fatigue, weakness, nausea, and vomiting. Canepa notes that while everyone feels short of breath to some extent at altitude—and a drop in blood oxygen levels is normal—some trekkers go on to develop a dangerous condition called high-altitude pulmonary edema (HAPE), in which fluid accumulates in the lungs. Perhaps the most perilous type of altitude illness is high-altitude cerebral edema (HACE), a life-threatening condition in which the brain swells; patients suffering from it begin to lose coordination, then can no longer walk, and can even become unresponsive. “People die of high altitude illness

PHOTOS: PROVIDED

on the trek to Base Camp every year,” Canepa says. “No one died in our clinic, but we heard of at least four or five trekkers who passed away in teahouses in the surrounding areas or on nearby peaks. So people die every season there who are not even on Mount Everest.”

While the clinic had little in the way of medical equipment—its most advanced devices were two portable ultrasounds, one of which Canepa had brought for a research project on detecting HAPE in hikers who had no overt symptoms—it had medications to treat the various types of altitude-related illness, as well as an oxygen concentrator. Patients diagnosed with HACE, of which Canepa saw about ten cases during his stay, were usually evacuated by helicopter; those with HAPE often had to be carried down the mountain, while people with acute mountain sickness or very mild presentations of HAPE might improve by walking to a lower altitude. Canepa notes that although some people fall ill because they ignore initial symptoms or push themselves too hard, even those who take the proper precautions—including veteran trekkers who’ve been fine on previous trips to high peaks—sometimes suffer from altitude-related sickness, for reasons not yet fully understood.

Of the roughly 550 patients the clinic treated during the season, about 30 percent were foreign trekkers. The rest were Nepalese, often working as porters or staffing the teahouses; while they can also suffer from altitude-related illness, Canepa says he most commonly treated them for conditions ranging from lacerations and twisted ankles to primary care issues like high blood pressure,



MOUNTAIN MEDICINE: Canepa (counter-clockwise from opposite page) outside the clinic in Pheriche; giving a free lecture to trekkers on the risks of being at high altitude; and participating in a marathon that starts from Base Camp

‘You had the history and the physical exam; you basically had to handle everything on your own, and you had limited supplies to work with,’ Canepa says. ‘It was great, and it was something I’ll always carry with me.’

kidney stones, and upper respiratory infections. “We had no blood tests, no lab. There’s nobody else up there—you can’t talk to the cardiologist or the neurologist,” Canepa says. “You had the history and the physical exam; you basically had to handle everything on your own, and you had limited supplies to work with. It was great, and it was something I’ll always carry with me.”

Born in Peru, Canepa is no stranger to life at altitude: his mother comes from the Andes region, and he’s a longtime mountaineer who has climbed peaks in such far-flung locales as Ecuador, New Zealand, Tanzania, and Washington State. After the Pheriche clinic closed for the season, Canepa’s high-altitude fitness was put to the test when he ran the Tenzing Hillary Everest Marathon, which begins at Base Camp and follows a punishing route downhill over uneven terrain. A veteran of five previous marathons, he finished with a time of 6:48—nearly two hours longer than his usual performance closer to sea level, but still good enough to put him fourth among the foreign runners.

Before leaving for Pheriche, Canepa spent several weeks in Kathmandu, where he navigated the process of obtaining a license to practice medicine in Nepal. While there, he got some happy news: his wife, psychiatrist Dorothy Chyung, MD ’12, was expecting their first child. Although the internet at the clinic wasn’t particularly robust, he managed to FaceTime with her during her first-trimester ultrasound appointments. After Canepa completed his fellowship in June, the couple—who met at their White Coat Ceremony, began dating soon after, and did the Everest Base Camp trek as fourth-year med students—went off on their next adventure. They’re now practicing medicine on Saipan, a U.S. commonwealth island in the western Pacific, 120 miles north of Guam. ■

—Beth Saulnier



Deep Breaths

When a pulmonologist developed a lung condition while mountaineering on Everest, it deepened his connection to patients



AT ALTITUDE (above and opposite page): Scenes from the expedition to the North Col of Mount Everest that Ronald Crystal, MD, attempted last April

I've been interested in mountain climbing since I was a teenager, when I read a book about Annapurna, the first 8,000-meter peak ever climbed. I was captivated by the challenge of a team working together to accomplish a difficult goal. Reading about mountaineering became a lifelong interest, but it was not until age sixty that I actually started climbing. Since then, mountaineering has become a passion, and I have climbed peaks in China, Japan, New Zealand, Mexico, the U.S., Canada, and Europe. In the winter,

I climb frozen waterfalls.

But of course, Mount Everest is the classic, and I finally planned an expedition there in April 2018, a trip that coincided with my seventy-seventh birthday. I was not interested in summiting, which struck me as irrational at my age. But I've always been fascinated by Everest's history, and my goal was to go where the British reached when they attempted to climb the mountain in 1921: a glacier-carved pass called the North Col, 23,000 feet (7,000 meters) above sea level. So I made arrangements for

two guides from a company in France—one a well-known alpine climber, the other a wilderness rescue physician who's also an excellent mountaineer.

As a pulmonologist, I know you can't train your lungs—but you can train your muscles, heart, and mind. I exercise every morning on a spinning bike at home and work out with a trainer three times each week. I live on the thirty-fourth floor of an apartment building, and as I get closer to a climb, I walk up and down the stairs several times a week, carrying a pack and

PHOTOS: PROVIDED



wearing my climbing boots. Ultimately, though, the important thing is acclimatization—getting used to the high altitude. After spending three days in Kathmandu, Nepal, we flew to Lhasa, Tibet, which is at about 11,200 feet. As we slowly moved toward Everest's North Side, we went on some hill hikes to get used to the altitude. Eventually we reached the North Base Camp, which is at 17,200 feet.

From the time we arrived in Tibet I had been tracking my oxygen saturation level, which indicates what percentage of your red blood cells are filled with oxygen. At rest it should be 98 or 99 percent; as you go to higher altitude it decreases. I was fine at first, tracking along with the oxygen saturation of my guides, but after being at base camp for a while and gradually going higher, I started to feel really tired. My oxygen saturation dropped to about 78, my pulse rate was 95, up from my usual resting 63, and I felt short of breath when I lay down. I realized I was developing high-altitude pulmonary edema (HAPE), a potentially fatal disorder associated with a leak of fluid in the lung alveoli, where oxygen is transferred from air to blood.

I discussed my diagnosis with my guide doctor, and he concurred it was early HAPE. We then called the medical consultation and evacuation service I'd hired in advance of the trip. We all decided that the best thing was to go to a lower altitude, and we descended to a small village about 3,000 feet lower. The next day I wasn't feeling terrific, although I was much better. We decided that it would be too risky for me to continue the climb. We eventually

drove across the Tibetan plateau to a small border village and crossed the China-Nepal border, where a helicopter took us to Kathmandu. By the time I was evaluated at a local clinic, I was back to normal.

Canceling the North Col climb was frustrating. When you're on a high peak, despite having symptoms and objective evidence of lung dysfunction, there is an incredible drive to continue. You've put in a huge amount of effort, taken all this time, spent the money, and you want to reach your goal. But I knew I was in trouble, even before I told anybody else; I struggled with

CANCELING THE NORTH COL CLIMB WAS FRUSTRATING. WHEN YOU'RE ON A HIGH PEAK, DESPITE HAVING SYMPTOMS AND OBJECTIVE EVIDENCE OF LUNG DYSFUNCTION, THERE IS AN INCREDIBLE DRIVE TO CONTINUE.

the truth, because denying it was easier, at least for a time. When I finally accepted reality and put the rescue in motion, I was impressed by how helpful and professional the Chinese base commander, the guides, and the evacuation service were in getting me to safety.

Since I got home, I've been asked more than once whether I see any irony in being a lung expert and developing HAPE. I had even written an article with one of my colleagues outlining our theory of why the condition occurs. Prior to the trip, I was worried about the usual hazards, including inclement weather, ice and rock fall,

crevasses, and ice climbing at high altitude, but getting HAPE was not on my worry list.

Having gone through this, I probably bond with my patients a little more. I think I better understand what they go through, particularly the uncomfortable sensation of breathlessness associated with lung disease. It has also made me think even harder about how I can convince patients to exercise, because no matter your age or how disabled you might be, there's always something you can do. As I tell the first-year medical students, you cannot choose your parents, and thus cannot choose your genes. But you can maintain a reasonable diet and weight, drink in moderation, avoid recreational drugs, and exercise. We need to convince people not to give up—that working at good health may or may not extend your life, but it will definitely make it more enjoyable.

Looking back on the Everest trip, I see it as a positive experience, not a negative one. There's obviously disappointment, but to me the most important thing is having a goal and moving toward it. As you get older, you begin to realize that you're not going to live forever, and many people limit themselves. Your goal does not have to be trying to climb part of Mount Everest; it could be walking ten blocks. In September, I returned from another climbing trip—though I'm not going to try the North Col again. ■

— Ronald Crystal, MD

CRYSTAL IS CHAIRMAN OF THE DEPARTMENT OF GENETIC MEDICINE AND THE BRUCE WEBSTER PROFESSOR OF INTERNAL MEDICINE.

Battling Burnout

Reflecting a national movement, Weill Cornell Medicine puts increased focus on student and physician wellness

BY BETH SAULNIER

PHOTOS BY STEPHANIE DIANI

When Sandeep “Sunny” Kishore, PhD ’12, MD ’14, gave the Commencement speech for the Class of 2014, he stood onstage in Carnegie Hall and confessed something: as a third-year medical student, he’d initially failed his surgical “shelf” exam, one of the rigorous tests given after each core rotation. Having resumed his MD studies after a lauded five years as a doctoral candidate and a postdoctoral fellow at Harvard Medical School—which included winning a national award for outstanding graduate student in microbiology and working with the U.N. on non-communicable disease policy—Kishore had found the return to medical school surprisingly tough, and he took the failure hard. “The interesting thing is how I dealt with it,” recalls Kishore, now an assistant professor of health system design and global health at the Icahn School of Medicine at Mount Sinai, where he is associate director of the

Arnhold Institute for Global Health. In a medical culture steeped in self-sacrifice and machismo, he says, “I didn’t seek anyone to talk to about it, and I didn’t tell my colleagues. I was ashamed. I couldn’t embrace vulnerability.”

Sensing that there was a life lesson in his experience, Kishore shared what had been a painful secret with the audience in the iconic concert hall. The response afterward blew him away. “It became clear that there were many people who had also felt isolated and exhausted at times, but didn’t have an outlet for it—that burnout was very real,” says Kishore, who is now a member of the steering committee of the National Academy of Medicine’s Action Collaborative on Clinician Well-Being and Resilience. “We were all like ducks with our feet paddling under the water, but above it we had to show that we were cool and calm. I failed the surgery shelf exam—but the real issue is that I

didn’t feel comfortable opening up, seeking support, and breaking a culture of silence.”

