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SUMMER 2021

We're Changing Medicine

\$1.5 billion campaign aims to transform patient care





Weill Cornell
Medicine

Virtual Reunion

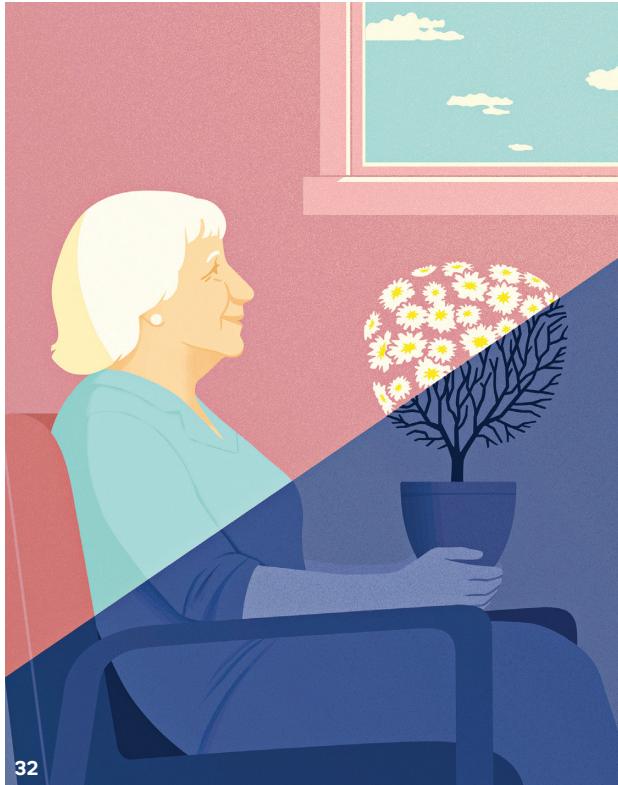
October 8-15, 2021

The Weill Cornell Medical College Alumni Reunion will take place virtually this October. While class years ending in '4, '5, '9, and '0 are celebrating milestone reunions, all alumni are invited to join and commemorate another year since graduation.



For more information please contact the Alumni Office at alumni@med.cornell.edu

THE MAGAZINE OF
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SUMMER 2021



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ON THE COVER, FROM LEFT: OLIVIER ELEMENTO, PHD; GAIL ROBOZ, MD; PATIENT CHERYL BONDER; JUAN MIGUEL MOSQUERA, MD; AND MONICA GUZMAN, PhD.

COMPOSITE PHOTO BY BRAD TRENT

24 READY TO LAUNCH

With medicine at a watershed moment—as decades of technological advances have laid the groundwork for enduring change—Weill Cornell Medicine has launched a \$1.5 billion fundraising campaign that's poised to make a global impact. "Weill Cornell Medicine has a one-of-a-kind culture that makes anything possible," says Dean Augustine M.K. Choi, MD. "Our culture of collaboration and teamwork—widely acknowledged on our campus and beyond—breaks down silos and fosters unique discoveries that impact our patients' lives."

32 SAVING GRACE

Research has found that about one in ten home-dwelling adults over age sixty suffers some form of elder abuse—and for every case of mistreatment that is reported, twenty-four are not. But an innovative program based in the emergency department at NewYork-Presbyterian/Weill Cornell aims to change that. Dubbed the Vulnerable Elder Protection Team (VEPT), this four-year-old initiative allows clinicians to detect abuse cases and intervene, not only by providing victims with medical care but by working to ensure that they're protected after discharge. "An intervention to improve care for elder abuse victims in the emergency department allows us to identify particularly vulnerable older adults at a critical time," says Mark Lachs, MD, the Irene F. and I. Roy Psaty Distinguished Professor of Medicine at WCM and an attending geriatrician at the Center on Aging at NewYork-Presbyterian/Weill Cornell. "It's a transformative approach that has huge potential."

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DEAN'S MESSAGE

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

We're Changing Medicine: A Campaign to Transform Health



For much of its history, academic medicine has advanced research, education, and clinical practice as independent silos. But today, that way of thinking is simply impractical. Realizing the potential of all three missions means integrating them fully—and understanding that each depends on the others. Our leading research programs, for example, help us attract top students from around the world. Breakthroughs in bench science inform our curriculum and practice, while innovative clinical approaches allow us to not only better treat patients, but to train the next generation of doctors and researchers—students who will make tomorrow's scientific advances. And our culture of equity, diversity, inclusion, and mentorship underlies and enriches our mission.