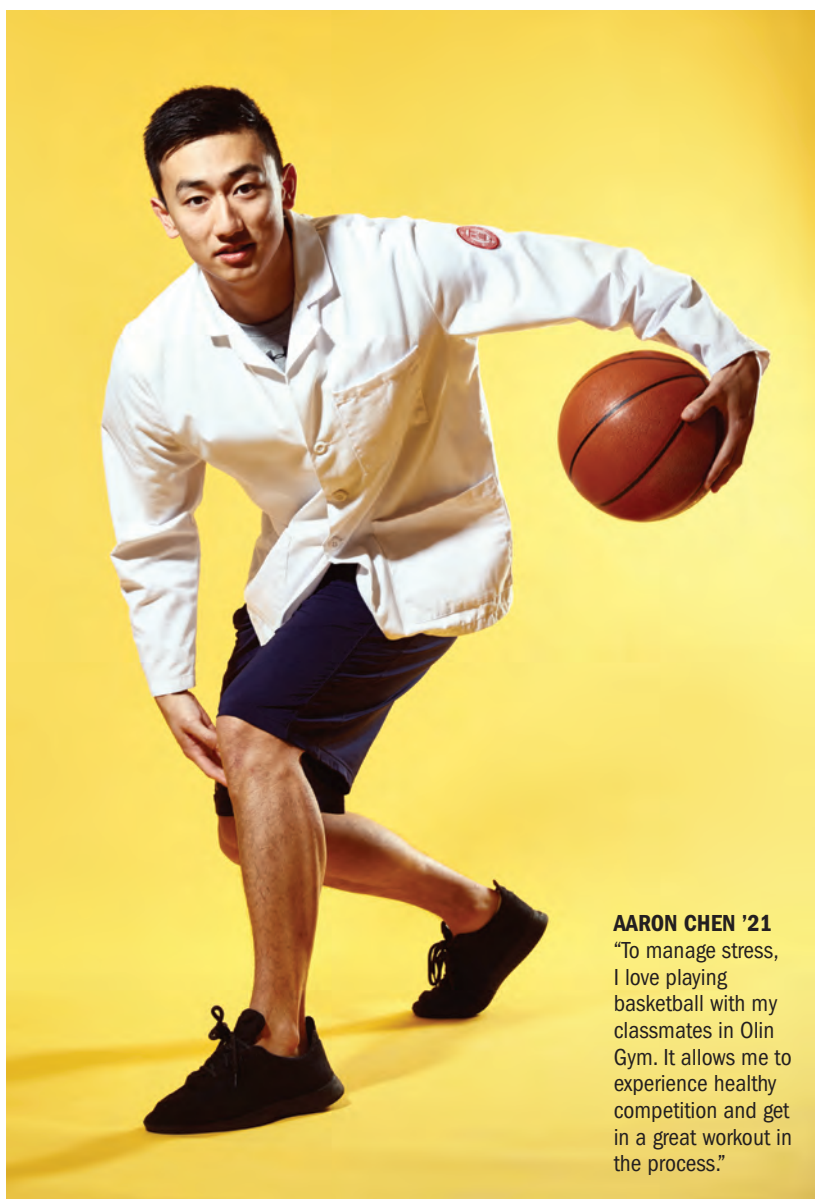
Kishore’s experience reflects a perennial problem. But today, with growing awareness that aspects of medical school and physician practice can contribute to burnout, academic medical centers are cultivating an emerging—if still embryonic—commitment to improved wellbeing and resilience among students and doctors. Part of that includes tentative first steps to better discern the causes of burnout, particularly in students. But as medical educators and administrators work to create an environment to improve student wellbeing and resilience, they are simultaneously integrating stress reduction into curricula and student life. “It is a privilege to care for patients, and both their joys and suffering give us a profound sense of purpose as physicians,” says Augustine M.K. Choi, MD, the ▶



**STEPHANIE AZZOPARDI,
MD-PHD STUDENT**

"For stress relief, I engage in cardio kickboxing about five times a week. It's a fun, intense workout that has become a huge part of my lifestyle."

Initiatives to combat stress and burnout have been launched at a variety of levels, from student life to the curriculum to individual clinical departments.



AARON CHEN '21
“To manage stress, I love playing basketball with my classmates in Olin Gym. It allows me to experience healthy competition and get in a great workout in the process.”

Suzanne and Stephen Weiss Dean of Weill Cornell Medicine. “But the ways both medical education and healthcare delivery are structured can erode doctors’ and medical students’ sense of meaning. It is imperative that we do all we can to nurture the motivators that bring medical students and physicians into medicine to maximize their wellbeing and our patients’ care.”

Just how burned out are doctors? One group estimates that the phenomenon is experienced by 30 to 40 percent of physicians, according to a 2009 study published in *The Lancet*. In a commentary in *JAMA* in 2011, Liselotte Dyrbye, MD, and Tait Shanafelt, MD—two pioneering researchers in the field—wrote that “preliminary evidence suggests that excessive workloads (e.g., work hours, on-call responsibilities), subsequent difficulty balancing personal and professional life, and deteriorating work control, autonomy, and meaning in work contribute to burnout in physicians.” But the number of doctors affected is hard to quantify. This September, a *JAMA* article described a systematic review of 182 studies on the subject—and concluded that because there was so much variability in how burnout was defined, assessed, and queried, the rate could be anywhere from zero to 80.5 percent of doctors. “Burnout is a buzzword that’s been in the news, but what is it? How does it affect doctors and their patients?” an NPR story wondered. “It turns out, nobody really knows.”

The academic literature on medical student burnout is similarly emerging. Still, researchers have found that students report symptoms of anxiety and depression, and are trying to understand why they may be at increased risk. Medical students are likely to experience symptoms of depression more often than peers in the general population, according to a 2016 meta-analysis published in *JAMA*. Another *JAMA* study, published this year, found that elevated anxiety in medical school—along with being female, having children, and training in certain specialties—correlates with symptoms of burnout in residency. Still, it is not clear whether the prevalence of depression and anxiety is comparable to that found in students enrolled in other types of professional schools.

Choi wants WCM to take a leadership role in working with medical school educators and professional entities to better understand the nature of burnout and its implications for students and doctors. “Burnout has been a longstanding problem in the medical profession, and its origins are complex,” says Barbara Hempstead, MD, senior associate dean for education. “It is so very important that it is being recognized in the student, resident, and faculty populations, and we have a lot of work to do to tackle this. Medical schools around the country are examining the learning environment—including the role played by curricula, standardized testing, competition among peers, and the transition to residency—to better understand burnout and make changes to help the system be more supportive for students, residents, and physicians.”

In the meantime, initiatives to combat stress and burnout have been launched at a variety of levels at Weill Cornell Medicine, from student life to the curriculum to individual clinical departments. Students can avail themselves of such free offerings as yoga classes, chair massages, guided meditation sessions, and social hours each Wednesday morning. Well at Weill, a program for medical and grad students, offers events such as a popular monthly lecture and hosts a website that’s a one-stop resource on wellness from several angles—physical, intellectual, emotional, spiritual, and more.

Alice Tang, MD, assistant professor of clinical medicine, has been interested in issues of burnout since her residency at NYU, where she introduced stress management and resiliency training as chief resident. She notes that although she graduated from medical school only six years ago, open discussion of such issues has come a long way. “Back then, burnout was almost conceptualized as for people who are weak and can’t cope, so if you’re burned out it’s your fault,” says Tang, who lectures to WCM first-years about the different manifestations of stress. “We’re lucky that there’s now so much in the media and the medical journals showing that this is a systemic issue.”

Another reason why student wellness has become a more prominent topic in recent years involves a generational shift: millennials are generally more willing to ask for

help and to avail themselves of the support services they came to expect as undergrads. “They’re a different generation than we were,” says Dana Zappetti, MD, assistant professor of medicine and associate dean for student affairs, who earned her MD in 1999. “Our students want to talk about stress and issues surrounding mental health and self-care. They are motivated to ask hard questions about how physicians and trainees work, and how self-care and well-being can be integrated and accepted into a culture that has traditionally been built

upon self-sacrifice.”

Yet because burnout—and, conversely, wellness—have been so widely discussed among students and trainees, “it has opened the door for faculty to talk about it as well,” says Klaus Kjaer, MD, chief quality and patient safety officer for the Weill Cornell Physician Organization. Still, he says, “More senior faculty come from a generation where it was important not to show any weakness. It will take time to change that culture. At the same time, many faculty will be relieved that we are finally starting to talk about this.”



DORA CHEN '22
“I like to cook and bake. It helps with my mental health by allowing me to get focused on the flow of the activity and take a mental break from the stressors in my life.”

Cultivating Mentally Healthy Medical Students

For the past several years at WCM, sessions on wellness have been included in student orientation, with similar offerings at times of transition, such as before clerkship and residency. According to Zappetti, the aim is to ground first-years in the realities of med school life—and to reassure them that they're not alone. "Even though they're successful, motivated, hardworking students, many get overwhelmed," Zappetti says. "For one thing, they're used to being the best and the brightest, and now they're *surrounded* by the best and the brightest. And the volume of material is enormous, so that you really can't even miss a day." Zappetti talks to incoming students about burnout and offers strategies for combatting it—including common-sense advice like getting proper sleep, exercising, eating right, and maintaining outside relationships. "There's this old concept that medicine requires a lot of self-sacrifice," she observes. "People sometimes think they should be all in to medicine and nothing else. That idea is changing, but there still is a bit of it."

Orientation includes appearances by the directors of Student Health Services (Edgar Figueroa, MD '00, associate professor of family medicine in clinical medicine) and Student Mental Health Services (Richard Friedman, MD, professor of clinical psychiatry), who encourage students to seek them out. Says Friedman: "I ask them, 'How many of you went to college in New York City?' and very few hands go up. And I say, 'Most of you left your close friends and social network behind, so it's natural to feel stressed and lonely.'" Figueroa's role entails being the primary care physician for the medical and grad students who don't already have one—and to urge students to take the advice they will likely

JOANNA GAO '21

"I may not be the best yogi, but I always turn to yoga during stressful periods in my life. I love that you have to focus all of your energy into holding your pose, and therefore clear away your other stressors."



'People sometimes think they should be all in to medicine and nothing else,' says Dana Zappetti, MD. 'That idea is changing, but there still is a bit of it.'



**DANNY KRAMER,
MD-PHD STUDENT**

"Most of my fun reading is non-medical. On my bedside, I currently have *Out of Africa*, *Future Shock*, and a murder mystery called *Hope Never Dies*."

preach when they are physicians, to maintain a balanced and healthy lifestyle. "When I first see a student, I ask, 'What do you do for fun?'" Figueroa says. "I use that as an opening to discuss the fact that you need outside interests, whether it's to prevent burnout or keep some self-motivation going. If you enjoy rock climbing, for example, there are ways to keep doing that."