All this means that academic medicine adds up to more than the sum of its parts—and our approach to fundraising should, too. It used to be that we ran mission-driven campaigns,

narrowly focusing on a single goal. While that strategy led to transformational growth, we need to think bigger, and our thinking must reflect the urgency of the present moment. In this era of integration and innovation,

it is time to make another transformational leap—to change medicine, because we can and must.

Weill Cornell Medicine has launched a new eight-year, \$1.5 billion capital campaign as we grapple with a global pandemic, a crisis that has revealed so much about our responsibility toward the communities we serve, here in New York City and beyond. Now, more than ever, we must work together toward health equity, ensuring that everyone has access to the best, lifesaving care. But this is also a moment of extraordinary innovation, as researchers make huge leaps in our understanding of disease and develop cutting-edge treatments made possible by advances in new fields like regenerative medicine, cellular therapeutics, data science, artificial intelligence, and computational biology. This research is taking place right here at Weill Cornell Medicine, but also through collaborations with industry and our Ithaca and Cornell Tech campuses, as well as our partner NewYork-Presbyterian and affiliate institutions along the Upper East Side medical research corridor. Our deep well of resources and these long-standing relationships provide us with a critical opportunity to change the future of scientific discovery, enriching the quality of care we provide our patients and the knowledge our

graduates will bring to their own careers as healers.

One of the most exciting directions that research and clinical practice have taken in recent years is toward precision medicine. Now, we can use genome sequencing and data science to personalize treatments for each patient, saving lives that might have been lost just a few years ago—including that of Cheryl Bonder, a sixty-one-year-old mother of two, who came to WCM with a rare blood malignancy. In an example of our people-first, personalized care—which you can read about on page 12—a diverse team of researchers and clinicians whose expertise ranges from oncology to computational genomics was able to solve the puzzle of her disease, coming up with a precisely calibrated treatment that has controlled her cancer and restored her quality of life.

When you take the idea of precision medicine to the population level, you get precision health—a new way to address healthcare disparities that accounts for the ways in which biology interacts with social determinants to put certain populations at greater risk. When I was in medical school, we were trained to diagnose and treat disease. Now, we're discovering how to keep people healthier through better risk calculation and more sophisticated understanding of the interplay between demographics and environment, lifestyle, stress, nutrition, and exercise. Our hope is that the mass data generated from precision health approaches will enable investigators to spot patterns and trends—and potentially uncover the answers to the most vexing health questions.

We are at a pivotal moment, when investments in foundational and clinical research will have exponential benefits. But the potential of our research depends upon the generation that will carry our mission into the future. And that is why in 2019 we pledged to provide debt-free education to students with demonstrated financial need—not only to work toward equity for all our students but to attract the best and brightest, regardless of background, and to ensure that their career choices are not restricted by the need to pay off loans. A critical goal of this campaign is to guarantee that this groundbreaking program can continue in perpetuity, for the benefit of future doctors and the patients who need a diverse healthcare workforce.

Our medical and graduate students spend formative years immersed in the special, collaborative culture of Weill Cornell Medicine, a future-focused environment that has made possible so many advances in science and medicine. It is my hope that they will carry that teamwork and passion for discovery with them as they become doctors and researchers, and as they in turn train future generations. In that way, the momentous choices we make today will resonate long into the future. ■

Academic medicine adds up to more than the sum of its parts—and our approach to fundraising should, too.

We're Changing Medicine

Creating a new frontier
for lifelong health
through innovation
and collaboration.



Weill Cornell Medicine



Weill Cornell Medicine's vision for the future means expanding and elevating our ability to care, discover, and teach. Our campaign to raise \$1.5 billion will help us continue caring for the whole patient for their whole life, bring together visionary scientists and clinicians to make revolutionary breakthroughs, and train medicine's future leaders.

Change it with us.

JoinTheChange.weill.cornell.edu

To support Weill Cornell Medicine, please contact
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at (646) 962-9511 or chl2020@med.cornell.edu.

We're
Changing
Medicine.

WCM Launches \$1.5 Billion Fundraising Campaign

Ambitious effort is powered by \$215 million in foundational gifts



AGENTS OF CHANGE (left): Dignitaries at the launch of the *We're Changing Medicine* campaign in mid-June included (from left): Robert S. Harrison, Cornell University Board of Trustees chairman; Jessica M. Bibliowicz, WCM Board of Fellows chairman; Sanford I. Weill, campaign co-chair and Board of Fellows chairman emeritus; Joan Weill; Jeffrey Feil, campaign co-chair and WCM board vice chair; Augustine M.K. Choi, MD, WCM dean; Martha E. Pollack, Cornell University president; and Steven J. Corwin, MD, NewYork-Presbyterian president and CEO. Above: The campaign's title celebrated in chalk art.

Building on a legacy of groundbreaking advances in medicine and science, Weill Cornell Medicine has launched an ambitious \$1.5 billion campaign—with more than \$750 million already raised—that will harness emerging biomedical innovations to bring exemplary care to patients. Entitled *We're Changing Medicine*, the campaign is the largest in WCM's history and its first in decades to advance all three institutional missions: to care, discover, and teach. Exemplifying Cornell University's mission of doing the greatest good, the campaign will instill this essential value in the next generation of physicians and scientists, who will shape an innovative and equitable future of medicine.

Powering the campaign is \$215 million in foundational gifts from several of the institution's longstanding benefactors. During the campaign's quiet phase, a lead gift from The Starr Foundation, chaired by Weill Cornell Medicine Board of Fellows member **Maurice R. Greenberg**—in partnership with gifts from the Weill Family Foundation, created by **Joan and Sanford I. Weill**, campaign co-chair and Board of Fellows chairman emeritus, and other donors that totaled \$160 million—established a game-changing scholarship program that provides debt-free education to medical students in financial need. And a \$55 million gift from **Jeffrey Feil**, Board of Fellows vice chair and campaign co-chair, and the Feil family will support the construction of a new student residence hall four blocks from the institution's main campus.

The campaign will reimagine the basic science landscape; invest in bench-to-bedside research discoveries; and support a diverse and gifted student body. “Innovation has always been a driving force for our institution, setting new standards for clinical care, research, and education that have made a lasting impact for patients around the globe,” says Board of Fellows

'Philanthropy is the engine by which we can realize transformational change,' says Board of Fellows Chairman Jessica M. Bibliowicz.

Chairman **Jessica M. Bibliowicz**. “We are profoundly grateful to our incredible donors for sharing and supporting our healthcare ideals, because philanthropy is the engine by which we can realize transformational change.”

Underscoring its commitment to compassionately care for the whole patient, WCM is intensifying its investments in its world-class institutes and laboratories to create new facilities and updated biomedical research space—enhancements that will empower scientists to accelerate their efforts to create life-saving treatments and cures. It is also investing in cutting-edge technology and new biomedical approaches—from genomics and data science to artificial intelligence and machine learning—that illuminate the precise origins of disease and the most optimal ways to personalize treatments.

Ensuring a healthier, more innovative future of healthcare is entwined with cultivating the next generation of physicians and scientists. The institution's expanded scholarship program, established in 2019, exemplifies WCM's commitment to changing medicine by empowering future physicians and scientists to pursue their career aspirations unencumbered by the burden of repaying educational debt. The program has already begun to foster a more diverse student body: applications for the Class of 2024 from students underrepresented in medicine rose to 29 percent, compared with 20 percent the previous year. To ensure the program continues in perpetuity, WCM will need to raise another \$46 million to fully fund its scholarship endowment. “Leveraging our strengths and sharing our talents with the world, we're changing medicine for the better, but there is always more work to do,” says Sandy Weill. “By further investing in what makes us special, we can realize our new vision of healthcare.”