One of the biggest gains in student mental health services at WCM has been the hiring of a part-time clinician to provide talk therapy to students; this addition reinforces the idea that seeking help is nothing to be ashamed of, Zappetti says. Social worker Amy Miranda started in the position last February, seeing WCM students about a day and a half per week. She soon found herself in high demand, as students sought counseling for issues like academic stress and relationship problems—so much so that a second therapist has been hired. "Especially for medical students, the biggest challenge is fitting an appointment into a busy day," Miranda observes. "There are so many requirements for their time, and they may be reluctant to ask for an hour off to come to a therapy session."

Other efforts aim to train doctors to have life-long habits of self-care—to be compassionate and empathic to themselves as well as to others, and to enjoy their own lives so they can give their patients the best care possible. Innovations include a program in which second-years mentor first-years, as well as two new student government positions: medical and graduate students each have an elected wellness representative who serves as a liaison to the administration. Yili Zhao '21 filled that role for med students in 2017–18; last year's graduate student representative was Shana Bergman, a doctoral candidate in physiology, biophysics, and systems biology. Zhao—whose favorite ways of blowing off steam are doing yoga and going thrift-shopping—calls Miranda's hiring an "amazing" improvement. And Bergman, who's an avid weightlifter, notes that for her and many other students, exercise remains a tried-and-true method of stress relief. "Anything that gives you a physical outlet for your emotional stress is very helpful," she says. "Whether it's a yoga club or the dodgeball team, physical activity is one of the best ways that I and other people deal with it."

Promoting Physician Wellness

While the incidence and causes of burnout may not be well understood, few would argue that it doesn't exist. And as many concerned with clinician wellness have noted, it's not just about protecting doctors; it's also a patient care issue. Lucy Willis, MD, assistant professor of clinical emergency medicine, compares it to the safety lecture on airplanes: in an emergency, put on your own oxygen mask before helping others. "You have to take care of yourself in order to take care of other people," she says. "How you feel impacts patient care—therefore, it's in everyone's best interest to address it." Dyrbye and Shanafelt, the longtime researchers on physician burnout nationwide, stressed that point in their *JAMA* commentary. "Physicians who have burnout are more likely to report making recent medical errors, score lower on instruments measuring empathy, and plan to retire early and have higher job dissatisfaction," they wrote, "which has been associated with reduced patient satisfaction with medical care and patient adherence to treatment plans."

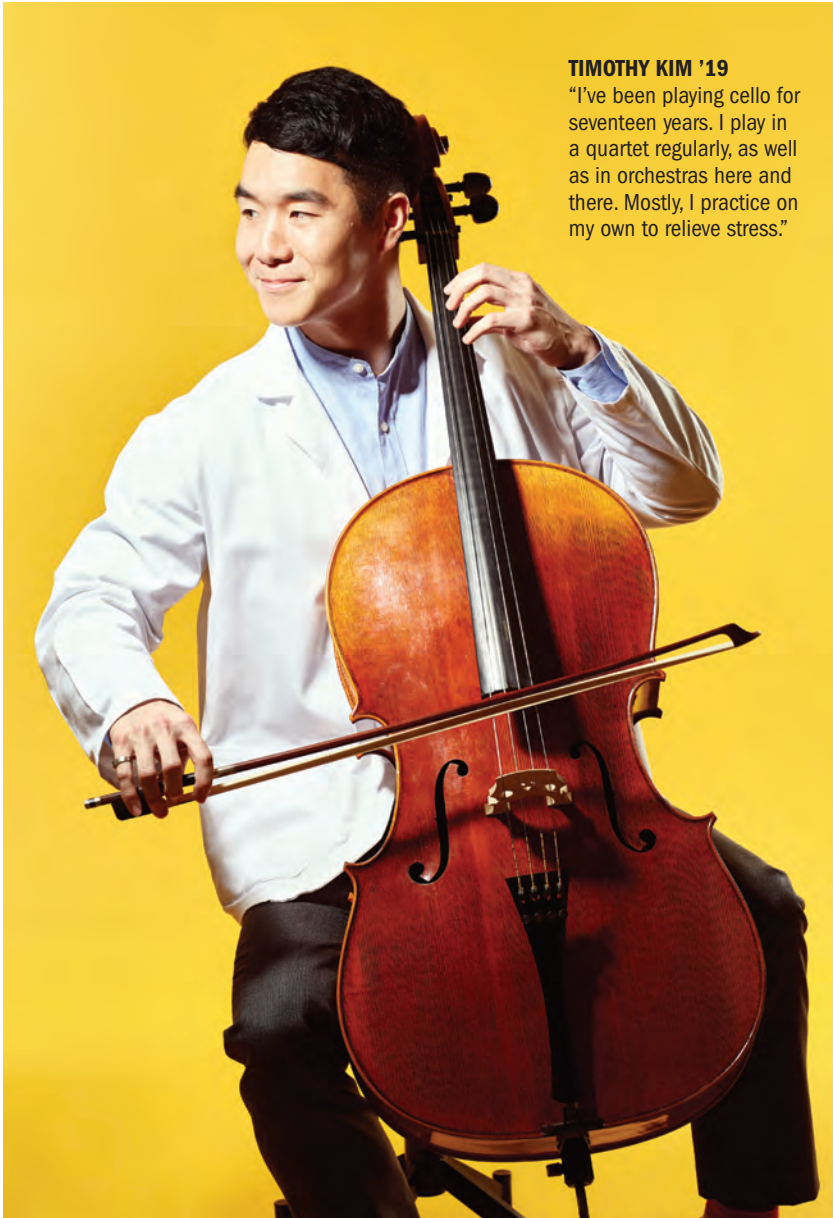
Among the WCM departments at the forefront of promoting wellness and resilience to deal with the stresses of patient care is emergency medicine. As Willis notes, the issue hits the ED particularly hard: surveys have repeatedly found emergency medicine—in which practitioners often face high patient volumes and work in fast-paced conditions—to have the highest burnout rate of any specialty. Launched about two years ago, the ED's wellness program includes ways for improving the department's sense of community, including regular social outings; it has also hosted lectures on topics like "second-victim syndrome," a form of PTSD that can strike clinicians who treat traumatic cases. But the biggest gains, Willis says, have come from some workplace changes. The ED renovated its breakroom from a chaotic space into a calmer one, complete with massage chair; it instituted formal breaks, so staff have protected time to eat or use the bathroom. And in what Willis says was the biggest quality-of-life boost, it hired scribes

'You have to take care of yourself in order to take care of other people,' says Lucy Willis, MD. 'How you feel impacts patient care.'



BRIENNE LUBOR '21

"I love drawing as a stress-reducing activity. When I have free time, I like to explore the city and bring my sketchbook to new places I visit."



TIMOTHY KIM '19

"I've been playing cello for seventeen years. I play in a quartet regularly, as well as in orchestras here and there. Mostly, I practice on my own to relieve stress."

to free clinical staff from some of their paperwork burden. "Scribes and breaks have made my job so much more pleasant," says Willis, adding that surveys taken before and after the changes have shown an uptick in morale. "And having an administration that's willing to listen, to make changes based on what the front-line physicians need—that has been very helpful."

Similarly, the Department of Anesthesiology has been promoting wellness among its faculty and trainees for nearly a decade. The issue has been incorporated into the residency's educational program, which includes lectures on topics like mindfulness, nutrition, and sleep hygiene. "Building community has been critical," says Eric Brumberger, MD, director of the anesthesiology residency program, noting that in the last few years the Accreditation Council for Graduate Medical Education mandated that residencies include a wellness component. "Residents and medical students are at one of the most challenging times in their lives, not only in terms of stress, but they're at an age when most mental illnesses present in the general population. It's a very at-risk time."

The department has created "sibling" programs to match new trainees with more experienced peers. It has also established a residency support council that weighs in on the wellness curriculum and organizes social events, like a monthly outing to a local watering hole, an annual barbecue, softball games, and more. Like the ED, anesthesiology has administered surveys to assess progress. "There has been measurable improvement in terms of morale," says Brumberger, noting that the department recently established a similar council for faculty. "The residents report feeling supported and knowing that they have a safe space and people who care about them."

Among Kjaer's responsibilities at the Physician Organization is looking at the relationship between provider wellness and clinical outcomes; the organization is now making preliminary plans for a student and faculty survey in early 2019. "We would like to get a baseline assessment," says Kjaer, who is also an associate professor of clinical anesthesiology. "We are interested in seeing at a more granular level what patterns might exist. Are there certain populations among our faculty that may be more vulnerable—such as particular specialties, academic ranks, age groups, or practice locations?" ■



Opportunity Knocks

Weill Cornell Medicine's summer programs for minority undergrads have inspired generations of students to pursue careers as physicians and scientists

BY MOLLY SCHULSON

ILLUSTRATIONS BY AARON SACCO

For three Weill Cornell Medicine summer training programs—all dedicated to helping socioeconomically disadvantaged or minority undergraduates explore careers in the medical sciences—this is a milestone year. Two of them, Advancing Cornell Career Experiences for Science Students (ACCESS) and Gateways to the Laboratory, mark twenty-five years of service, while the Travelers Summer Research Fellowship celebrates fifty. All three provide research experience, mentorship, and insight into the admissions process for medical or graduate school, as well as stipends and on-campus housing. Each receives hundreds of applications for a handful of spots.

Travelers—named for Travelers Insurance, which endowed the program in 1995—was founded in 1969; the first class consisted of ten undergrads at what's now Hampton University, a historically black college in Virginia. Since then, 1,217 pre-med students from around the country have participated. They work in labs, attend a lecture series on cardiovascular physiology, and learn what a career in medicine is really like. "Travelers was developed to increase the number of minority physicians, as they were woefully underrepresented," says Elizabeth Wilson-Anstey, EdD, assistant dean of diversity and student life, who has worked with the program since 1976 and is now its director. "The program gives students confidence and helps them see the practice of medicine up close, reaffirming their desire to become a physician." From 1969 to 2015 (the most recent year for which statistics are available), 82.7 percent of Travelers alumni went on to gain admission to medical school.

ACCESS was created in 1993 for students interested in biology and medical research. Initially a collaboration between Howard University and Weill Cornell Graduate School of Medical Sciences, the program (now open to undergrads from any institution) has welcomed 216 students from colleges nationwide. ACCESS participants match with

a faculty mentor, conduct basic research, and attend workshops to help prepare for graduate school. "The experience really motivates people," says Marcus Lambert, PhD, assistant dean of diversity and student life and director of the program, "and it allows us to contribute to the diversity of people pursuing biomedical research nationwide."

When Gateways began with four participants in 1993, it was the nation's first summer program for aspiring MD-PhDs. It was reimagined in 1998; changes included having current MD-PhD students serve as peer mentors and flying in parents to attend the final oral and poster presentations in August. "Many participants are first-generation college students, so it's not just about the students learning what a physician-scientist is—it's important to educate their parents as well," says Ruth Gotian, EdD, the assistant dean for mentoring who was Gateways' director from 1997 to 2018. "The parents attending the presentations realize that a roomful of people is listening to their son or daughter, and it's special." Gateways now has 309 alumni; as of a 2013 analysis published in *Academic Medicine*, every participant who went on to apply to MD-PhD programs successfully gained admission.

At the end of each summer, ACCESS and Gateways students present their research at the Leadership Alliance National Symposium, an annual conference for young scholars (held most recently in Hartford, Connecticut). Program alumni are encouraged to stay connected with one another and their mentors as their educational careers proceed. "We were all trying to improve ourselves, and these summer programs made our goals feel more attainable," says Raja Flores, MD, who participated in Travelers as an NYU undergrad in 1987 and is now chief of thoracic surgery at Mount Sinai. "More than anything, we were given real hope and guidance." >



Farah Lubin, PhD
(1995)

ASSOCIATE PROFESSOR
UNIVERSITY OF ALABAMA AT BIRMINGHAM

Lubin first heard about ACCESS—then known as the Marcus M. Reidenberg Gateways to Science Program—when she was a pre-med student at Alabama State University. At the time, she was debating whether to earn an MD-PhD, which could have taken up to twelve years to complete. So when Lubin learned about ACCESS, she thought it might help her make up her mind—and the WCM campus was close to her parents, who lived on Long Island.

Prior to arriving at WCM, Lubin didn't have much lab experience, but she soon found herself spending hours at the bench. In the lab of Elizabeth Lacy, PhD, a professor of cell and developmental biology who studies the human embryo, she was introduced to basic techniques like pipetting and learned how to present a research poster. "The feeling of knowing you can actually perform these tasks was incredible," Lubin says. "At first, doing research seems daunting—you think maybe it's not for you—but being given the opportunity to work in the lab environment made everything more tangible and less intimidating." By summer's end, Lubin knew she wanted to earn a doctorate and focus on research. "The lab environment was very exciting for me," she says. "It really solidified what I wanted to do." After graduating college, she went on to earn a PhD in biochemistry and cell and molecular biology from Binghamton University.

Lubin is now an associate professor of neurobiology at the University of Alabama at Birmingham, where she runs the Roadmap Scholars Program; funded by the National Institute of Neurological Disorders and Stroke, it aims to engage and retain minority grad students who are interested in neuroscience. ACCESS inspired her to start the program, which she says gives participants a vital support system, including assisting with career planning. Says Lubin: "Students need an opportunity like this, where someone says, 'You can do it.'"

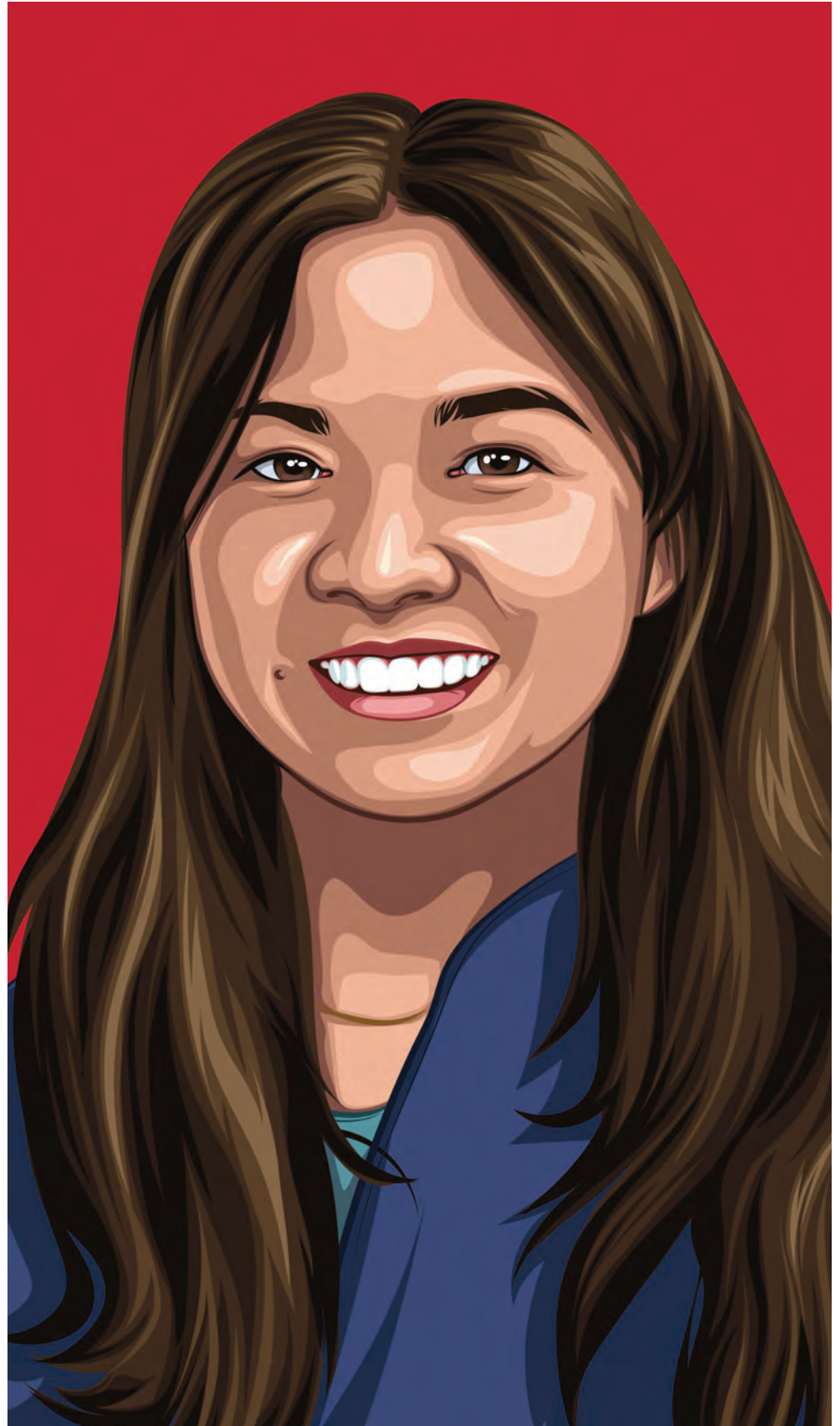
Chloe Lopez-Lee

(2015 & 2016)

PHD CANDIDATE
WEILL CORNELL GRADUATE SCHOOL
OF MEDICAL SCIENCES

Prior to 2015, ACCESS was limited to rising juniors and seniors. But that didn't stop Lopez-Lee, then a rising sophomore, from applying anyway. She became the youngest participant in ACCESS history—and her success led to an expansion in program eligibility. Lopez-Lee worked in the lab of Teresa Milner, PhD, professor of neuroscience, which aims to understand the influence of estrogen on the brain. "I learned so much," says Lopez-Lee. "And it was great having a woman scientist as a mentor." She also grew fond of Journal Club, a component of ACCESS that exposes participants to academic papers; realizing she wasn't the only one struggling to decipher the materials made her feel less alone. At the end of most days, she commuted to her parents' home on the Lower East Side with a MetroCard furnished by the Weill Cornell Graduate School. "The fact that they provided me with that in addition to my stipend—that meant a lot to me," she says.

Lopez-Lee enjoyed the experience so much that she returned for a second summer in Milner's lab, and the following summer she studied fatty liver disease at UCSF. Now, she's a first-year PhD candidate in neuroscience at Weill Cornell. "I remember talking to the graduate students while I was just an undergrad and thinking, Wow, they're in the real world," she says. "I looked up to them—so to be in their position now is surreal."





Emma Schatoff

(2011)

SIXTH-YEAR STUDENT
TRI-INSTITUTIONAL MD-PHD PROGRAM

Schatoff was a high school student interning in a neurobiology lab at The Rockefeller University when she learned that it was possible to conduct research for a living. Before that, she thought if you liked science, all you could do was go to medical school—but she never pictured herself as a physician, so research seemed like the perfect way for her to pursue science as a career. What's more, she says, the Rockefeller lab was led by a female scientist, Leslie Voss hall, PhD—which made it easier for her to envision doing the same thing one day. When she found out about the Gateways program, it seemed like an invaluable opportunity. "Everyone in Gateways had limited research experience," she says. "But we learned that if we worked hard enough, we could accomplish our goals."

Interested in cancer biology, Schatoff worked in the lab of Ross Levine, MD, a physician-scientist at Memorial Sloan Kettering Cancer Center, which studies blood cancers known as myeloid malignancies. "I had an incredible experience," she says. "I remember working with some patient samples, and I thought how meaningful it would be to treat these patients and meet them in person. That was the moment I decided I should apply to the dual degree program."

Schatoff returned to the Levine lab the following summer, and—thanks in part to the experience she gained from Gateways—was accepted into the Tri-Institutional MD-PhD Program in 2013. Having completed her first two years of medical school, Schatoff is currently doing her doctoral work in biological sciences under Lukas Dow, PhD, assistant professor of biochemistry in medicine. Working at the Sandra and Edward Meyer Cancer Center, she's using mouse models to identify targeted therapies in colon cancer. As a woman of Cuban and Russian descent, Schatoff believes it's important to bring minority students into science training programs. "Physicians and researchers work with diverse populations," she notes. "We need trainees and professionals that can effectively represent and relate to the communities they're serving."

Jonathan Abraham, MD, PhD
(2002)

ASSISTANT PROFESSOR
HARVARD MEDICAL SCHOOL

During the Gateways awards ceremony this past August, Abraham—an alum of the program who received his MD-PhD from Harvard Medical School and now runs a research lab in the school’s department of microbiology and immunobiology—had the honor of giving the keynote address marking Gateways’ twenty-fifth anniversary to an audience of current participants. “I couldn’t believe it was sixteen years ago that I was in their shoes,” he says. “It was nice to serve as the ocular proof that this can be done.” Abraham, who is Afro-Caribbean, is thankful for the supportive environment that Gateways created for people like him. “When you want to pursue a career in medicine and you are from an underrepresented background, you look around and notice not a lot of people look like you,” he says. “Seeing people like you doing what you want to be doing serves as inspiration and motivation.”

Originally from Haiti, Abraham’s family moved from Canada to Queens, New York, where he attended high school. He became fascinated with viruses after reading *The Coming Plague*, a book that warned about emerging diseases. Abraham matriculated at Harvard knowing he wanted to be a doctor, but Gateways was his first opportunity to focus on research—specifically, on a bacteria that causes chronic lung infections in patients with cystic fibrosis. “This is where I learned that a PhD was something I’d be excited about,” says Abraham. “There was suddenly a fire in my belly to pursue both career paths.” Over the past decade, he has focused on how emerging viruses, like Ebola and Zika, interact with the cells they infect and how the human immune response can be harnessed to fight them. “When I was a participant in Gateways, there weren’t many people like me giving a lecture,” he says. “It’s nice to be able to serve that role now.”