Immunologist Directs MD-PhD Program



KATHARINE HSU,
PHD '93, MD '94

A physician-scientist who specializes in immunology research and the treatment of blood cancers has been named director of the Tri-Institutional MD-PhD Program—of which she herself is an alumna. **Katharine Hsu, PhD '93, MD '94**, is a professor of medicine at WCM and an attending hematologist and oncologist at Memorial Sloan Kettering Cancer Center. “Physician-scientists play an extremely important role, not only in terms of asking and answering questions, but also bridging the communities of patient care and biomedical research,” says Hsu. “The Tri-Institutional MD-PhD Program has a distinguished legacy of bridging those communities—training aspiring physician-scientists who can speak and understand both the language of disease and of molecular processes.”

Founded in 1972, the program—which has trained more than 400 people—is a joint effort by WCM, The Rockefeller University, and Memorial Sloan Kettering Cancer Center; participants earn a medical degree from WCM and a doctorate from one of the three institutions. Hsu succeeds **Olaf Andersen, MD**, who led the program for twenty-five years.

Center for Virtual Care Expands

With the demand for telehealth services booming during the pandemic, WCM has expanded its center dedicated to training providers in best practices for seeing patients virtually. Since its formal launch in early 2020, the Center for Virtual Care has hosted sessions with more than 500 healthcare providers—physicians, residents, medical students, physician assistants, nurses, care managers, and more—teaching them “web-side” manner, how to examine patients and make decisions remotely, and other fundamentals. Trainings began in person but transitioned to remote learning in March 2020 with the emergence of COVID-19. One of the center’s latest offerings is a two-week online course, developed in collaboration with eCornell, that teaches strategies for meeting remotely with patients. Students learn such essentials as verbal and non-verbal communication techniques to convey empathy and compassion, strategies for overcoming technical challenges, and how to conduct remote exams.



TRAINING SESSION: Peter Greenwald, MD (center), assistant professor of clinical emergency medicine and director of telemedicine in the Department of Emergency Medicine, demonstrates the use of virtual care techniques.

Online Commencement for Class of '21



PHYSICIAN'S CREED: New MDs from WCM-Qatar take the Hippocratic oath.

In a ceremony celebrated virtually in May, WCM conferred degrees on 323 members of the Class of 2021—ninety MDs, fifty-seven PhDs, forty-two physician assistants, and 134 masters of science. Earlier in the month, Weill Cornell Medicine–Qatar held its own online Commencement, awarding MD degrees to forty-one members of its Class of 2021.

In his address during the New York-based festivities, Dean **Augustine M.K. Choi, MD**, commended the graduates for their resilience during such a difficult year. “You, the Class of 2021, are graduating at a time of intense societal need,” he said. “You have so much potential to shape patient care, biomedical research, and our healthcare system so they better serve people—not just in times of crisis, but as we look forward to happier times. I challenge you to take the lessons of the pandemic to heart and to find the place where you can have the most positive impact.” (For more photos of graduates, see Light Box starting on page 10.) As Cornell President **Martha E. Pollack** told the graduates: “The questions you will answer in the years ahead, the patients you will treat, the discoveries you will make—all of them will demand what you learned inside your classrooms and labs, and what you learned outside of them. They will demand both your skills and your knowledge, your understanding and humanity.”

Major Grant Supports Diversity Aims

With a \$5 million grant from the Mastercard Impact Fund, WCM will launch a suite of programs aimed at fostering and sustaining a more diverse faculty. With the goal of establishing mentorship and inclusion standards in academic medicine and healthcare, the grant will support such programs as a mentoring curriculum, a faculty diversity incentive program, and competitive career development awards for junior faculty from populations underrepresented in medicine as well as those with childcare commitments, who are often female. The efforts will be administered jointly by WCM’s Office of Diversity and Inclusion and Office of Faculty Development. They will convene an advisory committee, which will include senior faculty and a Mastercard representative to provide advice and suggestions for program activities and to assess progress toward strategic goals.



STANDING IN SOLIDARITY: In early April, members of the WCM community held a group moment of silence to express opposition to all forms of racism, particularly that affecting Asian Americans and Pacific Islanders. The event and others like it on campus came in response to a series of attacks and bias incidents against people of Asian descent in New York City and around the country.