Travelers Summer Research Fellowship



Ikenna Onyekwere (2018)

SENIOR BIOLOGY MAJOR
CORNELL UNIVERSITY

"My father always jokes that every time he got paid, I would get sick," says Onyekwere, who was born in Nigeria and suffered from a variety of illnesses as a child. "So he spent all of his money taking me to the hospital." When Onyekwere was four, he and his family moved to Irvington, New Jersey. Growing up there, he remembers sitting in the waiting rooms of doctors' offices and watching people leave because they didn't have access to health insurance due to their socioeconomic or immigration status. "They had illnesses that could have been fixed if they could just see a doctor," Onyekwere recalls. Seeing this firsthand—as well as having been a patient himself—inspired him to dream of a career in medicine.

Onyekwere attended community college before transferring to Cornell's Ithaca campus as a junior. As a rising senior on a pre-med track, he attended a summer program at Rutgers New Jersey Medical School, where he met Elizabeth Wilson-Anstey, EdD, who directs Travelers and encouraged him to apply. Onyekwere made the most of the program by asking visiting lecturers if he could shadow them for a day; one of them (Anthony Watkins, MD, assistant professor of surgery and attending surgeon at New York-Presbyterian/Weill Cornell) even gave him the chance to observe a kidney transplant surgery. He worked long hours in the lab of Mandë Holford, PhD, adjunct assistant professor of biochemistry; he synthesized a venomous peptide, derived from a predatory marine snail, that has potential therapeutic applications. His efforts paid off when he received high praise for his final research presentation. "Travelers was amazing," says Onyekwere, now in the process of applying to medical school. "It was probably the best summer I've ever had."

Ivor Benjamin, MD

(1977)

PRESIDENT, AMERICAN HEART ASSOCIATION;
DIRECTOR, CARDIOVASCULAR CENTER,
MEDICAL COLLEGE OF WISCONSIN

Though Benjamin commuted to campus when he was a Travelers student, he recalls that he enjoyed hanging out in Olin Hall, the WCM dorm in which out-of-town participants are housed. “Travelers allowed me to form lifelong friendships,” says Benjamin, whose fellow students included Gary Gibbons, MD, now director of the NIH’s National Heart, Lung, and Blood Institute. “All of a sudden you’ve got this infusion and concentration of really talented people who are funny and smart, and you realize you have so much in common.”

Born in Guyana—a tiny nation in South America that didn’t even have a medical school when he was growing up—Benjamin excelled in school; he was just nine when he first thought about becoming a doctor, after his grandmother suffered a stroke. After high school, Benjamin moved to Brooklyn with his family and enrolled in Hunter College, where he heard about Travelers from upperclassmen who had participated. At WCM, he worked in a lab run by Daniel Wellner, PhD, now a professor emeritus of biochemistry. That, along with the program’s lecture series on cardiovascular physiology, inspired him to continue doing cardiology research while earning his MD at Johns Hopkins. Since 2013, Benjamin has directed the cardiovascular center at the Medical College of Wisconsin. A cofounder of the *Journal of the American Heart Association*, he became president of the AHA (a part-time, volunteer position) this year.

In addition to the many benefits of Travelers, Benjamin says, the program gives students a “huge psychological boost”—which is why he encouraged his daughter, Charis Benjamin, to participate in 2015. She applied without mentioning who her father was, because she wanted to be accepted on her own merit. When she was admitted, “that was a proud moment for me,” Benjamin says, adding that he later received an invitation from Wilson-Anstey to give a guest lecture. Meeting the bright students in his daughter’s cohort made him hopeful for the future. “It’s good to see young people still bitten by the bug who wish to pursue and excel in science,” he says. “Expanding the biomedical research pipeline is mission critical—and programs like Travelers are an important way to make sure we do that.” ■



**NEWS OF MEDICAL
COLLEGE AND GRADUATE
SCHOOL ALUMNI**

Dear Alumni,

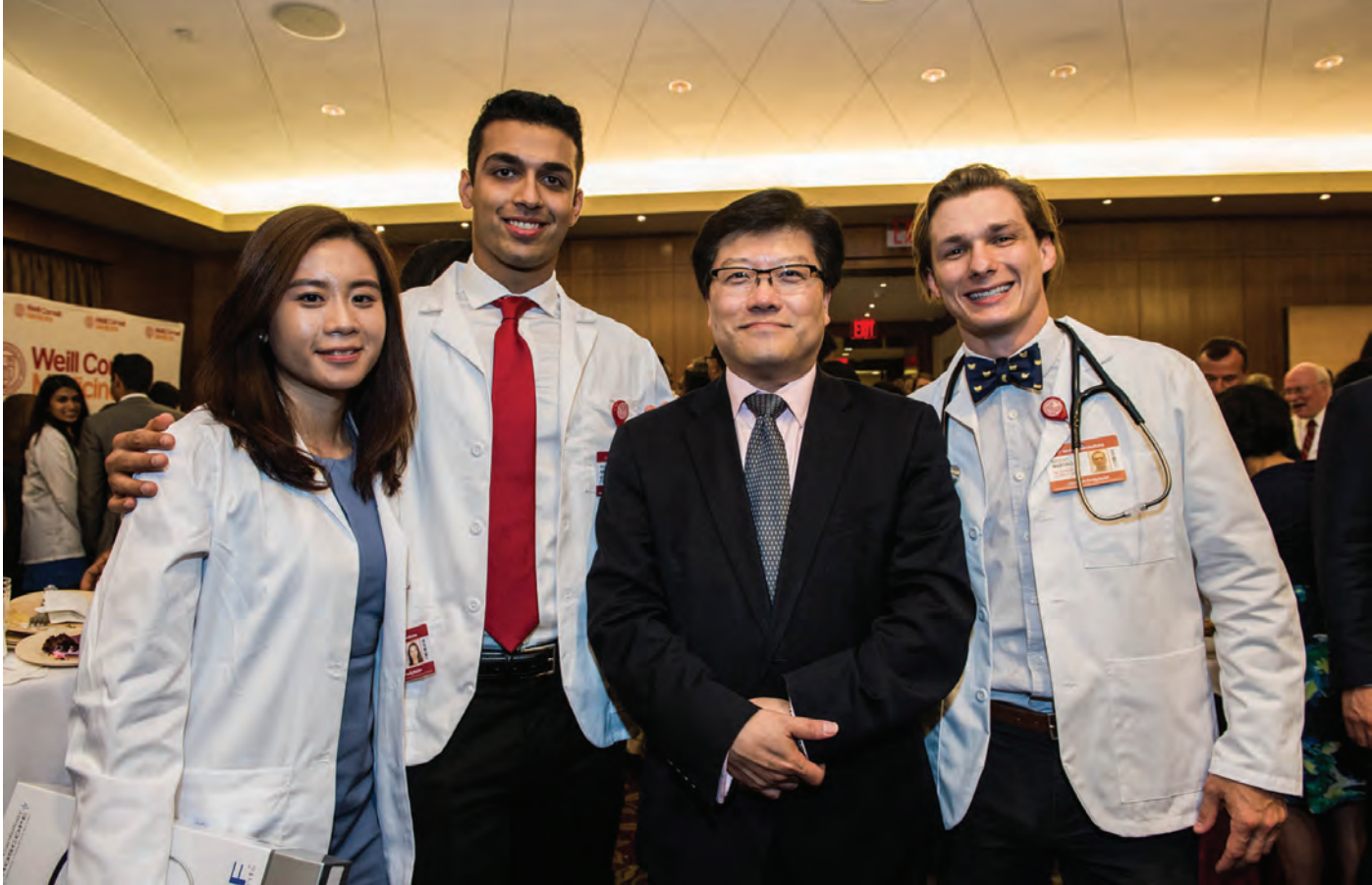
It was fitting for me to chair the Reunion Committee this year and to attend the event in October. Walking through the halls of 1300 York Avenue—and seeing so many fellow alumni in the place that forever shaped our paths—further reaffirmed my decision to take on the role of Weill Cornell Medical College Alumni Association president. What an incredible group of people—world-class clinicians and pioneering physician-scientists, all connected by our commitment to improving lives and anchored by our alma mater. It was inspiring to hear your stories and learn how your time at Weill Cornell Medicine informed your careers. Thanks, again, to those of you who were able to attend Reunion and make it another successful event. I look forward to meeting more alumni in my next two years as president.

Like all of us, my path to Weill Cornell Medicine—and becoming a doctor—was uniquely my own. When I chose to become a physician, I was inspired by my father. He is a physician-scientist and was a key role model for me throughout my childhood (and still is today). I enrolled at Weill Cornell, and just a few years later my younger sister also attended the school. You could say that we had a genetic predisposition to medicine, and to Weill Cornell specifically, but it was always so much more than that. We have been driven to help people and feel so fortunate that we've had the opportunity to do so. Each Weill Cornell graduate has a unique story that brought us to 1300 York Avenue. Our individual differences, along with all of the places where our stories overlap, are what make us such a strong community.

When I was invited to join the Alumni Association, it was an easy decision. For me, becoming a member was a great way to stay involved and contribute to a school that had given me so much. Throughout my time on the board of directors, I have continued to be in awe of what we accomplish together. Whether through Alumni Association-funded scholarships that lower ever-mounting student debt, or by funding innovative student programs like the Weill Cornell Community Clinic, the dues that we pay as Alumni Association members provide valuable resources to medical students and the entire Weill Cornell Medicine community.

In my role as president, I hope to continue connecting those of us who have been working in the field for some time, and also engage the many recent graduates who are just finding their feet in this exciting and complicated profession. As I watched alumni interact with current Weill Cornell medical students at Reunion, I felt inspired by what lies ahead. These students are the future of healthcare—and I am confident that we as alumni can help mentor and teach them. I also believe we can learn a lot from them, and I look forward to doing so.

*Natasha Leibel, MD '98
President, Weill Cornell Medical College Alumni Association
NL121@columbia.edu*



WELCOME TO WCM: Dean Augustine M.K. Choi (second from right) at the White Coat Ceremony with Class of '22 members (from left) Hannah Chen, Milan Sandhu, and Brooks Martino

Medical College

1940s

Margaret Swann Norris, MD '49: "I retired from practicing psychiatry twenty years ago on my 73rd birthday. I am now living comfortably in a retirement apartment near Vanderbilt and spend my winters in Florida. Would enjoy hearing from any classmates."

1950s

Alan VanPoznak '48, MD '52: "What a treat to remember the great men who were part of my more than half a century with Cornell. At the university in Ithaca, Presidents Day, Perkins, Malott, Corson, Rhodes, and Rawlings. At the medical college, Deans Hinsey, Dietrich, Buchanan, Cooper, Meikle, Shires, Michels, and Gotto. And in the Department of Surgery, Chairmen Glenn, Lillehei, Wade, Ebert, Thorbjarnarson, Shires, and Daly. And I am forever grateful to my teachers **Joseph Artusio, MD '43**, in anesthesiology, and **Walter Riker, MD '43**, in pharmacology. Requiescat in pace."