Innovation Efforts United

WCM has launched Weill Cornell Medicine Enterprise Innovation, a new entity designed to foster commercialization of the institution's innovation activities. It will combine the Office of BioPharma Alliances & Research Collaborations, the Center for Technology Licensing at Weill Cornell Medicine, BioVenture eLabs, and related programs such as the Daedalus Fund for Innovation under a single organization. "With its new centralized infrastructure, WCM Enterprise Innovation unites the full power of our business development expertise with the discoveries and ideas generated through the work of Weill Cornell Medicine and Cornell University," **John Leonard, MD**, senior associate dean for innovation and initiatives, said in an announcement, adding that the new entity "will allow us to bring life-saving innovation to market and society faster, more efficiently, and, ultimately, with greater impact for those we serve."

For the Class of '21, a Virtual Match

For the second year, WCM's future physicians celebrated Match Day virtually due to the COVID pandemic—but they still found ways to mark their achievements remotely through social media, video chat, and small socially distanced gatherings. At noon on March 19, they and their fellow fourth-year medical students nationwide learned where they'll spend the next phase of their training. Of the members of WCM's Class of 2021 who entered this year's match, more than 85 percent secured residency positions at institutions ranked in the top fifty by *U.S. News & World Report*. Forty students will remain in metro New York, including twenty-five at NewYork-Presbyterian. Thirty-eight of the new physicians will pursue primary care residencies in internal medicine, pediatrics, family medicine, and obstetrics and gynecology. (For photos from Match Day, see Notebook starting on page 41.)

New Ambulatory Care Center in Brooklyn

NewYork-Presbyterian Brooklyn Methodist Hospital has opened a new ambulatory care center, staffed by multidisciplinary teams of physicians from WCM. The Center for Community Health—a six-story, 400,000-square-foot facility located at the hospital's campus in Park Slope—is the first major ambulatory care facility built in Brooklyn in four decades. It's designed to be a one-stop destination for individualized, coordinated care, from diagnosis to treatment—offering oncology, digestive, and endoscopy services; an infusion center; ambulatory surgery facilities; an imaging center; and more. "NewYork-Presbyterian is dedicated to making world-class care more accessible, convenient, and equitable in all the communities we serve, and the opening of the Center for Community Health is a reflection of that commitment," says **Steven J. Corwin, MD**, president and CEO of NewYork-Presbyterian.

TIP OF THE CAP...

Effie Apostolou, PhD, associate professor of molecular biology in medicine, winner of an Emerging Leader Award from the Mark Foundation for Cancer Research, given to promising early career projects aimed at addressing unmet needs in the field.

Bernice Grafstein, PhD, the Vincent and Brooke Astor Distinguished Professor in Neuroscience, elected to the American Academy of Arts and Sciences.

Peter Hotez, MD '87, PhD, professor of pediatrics and of molecular virology and microbiology at Baylor College of Medicine, and **Eric Huang, MD, PhD '93**, professor of pathology at the University of California San Francisco School of Medicine, winners of 2021 Alumni Awards of Distinction from (respectively) the Medical College and the Graduate School of Medical Sciences.

Thanakorn Jirasevijinda, MD, associate professor of pediatrics at WCM and an associate attending pediatrician at NewYork-Presbyterian/Weill Cornell, winner of a Fulbright Award to Thailand for the 2021–22 academic year.

Dan Landau, MD, PhD, associate professor of medicine and a member of the Sandra and Edward Meyer Cancer Center, and colleagues, winners of a Top 10 Clinical Research Achievement Award from the Clinical Research Forum.

Philip Li, MD, professor of research in urology and reproductive medicine, named president-elect of the Society for Male Reproduction and Urology.

Sallie Permar, MD, PhD, the Nancy C. Paduano Professor in Pediatrics and chair of the department at WCM and pediatrician-in-chief at NewYork-

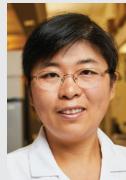
Presbyterian Komansky Children's Hospital, winner of the Society of Pediatric Research Award in Honor of E. Mead Johnson.

Katherine Heyman Saunders, MD '11, assistant professor of clinical medicine at WCM and an assistant attending physician at NewYork-Presbyterian/Weill Cornell. Intellihealth, the comprehensive medical obesity treatment platform she co-founded, won the inaugural Women at Weill investment competition.

Harold Varmus, MD, the Lewis Thomas University Professor, appointed chair of the WHO's new Science Council, which will provide guidance on its science and research strategies. Other members include **Salim Abdoool Karim, MD, PhD**, adjunct professor of medicine, and **Jean Pape, MD '75**, the Howard and Carol Holtzman Professor in Clinical Medicine.

FROM THE BENCH

COVID-19 and Heart Damage



SHUIBING CHEN,
PHD

Working in a laboratory model, researchers at four institutions including WCM teamed up to study a complication of severe COVID-19: damage to the heart, seen in 20 to 30 percent of hospitalized patients. In work published in *Circulation Research*, they explored COVID's heart-damaging process—and identified two FDA-approved drugs that may prevent or ameliorate it. As they found, the damage stems in part from infection-activated immune cells, called macrophages, which infiltrate the heart and secrete chemicals that harm cells. **Shuibing Chen, PhD**, the Kilts Family Associate Professor of Surgery, was co-senior author.

Babies Get Antibodies from Moms

A study, in *Obstetrics & Gynecology*, of 122 women who received the two-dose Pfizer or Moderna COVID-19 vaccine during pregnancy found that they had a strong immune response and passed protective antibodies to their babies. It showed that 99 percent of newborns had antibodies after both doses and 44 percent had them after one. "The study suggests that women who are pregnant shouldn't delay getting both vaccine doses if they have access to vaccination," says senior author **Yawei Jenny Yang, MD, PhD**, assistant professor of pathology and laboratory medicine at WCM and an assistant attending pathologist at NewYork-Presbyterian/Weill Cornell.

Cerebral Hemorrhage and Stroke Risk



People who have had a cerebral hemorrhage have a two-fold increase in risk for an ischemic stroke or heart attack compared with the general population, finds a team that analyzed data from four previous studies involving more than 55,000 patients. As lead author **Santosh Murthy, MD**, an assistant professor of neurology at WCM and of neuroscience in the Feil Family Brain and Mind Research Institute, and colleagues report in *JAMA Neurology*, this has broad implications. "These findings are contrary to the conventional wisdom, because somebody who has had a brain bleed is believed to be at higher risk for subsequent brain bleeds, but not necessarily clotting events," says Murthy, also medical director of the Neurological Intensive Care Unit at NewYork-Presbyterian/Weill Cornell.

New Insight into 'Cognitive Flexibility'

In research that could point the way to new treatments for psychiatric diseases (such as depression and schizophrenia) that impair cognitive flexibility, investigators have learned that the

brain's prefrontal cortex keeps track of which types of stimuli have recently been most relevant, enabling animals to shift their attention in response to changing circumstances. In the work, conducted in a mouse model and published in *Cell*, researchers found that the prefrontal cortex "seems to be playing a critical role after a decision is made and the animal has to evaluate whether the outcome was good," says lead author **Timothy Spellman, PhD**, instructor of neuroscience in psychiatry at WCM and of neuroscience in the Feil Family Brain and Mind Research Institute.

Vaccinating Kids Against COVID



SALLIE PERMAR,
MD, PhD

Researchers at WCM, NewYork-Presbyterian, and the University of North Carolina, Chapel Hill, have found promising evidence in favor of vaccinating young children against the virus that causes COVID-19. In a study of infant rhesus macaques, they found that the Moderna mRNA vaccine and a protein-based vaccine candidate both elicited durable neutralizing antibody responses to SARS-CoV-2 with no adverse effects. The findings were published in *Science Immunology* with **Sallie Permar, MD, PhD**, as co-senior author.

Gut Microbes and TB Treatment

In *Nature Communications*, researchers at WCM and Memorial Sloan Kettering report that gut bacteria play an important role in the body's response to antibiotic treatment for tuberculosis. After analyzing samples from patients at GHESKIO Centers in Haiti, they determined that an experimental treatment not only failed to eliminate TB mycobacteria but killed good gut microbes, enhancing inflammation; the standard treatment killed TB while having a less pronounced impact on beneficial gut microbes. They concluded that a patient's response to treatment likely depends on both the direct killing of disease microbes and changes in the body's inflammatory state. The study was led by former postdoc **Matthew Wipperman, PhD, MS '17**.