Ames Filippone, MD '53: "I took two 15-year-old granddaughters on a grandparents and grandchildren Road Scholar tour of Venice, Florence, and Rome in July and survived. I

would highly recommend the RST Company for far exceeding our expectations. Great time!"

Richard H. James, MD '53, and Virginia C. James: "We are OK being 92 and 91. Family continues to multiply: four children, seven grandchildren, and eight great-grandchildren. We remain in our house. Our best to all our classmates."

Calvin Kunin, MD '53, shared this anecdote from his one-month clinical clerkship at Bellevue Hospital in 1952: "The final examination required that the clerks perform a history and physical examination on a new patient and arrive at a reasonable diagnosis. My patient was an elderly, bedridden woman. I was unable to elicit a history because she was semi-somnolent. It was difficult to perform an adequate physical examination because of her generalized rigidity. I had a vision of total failure and despaired about my future in medicine. As I bent over to talk to her she mumbled, 'Encephalitis lethargica . . . 1918 flu.' Eureka! I had my diagnosis and regained confidence."

Joe Johnston, MD '55: "I turned 90 years old recently. I'm still on the 'run,' but not as fast."

Sid Goldstein '52, MD '56: "Phebe and I are still in our home in Detroit. I'm still seeing patients in the office and doing some bedside teaching. I also continue to write a column in *Cardiology News* and do some consulting and DSMB work for clinical trials in heart failure. My golf game is improving."

Roger Ecker, MD '57: "My wife, Judy, and I are looking forward to our reunion in October. We're happy to be healthy, active, and traveling. The San Francisco Bay Area is our home. We hope to see as many classmates as possible."

Donald P. Goldstein, MD '57: "I retired in 2015 after 50 years at Brigham and Women's Hospital in gynecologic oncology. I'm keeping busy with family, travel, reading, lifelong learning courses, and playing in a ukulele band. I'll be in Italy during Reunion."

Robert E. Hardy, MD '57: "Spending my retirement years living between Flathead Lake in Montana, and Tucson, AZ. Thanks, WCM, for making this possible. My charitable remainder trust includes WCM as a benefactor."

Charles Santos-Buch, MD '57: "The Class of 1957 is one of the best graduating classes. More than 63 percent of our members



WORDS OF WISDOM: Sunidhi Singh '22 displays her new stethoscope and an inspirational note from an alum.

continued distinguished careers in well-known academic medical centers. There were veritable giants walking the halls in those days. The faculty was accessible to all of us. They knew us by name. Their goal was to imbue us with a deep commitment to do the best we could for mankind, domestically and abroad. We had a course in tropical medicine unequalled anywhere else in the world, and we had successful commitments abroad. Weill Cornell Medicine's name is still well known in Africa, Asia, and Latin America. There was no Graduate School then, but we had a magnificent Nursing School that awarded a Bachelor of Science and a Master of Science degree. Students were encouraged and recruited to do basic or clinical research. My first published paper was a clinical study in the *New England Journal of Medicine* with another classmate, **Glenn Koenig, MD '57**, and the sponsor was Prof. David Rogers. My subsequent published papers used basic science and experimental animals. I was not out of the ordinary. My classmates had the same experience in the clinical fields. Some published books and papers while they were students. My personal news includes the coming publication of a book, *A Differing View of Cuba's History*, scheduled for late September 2018, at age 86. It has taken me about five years to finish it. I very briefly cover my career at WCM in it as well. My wife Carol's health is declining and we won't be able to attend the

October alumni meetings. We will miss many good friends and loyal Cornellians. We now have five grandchildren that famously love and enjoy our company. We reside in Key Biscayne, FL, and we have reduced the number of adventures in the Bahamas and the Florida peninsula. We try to participate, sometimes successfully and more times not so much, to get involved in South Florida and its life, politics, and culture. Looking back now, I realize how lucky I have been in the course of my life. With warm regards, love, and good memories, I salute you, my famous classmates, for a job well done. Chico."

Ted Shapiro, MD '57: "I've been on the faculty as professor of psychiatry at Weill Cornell Medicine since 1976. I chaired the child and adolescent subdivision until 2002. I remain on the faculty as director of the Sackler Infant Psychiatry Program and continue to teach, write, and do faculty practice. My seventh book (coauthored with Sabina Preter and Barbara Milrod), *Child and Adolescent Anxiety Psychodynamic Psychotherapy: Treatment Manual*, will be released by Oxford University Press. I enjoy the ambience of our marvelous department, attend Grand Rounds, lunch with my old friends, and participate in our active History of Psychiatry seminar almost every Wednesday. My wife, Joan, and I have two children living in and near New York City and five grandchildren: one boy, 28, and four girls ranging from 15 to 25. We spent August at our Cape Cod home overlooking the Atlantic. I have had so many good experiences at our alma mater and made so many good friends and colleagues. A footnote: I was among the first residents at Olin Hall, but left after marriage to live in a 5th floor walk-up on 69th Street until graduation."

Bernie Siegel, MD '57: "I attended my 65th Reunion at Colgate University this spring, but I will not be attending the Weill Cornell Medicine Reunion this fall. It's nice to see how many more women are going into medicine today. I am still counseling cancer patients and writing a book to help people survive. Mind-body stuff isn't as crazy as it used to be to the profession now. We need to improve care of the patient and integrate mind-body health. Information that psychiatrists don't find new, internists aren't interested in."

Ann Huston Kazarian, MD '58, has been enjoying retirement and taking it easy.

She notes that she would like to become sufficiently mobile to travel again, including to Reunion. She recalls elective time in anesthesiology with **Joe Artusio, MD '43**, chief of anesthesia—as well as the occasional teasing by the guys in biochem lab. “We were only four women total in the class,” she writes.

Michael H. Stone, MD '58: “I finished the manuscript for my new book (my 13th) called *The New Evil*, a sequel to *The Anatomy of Evil* that came out in 2009. My co-author for the new book is a Columbia psychologist, Dr. Gary Brucato. We focus on the particularly heinous crimes committed during peacetime over the past 50 years. On the personal side, my wife and I recently returned from Bordeaux (where we visited the St. Emilion wine chateau) and London, where we attended the annual Garden Party at the Reform Club, of which I am a member. We have been patrons of the Metropolitan Opera for many years and continue to drink deeply, as it were, from the cultural events of New York City, going every Friday and Saturday to an opera, ballet, theater, or concert.”

Davis Arbuckle, MD '59: “Hard to believe it has been so many years. I live in Punta Gorda, FL, for most of the year, and in Point Roberts, WA, during the summer (outside Vancouver, BC). Would love to hear from any of my classmates.”

1960s

Don L. Horn, MD '60: “Waiting on the tarmac for a return flight from Honolulu with ample time to think of the life-enriching experiences at Weill Cornell Medicine—the outstanding classmates and brilliant faculty, the pride of just entering what was then New York Hospital, the history and adventure at Bellevue. Like Bogie and Bacall, we had it all. Above the clouds I can see the great mountain-tops of Haleakala, Mauna Loa, and Mauna Kea at almost 14,000 feet. I think of you, Weill Cornell Medicine. Aloha and thank you.”

Robert H. Horne, MD '60: “Although I retired in 2016, I’m volunteering at a free medical clinic weekly. I’m also on the medical board of a privately held pharmaceutical company currently in clinical trials for anti-metabolite drugs.”

John Hughes, MD '61: “A group of our Class of '61 continues to share experiences and

seek new knowledge that includes global outreach. The issues related to the microbiota of infants and adults that are the main cause of susceptibility to infectious agents were of special interest to Marilyn Brown [who matriculated into the class but completed her MD elsewhere] and **Jeanne Hanchett, MD '61**, who continue to focus on areas of pediatrics. **Don Fischman, MD '61**, along with his pursuits in art, examines cellular biology and has an ongoing interest in the distinct DNA methylation profiles that were found in blood samples from women six months after delivery. **Jim Ryan, MD '61**, whose career included a period of research work in Brazil, adds observations from the interface of internal medicine and the study of peptides. **Roger Soloway, MD '61**, studied the microbiome of the biliary tract and gallbladder, trying to understand the pathogenesis of black pigment gallstones. **Franco Muggia, MD '61**, who examines issues related to ovarian cancer at NYU, continues to add insights in regard to the genetics and epigenetics of neoplasia. **Lewis Glasser '56, MD '60, Jim Dauber, MD '69, Seneca Erdman, MD '60, Neil Kochenour, MD '69**, and I continue to be active in Tucson in civic and academic affairs.”

Bill Hazzard '58, MD '62: “I’m doing well and feeling fine as senior adviser to the J. Paul Sticht Center for Aging here at Wake Forest School of Medicine. Hope to see you all at the Reunion this fall.”

Jonathan Horne, MD '63: “Thank all of you for continuing to thrive and contribute to the Class of '63. It’s even more outstanding that at our age we can contribute to others, with or without pay, especially if you are an orthopaedic surgeon. We still do assist.”

Elinor Miller '59, MD '63: “I’m retired. I’m still boating and scuba diving. I have eight cats.”

Jane T. Hickok '60, MD '64: “I am sad to report that my husband of almost 53 years, William K. Hickok, died on July 21, 2018. He had been successfully treated for mantle cell lymphoma for 12 years.”

Lawrence W. Raymond, MD '64: “I’m still enjoying a modest level of practice with Atrium Health in Charlotte, NC, where UNC Chapel Hill has a branch medical school. I’ve had some success in preventing or postponing diabetes in workers at regional employers.”

Tony Middleton, MD '66: “My wife

‘Thank all of you for continuing to thrive and contribute to the Class of '63. It’s even more outstanding that at our age we can contribute to others, with or without pay, especially if you are an orthopaedic surgeon. We still do assist.’

— Jonathan Horne, MD '63



IF THE COAT FITS: Seong Jang '22 dons the physician's uniform at the White Coat Ceremony.

and I were called by the LDS Church to British Columbia to oversee the Canada Vancouver Mission from 2005–08. We compiled our time into a book and website (vancouvermissionmemories.com). I am back at the University of Utah Medical College, Division of Urology, working part-time. I still miss my classmates."

Ron Rankin, MD '68: "I finally actually retired and am living in both Utah and northern Idaho. I miss radiology a lot, but I still do test imaging cases online most every evening (and still get them right!). I very much look forward to being back at the medical center in October for our 50th Reunion."

Jeffrey S. Borer, MD '69: "I have recently received several recognitions, which I very much appreciate, including the Albert Nelson Marquis Award for Lifetime Achievement (of Who's Who publishers) and the Kanu Chatterjee Award for Lifetime Achievement in Cardiovascular Research from the International Academy of Cardiology."