Tracking COVID Virus in Wastewater

With a \$5 million, two-year grant from the NIH, a WCM-led team will study the feasibility of using wastewater as an early warning and mapping system for the virus that causes COVID-19. Previous research has found that SARS-CoV-2 can be detected in wastewater days before people show symptoms; working with colleagues at the University of Miami, the team will collect samples from around the country and the world. They aim to determine whether analyzing wastewater can accurately predict the next viral hotspots as well as identify emerging viruses and pathogens. The project's

principal investigator is **Christopher Mason, PhD**, co-director of the WorldQuant Initiative for Quantitative Prediction and an associate professor of physiology and biophysics.

Lung Pathology in COVID-19 Mapped



OLIVIER ELEMENTO,
PHD

WCM investigators have mapped the cellular landscape of diseased lungs in severe COVID-19. In the study, published in *Nature*, they imaged autopsied tissue in a way that highlighted dozens of molecular markers on cells. **Olivier Elemento, PhD**, "COVID-19 is a complex disease . . . but with this study we were able to develop a much clearer understanding of its effects on the lungs," says co-senior author **Olivier Elemento, PhD**, professor of physiology and biophysics, director of the Caryl and Israel Englander Institute for Precision Medicine, associate director of the HRH Prince Alwaleed Bin Talal Bin Abdulaziz Alsaoud Institute for Computational Biomedicine, and co-director of the WorldQuant Initiative for Quantitative Prediction.

Computer Modeling of SARS-CoV-2

Tapping the power of the federal COVID-19 High Performance Computing Consortium, WCM scientists have developed a detailed model of how the SARS-CoV-2 virus penetrates host cells to establish an infection. The team was led by **Harel Weinstein, PhD**, the Maxwell M. Upson Professor of Physiology and Biophysics and chair of the department. It modeled, at atomic detail, the virus's initial penetration of the outer membrane of a host cell with help from a part of its "spike" called the fusion peptide. An article describing how this peptide binds calcium ions to perform its penetration function ran in the *Biophysical Journal*.

Diabetes and Atherosclerosis Link



LAURA SANTAMBROGIO,
MD, PhD

Hyperglycemia—excess blood sugar, the central feature of diabetes—can react with immune proteins to cause changes in the immune system, including those that promote atherosclerosis. While doctors have known for decades that chronic hyperglycemia increases the risk of atherosclerosis and weakens immunity against infections, the new study describes the molecular pathways by which it happens. The work—published in *Immunity*, with **Laura Santambrogio, MD, PhD**, a professor of radiation oncology and of physiology and biophysics and associate director for precision immunology at the Englander Institute for Precision Medicine, as co-senior author—was conducted using cells from mice engineered to model obesity and type 2 diabetes.

Robed & Ready

Members of Weill Cornell Medical College's Class of 2021 didn't let pandemic restrictions keep them from celebrating their graduation in style: as part of their virtual Commencement festivities in mid-May, the newly minted physicians happily posed for group portraits in their striking red and green doctoral regalia. As class president and Commencement speaker Leora Haber, MD '21, observed during her remarks, the past academic year offered myriad lessons in preparing for the unexpected—and while the pandemic and its challenges could have brought out the worst in her fellow graduates, in fact the opposite happened. "I watched it bring out some of the best, as our class came together to support one another and our community," said Haber, now an internal medicine resident at Johns Hopkins Medicine. "It's what makes our class great. And it's something we will carry with us to our residency programs in a few weeks, when we are scattered across the country."

For more on Commencement, see Scope on page 7.



PROUD GRADS: New MDs (clockwise from top, from left to right) Aretina Leung and Emily Eruysal; Achmed Toure, Rachel Friedlander, and Mark Alshak; and Sarita Ballakur, Brian LaGrant, Alice Chung, and Gal Wald

PHOTOS: STUDIO BROOKE



'It's an Absolute Miracle'

Battling a deadly blood cancer, a New Jersey woman gets a second chance—thanks to precision medicine



PERSONALIZED CARE: Gail Roboz, MD (above right), examines patient Cheryl Bonder this spring as part of her ongoing treatment. Opposite page: Bonder (right) cooking at home with daughter Kyle.