1970s

Arnold W. Cohen, MD '71: "I'm semi-working three days a week. No administrative responsibilities, just taking care of patients. I love it. Marcia and I are enjoying this stage of life. We're traveling and still love going to our house in Vermont."

Bob Lauren, MD '71, published a book of essays about clinical neurology entitled *Foundations for Clinical Neurology* (Oxford University Press, 2017).

Jeffrey D. Urman, MD '72: "Since

completing my internal medicine and rheumatology training, Marian and I moved to Palo Alto, CA, in 1977 and have absolutely loved living here. We have two sons and four grandchildren (two boys and two girls) who live in Sherman Oaks, CA, and Marblehead, MA, and we visit them frequently. We have stayed close with my three gross anatomy partners, **Glen Wiggins, MD '72, Mark Vrana, MD '72,** and **Bob Weinstein, MD '72.** We will be visiting Glen and Mark in their vacation homes in North Carolina next month. I am an adjunct clinical professor of medicine (rheumatology) at Stanford, and I also work for the Medical Board of California, where I am involved with quality and enforcement issues that involve physicians in Northern California. My partner and I have patented and licensed a product, Qbrexza, for hyperhidrosis, which was approved by the FDA this past June and went on the market in October. We are obviously very excited about this. Please don't hesitate to contact us when vacationing or visiting the Bay Area."

Thomas Anger, MD '75: "Just completing six cycles of chemo for Waldenstrom's. Hemoglobin up, total IgM down; now I start every eight weeks on maintenance with Rituximab. All in all, a pretty easy regimen compared to typical treatment for more aggressive forms of lymphoma. Still on the bike, still practicing three days a week. My son, Tom, an attorney, just finished advanced EMT training, so now his job is to teach the legal concerns to EMTs and paramedics. Granddaughters Maya and Livia are growing up so fast. I'm a pediatrician, why should I be surprised?"

Paul Church, MD '75: "I retired from urology practice in the Boston suburbs on November 1, 2017. I'm spending more time with family, including six grandchildren, and am active as a political and social conservative."

George P. Kacoyanis, MD '75: "I've retired from the practice of general and vascular surgery, but continue to practice in the Wound and Hyperbaric Medicine Center at Beverly Hospital, a member of Lahey Health. I was recently appointed medical director of the center as well."

Karen Toskos Robertson, MD '75: "I recently retired from the pediatric ophthalmology group I started and am exploring new horizons."

Lynda Rosenfeld, MD '76: "I continue



to work and am still at Yale, where I am a professor of medicine and pediatrics. I am director of the clinical cardiac electrophysiology fellowship and firm chief of the Goodyear Cardiology Teaching Service."

Theresa P. Jackson, MD '78: "In 2017 I retired from Schering/Merck."

Harvey Lederman, MD '78: "I'm retiring from practice and will be traveling to northern India to deliver healthcare and teach medical students in a remote Himalayan mountain valley on the Tibetan border. Other adventures to follow. My wife, Elizabeth Rose, and I have offloaded most of our possessions and we will become an itinerant musician and physician, respectively. Our three wonderful daughters are off the payroll (almost) and are ready to fend for themselves."

Nina Ramirez, MD '78: "I am looking forward to celebrating our 40th Reunion. How did time fly so quickly? I am in total denial about my Medicare card. I have been traveling lots as a speaker for the new targeted biologics used in severe refractory asthma and moderate to severe atopic dermatitis. This is a great teaching opportunity. I am grateful to offer these exciting options to patients who would otherwise suffer. My goodness, how the evaluation and treatment of these patients has changed, and the best is yet to come! I was just inaugurated as the 69th President of the Florida Allergy, Asthma, and Immunology Society and the fourth woman in this position. I am still having a great time practicing medicine. Hope to see as many colleagues as possible. Cheers."

Steven E. Schutzer, MD '79, has been appointed to a testing committee of the US Department of Health and Human Services Tick-borne Disease Working Group.

1980s

Elizabeth A. Wuerstin, MD '81: "I'm a pediatric hospitalist covering a variety of practices. Enjoying my garden and life in Colorado."

Joel Spellun '78, MD '82: "Overall we are doing well. My oldest is a fourth-year resident in psychiatry at NewYork-Presbyterian and my youngest is a third-year resident in pediatrics at Boston Children's. It's amazing how fast the time goes. I'm going to Reunion for the first time in October 2018."

William Young, MD '82: "It was great hearing from **Carl McDougall, MD '82.** He tracked me down because of an update to my LinkedIn profile: the magic of social media. Carl practices GI in Manhattan. I am still on my neurosurgery grind in Indiana."

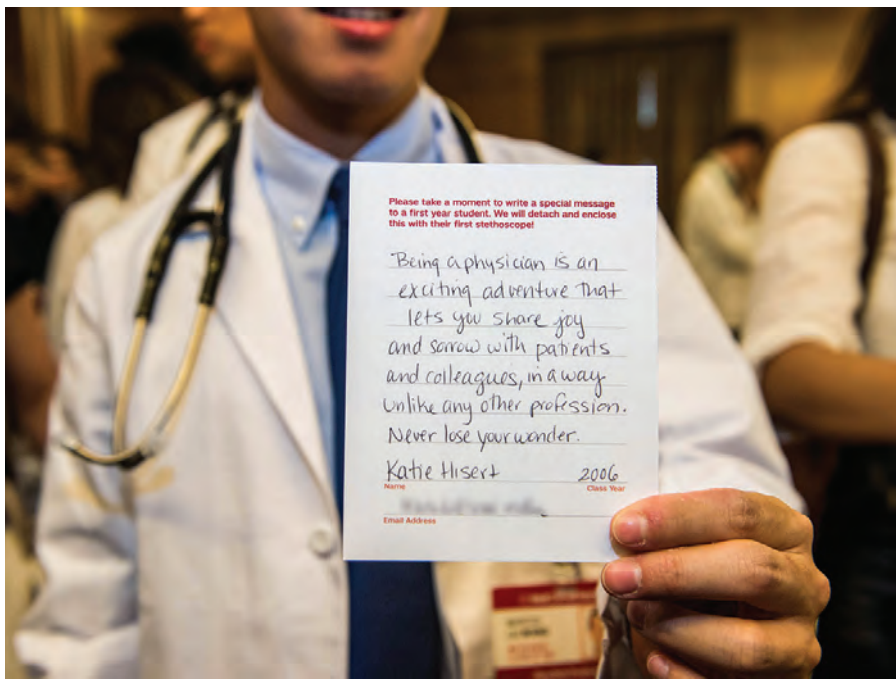
Ashis Mukherjee, MD '85: "Fellowship program at UC Riverside is going strong. Starting an interventional fellowship in 2019."

Chris Plowe '82, MD '86: "My news is that I've moved from the University of Maryland to Duke University, where I direct the Duke Global Health Institute, and my wife, Myaing Myaing Nyunt, directs the institute's programs in Myanmar, where we do research in support of malaria elimination. We are just back from a site initiation visit for a new NIH

RITE OF PASSAGE: Faculty put white coats on incoming first-years (from left) Amber Hamilton, Catherine Han, and Gregory Han.

'I finally actually retired and am living in both Utah and northern Idaho. I miss radiology a lot, but I still do test imaging cases online most every evening (and still get them right!).'

— Ron Rankin, MD '68



PASSING IT ON: A first-year shares some written advice from alumna Katherine Hisert, MD '06, PhD, a faculty member at the University of Washington.

'I'm working to make my part of the world compassionate, loving, and healthy. I'm always remembering where I've been and appreciating all who have helped me get here.'

— Theresa Rohr-Kirchgraber, MD '88

study starting in Myanmar's Rakhine State. We are loving Duke and Durham."

Paul J. Hauptman, MD '87: "After twenty years with St. Louis University School of Medicine, I am moving to become dean of the University of Tennessee Graduate School of Medicine in Knoxville and senior vice president and chief academic officer of the University of Tennessee Medical Center."

Paul Kirchgraber, MD '88, is moving up the corporate ladder. He runs a \$1.4 billion company helping to develop new drugs to treat disease. He loves his family and misses the kids, who are now in Georgia and New York.

Elizabeth Berger Mandell, MD '88: "Jim Mandell '84, MD '92, and I continue to enjoy life in Charlottesville, VA. Jim is professor of pathology in the Division of Neuropathology at UVA. I am thrilled to be a 'free agent' gynecologist since 2010. Although we remain ageless, our kids are growing up. Josh and Zach are college graduates. Matt is a college sophomore, and Emily is in middle school. Zach just started his first job—he's a clinical research assistant at Weill Cornell. Glad there's a Mandell in the neighborhood again!"

Theresa Rohr-Kirchgraber, MD '88: "A crowning achievement for me this year: professor of clinical medicine and pediatrics. Family doing well and all are healthy. I'm working to make my part of the world compassionate, loving, and healthy. I'm always remembering where I've been and appreciating all who have helped me get here."

1990s

David Soergel, MD '96: "I'm currently the head of cardiovascular and metabolic drug development at Novartis, a position I started about a year ago. Before that, I worked at two biotechnology companies developing new therapies for about ten years."

Amelia Burgess, MD '98: "Aaron Milbank, MD '98, and I live outside St. Paul, MN, with our two sons. I am working as a pediatric hospitalist and as an addiction physician. I continue to go to Haiti whenever I can. Currently, I teach at the UNIFA Medical School in Port-au-Prince for a couple of weeks a year."

2000s

Rafael Vazquez, MD '06, was promoted to assistant professor at Harvard Medical School.

Jennifer Rodriguez Corwin, MD '09: "I am starting my sixth year in my pediatrics practice, where I've been since finishing residency. Last spring I completed my International Board Certified Lactation Consultant certification and am now working on starting a more formal breastfeeding education curriculum and support in our practice. I also recently started and am running our practice's social media presence. On the personal front, **Nina Niu, MD '09,** and I enjoyed a great vacation in Captiva, FL, with our families this July, complete with a 2, 3, 4, and 5 year old! All my best to my fellow members of the Class of 2009."

2010s

Diana C. Mosquera, MD '14: "This summer I completed my residency and joined the anesthesiology faculty at Penn Medicine, University of Pennsylvania Health System. In addition, I will be starting an MBA with a healthcare management major at the Wharton School this fall."

David C. Johnson, MD '15: "I started a position as assistant professor of psychology at York College CUNY in fall 2018. Also, I was awarded an R15 grant from the NIH for research on fear learning and regulation."

Graduate School of Medical Sciences

Felice Aull, PhD '64: "I have been retired from the full-time faculty at NYU School of Medicine for ten years, but have an adjunct appointment in the Division of Medical Humanities. In 1993, my husband, Martin Nachbar, and I founded an online medical humanities resource, the NYU Literature, Arts, and Medicine Database. I started writing poetry in 2001 and have a published chapbook, *The Music Behind Me* (2012), and a full collection, *Mandatory Evacuation Zone* (2017). Visit feliceaull.com."

Wonpil Im, PhD '02, professor of biological sciences and bioengineering and Presidential Endowed Chair in Health Science and Engineering at Lehigh University, was featured in a recent article in *Lehigh Research Review*, "Bacteria Gets a Close-Up," which discusses his work on drug-resistant bacteria. His web-based graphical user interface facilitates the modeling of complex biomolecular systems.

Andrea Basso-Porcaro, PhD '03, transitioned from drug discovery research at Merck and is now a clinical scientist there supporting translational oncology clinical studies for Keytruda and early pipeline compounds. She lives in New Jersey with her husband and loves spending time playing with her three kids.

Gang Hao, PhD '04, a pharmacology program graduate, works at Alkermes in Waltham, MA, as principal scientist.

Michael Repucci, PhD '05, started a new job in February as director of software engineering at Nanotronics.

Erin Bomba Sherer, PA '06, received her EdD in health education from Columbia University in May 2018. She is currently working in Columbia's emergency department and anticipates transitioning into an academic position in the future.

Meghan Bates, PA '09, works in family practice. She lives with her husband and two-year-old son in Orlando, FL.

Judy Murphy, PhD '14, was recently promoted to medical director at Health Science Communications, part of Healthcare Consultancy Group. In her free time, she enjoys traveling and recently visited Mexico City, Berlin, Paris, and the French Alps.

Sherika Sylvester, PhD '14, is a data scientist at Booz Allen Hamilton, where she

specializes in providing analytical support and data science solutions to problems in the life sciences and healthcare industries. She is also an active member of DataKind DC, a volunteer organization that partners with organizations to deliver impactful data products for social good. Previously, she studied systems neuroscience as a postdoc in Dr. Patrick Kanold's lab at the University of Maryland and as a physiology, biophysics, and systems biology graduate student in Dr. Emre Aksay's lab at Weill Cornell.

Christopher Way, MS '15: "I am a data analyst at Talkspace.com, an online and mobile therapy company based in New York City. I am responsible for providing business intelligence and creating dashboards and reports that give insight into trends in our health outcomes data, metrics having to do with client wellness, therapist activity, and other areas of interest."

Wei Shao, PhD '18, recently graduated from the cell and developmental biology program and will join the global investment management firm Hillhouse Capital Group as a research associate with a focus on healthcare investment in the US and China.

IN MEMORIAM

'50 MD—Jean Abel Cramer of Flemington, NJ, May 17, 2018; dermatologist.

'54 MD—David M. Johnson of Walnut Creek, CA, March 22, 2018; retired pediatrician; founding physician and chief of staff of the original John Muir Memorial Hospital; co-founder and president of the Central East Bay IPA, the predecessor to the present Muir Medical Group IPA.

'56 MD—George C. Schussler of New York City, June 27, 2018; recognized for his contributions to the understanding of thyroxine-binding proteins and the euthyroid sick syndrome.

'57 BA, '61 MD—Marylyn Enck Broman of Coral Gables, FL, April 25, 2018; associate professor of pediatrics and chief of adolescent medicine at University of Miami School of Medicine; founding member of the Society for Adolescent Medicine.

We want to hear from you!

Share your news with your classmates!

Email Chris Furst: cf33@cornell.edu

Send by mail: Weill Cornell Medicine
401 East State Street
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Great Strides

A recent alumna runs the World Marathon Challenge

Meghan Newcomer, MS '16, took a week off last January to fly around the world, but it wasn't what you'd call a vacation. The Weill Cornell Medicine-trained physician assistant ran the 2018 World Marathon Challenge: seven 26.2-mile races in seven days on seven continents. And she came in second among the field of a dozen women—even winning one of the races, the South American leg in Cartagena, Colombia. “It was definitely a once-in-a-lifetime experience,” says Newcomer, who practices at Hospital for Special Surgery. “Probably for the next three months, I woke up every morning and thought, I don't have to run a marathon today!” Newcomer is a longtime elite athlete whose parents met while training for a marathon. She was a varsity swimmer in college, and before entering WCM's PA program she spent a few years as a professional triathlete. When she heard about the global marathon event, it appealed to her sense of adventure. “My two goals were to not get injured and to enjoy the experience,” she notes, “whereas a lot of times in the past, my goal was to win.”

Requiring an entry fee of about \$40,000—which some athletes cover through fundraising or private sponsorship—the World Marathon Challenge is relatively new, with the first held in 2015. For the runners, that means there's no clear training plan. So after Newcomer's application to enter the challenge was accepted, she developed and conducted her own regimen—all while working full-time. She started in August 2017, running ten miles a day for seven days straight, then recovering for a few weeks. She upped the distance to thirteen miles in September and raised it incrementally until she did a week of twenty-two-mile runs in December. And along the way, she participated in an event in which hikers repeatedly ascend a Vermont ski mountain over the course of thirty-six hours, for a total of 29,029 feet of elevation—the equivalent of Mount Everest.

The World Marathon Challenge began in Antarctica, where the field of about fifty runners faced temperatures of 5 degrees Fahrenheit with a serious wind chill. “Every continent and race had its own unique flavor, but Antarctica was the hardest,” Newcomer says. “It was like running in sand, except it was snow. In retrospect, I should have brought better shoes.” Then it was off to Capetown, South Africa, and a whopping temperature differential: sunny and 75 degrees. Traveling by private plane—which allowed them to sleep comfortably en route—the athletes proceeded to Perth, Australia; Dubai, UAE; and Lisbon, Portugal, before continuing to Cartagena and then finishing in Miami, where friends and family cheered them on. Newcomer's cumulative time over the seven



THE LONG RUN: Newcomer racing in (from top) Miami, Florida; Capetown, South Africa; and Novo, Antarctica.



‘My two goals were to not get injured and to enjoy the experience,’ Newcomer says, ‘whereas a lot of times in the past, my goal was to win.’

aces: 31:15:38, or roughly a day plus seven hours of running. “It was definitely an extreme sort of event, and not one that I would necessarily say is so good for your health,” she observes. “I was very happy to finish in one piece, uninjured. I think I did it just right in terms of training, not too much or too little.”

One surprising element, she says, was how the trip upended her carefully thought-out nutrition plans. For one thing, customs laws prevented the athletes from traveling with fruit; bananas, normally a runner's staple, were mostly off the menu. After suffering a queasy stomach following her flight from New York, she found herself subsisting on—of all things—Pringles, the processed potato chips that come stacked in a can. “I'm a very healthy eater, and I probably hadn't had potato chips since I was ten,” she says with a laugh. “But I needed a lot of salt, and I could digest them. It was the only thing that sounded and tasted good, and didn't upset my stomach. That was basically what I ate the whole week.” ■

—Beth Saulnier

PHOTOS: MARK CONLON

Richard T. Silver, MD '53
A Legacy Gift
to Support Future
Physicians

Dr. Richard T. Silver, Professor of Medicine and Emeritus Director of the Richard T. Silver MD Myeloproliferative Neoplasm Center, included a bequest in his estate plan, which honors the memory of his parents, and will endow scholarships for Weill Cornell Medicine students who are pursuing research in basic sciences and clinical medicine.

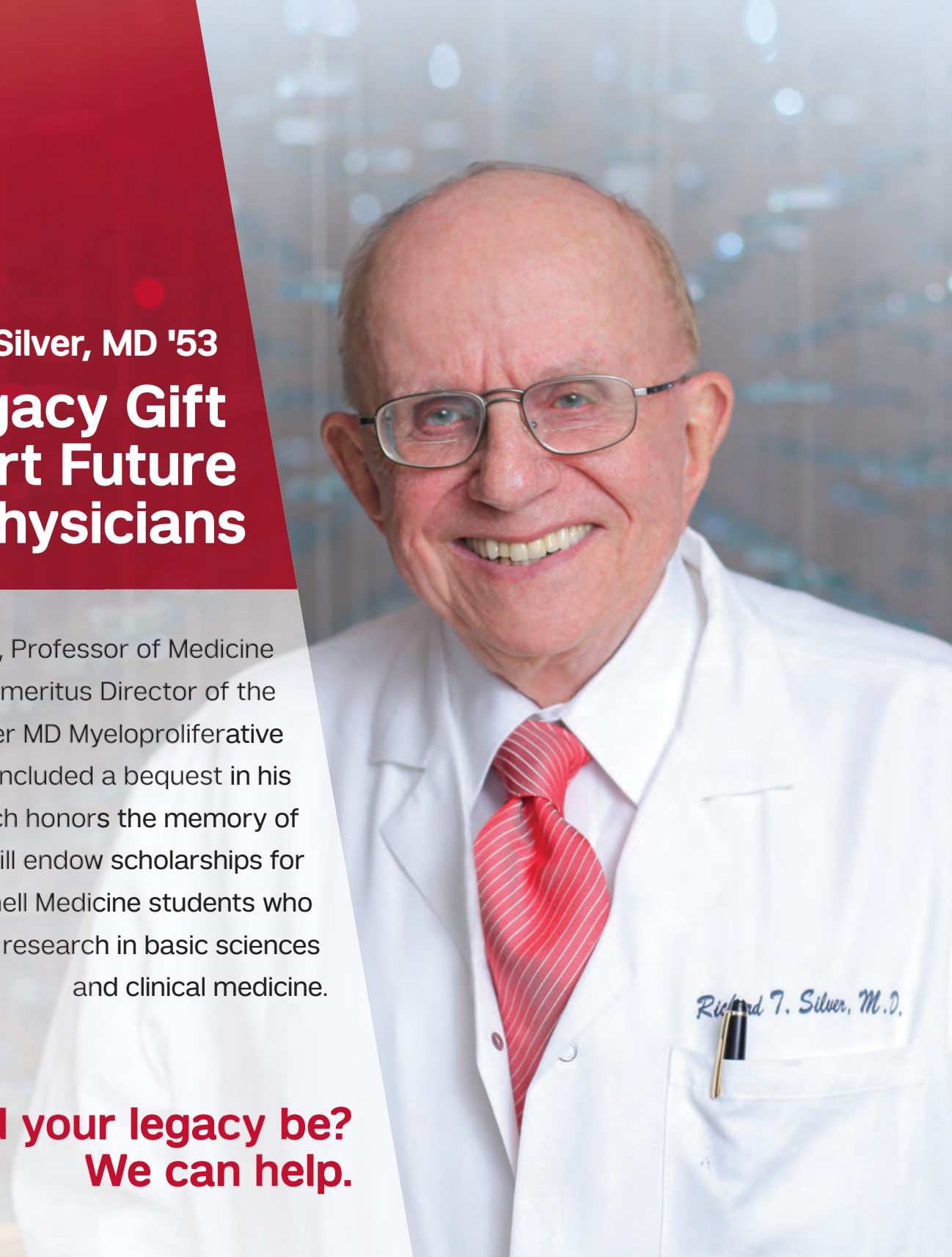
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