Cheryl Bonder had been living with a vaguely defined blood malignancy for years when her prognosis rapidly took a turn for the worse: her condition was progressing toward acute myelogenous leukemia (AML), an aggressive cancer of the blood and bone marrow. "I was going south pretty quickly without another good plan in place," recalls Bonder, a sixty-one-year-old health and wellness coach from New Jersey. Traditional chemotherapy might have offered her a few more months, but that was not how she wanted her life to end. "I could not bear the thought of my children having to face my end so painfully," she says. "I prayed for a peaceful goodbye."

But as Bonder was running out of options, a team of WCM researchers and clinicians found an experimental drug that seemed almost tailor-made for her unusual form of cancer. It's a story that illustrates the possibilities of precision medicine—as oncology moves beyond the era of one-size-fits-all treatment—as well as the power of collaboration across the Upper East Side Medical Research Corridor to crack even the toughest medical mysteries.

Bonder's saga began in the early 2000s, when, on vacation, sun

exposure caused her to develop an autoimmune response to an antibiotic. She was diagnosed with urticarial vasculitis, a rare condition in which small blood vessels in the skin become inflamed, causing red patches and itchy hives. This chronic disease restricts blood flow and can damage other organs and tissues, and Bonder had to have regular lab work to monitor its effects on her body. "They took blood every three months, checking to see if anything would show up, and nothing did," says Bonder, the mother of two grown daughters. "Then one day after many years I had an abnormal blood count, and my primary care doctor recommended an appointment with a hematologist."

Bonder would see several specialists before meeting Gail Roboz, MD, a professor of medicine and director of the Clinical and Translational Leukemia Program at WCM and an associate attending physician at NewYork-Presbyterian/Weill Cornell Medical Center, who diagnosed an aggressive myeloproliferative neoplasm, a cancer of the bone marrow. Roboz tried a series of treatments, including drugs and, in 2013, a stem cell transplant—each buying Bonder some time. But in 2018 her condition worsened; soon, it would meet

the definition of AML. "I started looking for clinical trial options," says Roboz, also a member of the Meyer Cancer Center at WCM. "In Cheryl's case, the off-the-shelf medications just weren't helping."

As Bonder's case grew dire, Roboz got a call from Juan Miguel Mosquera, MD, professor of research pathology and laboratory medicine and director of pathology at the Engleander Institute for Precision Medicine, to which she had referred Bonder's case. Bonder's genome had been analyzed by computational biologists Andrea Sboner, PhD, an assistant professor of pathology and laboratory medicine, a member of the Meyer Cancer Center, and director of informatics and computational biology at the Engleander Institute, and Olivier Elemento, PhD, the institute's director, a professor of computational genomics in computational biomedicine, and a member of the Meyer Cancer Center. They had identified a novel gene fusion—meaning that two genes that are normally far apart had fused—which offered a potential target for therapy. And fortunately for her, WCM researchers were working on an experimental drug that could be a good fit.

That drug, called PU-H71, had been developed in the lab of Gabriela Chiosis, PhD, at Memorial Sloan Kettering Cancer Center, in collaboration with Monica Guzman, PhD, an associate professor of pharmacology in medicine in the Division of Hematology and Medical Oncology at WCM and a member of the Meyer Cancer Center. PU-H71 targets a complex network of proteins called the epichaperome, which helps many types of cancer cells survive. Chiosis, Guzman, and colleagues first described the epichaperome in a 2016 study published in *Nature*, noting that it was present in more than half of all the tumors they tested. But while it looked like a promising target, less selective epichaperome-inhibiting drugs had so far had disappointing results in clinical trials. The researchers believed that these drugs could be more successful if patients were better screened—that is, if the vulnerability of their specific cancer to epichaperome targeting could be determined in advance. So they developed a new test, based on flow cytometry (a method used to detect, identify, and count cells using a laser) that could evaluate epichaperome levels.

As it turned out, Bonder's cells showed high levels of epichaperome—and in the lab, they responded to PU-H71 immediately. The problem, however, was that PU-H71 was in the very early stages of clinical trials and was not available to patients with leukemia; to treat Bonder with it, Roboz had to seek "compassionate use" access from the FDA. As Roboz recalls telling her patient: "Based on what we see in the laboratory, I think it works—but I've got cells in a dish, and you're a person."

There were plenty of unknowns. How long would Bonder need the treatment? What would be an appropriate dose and schedule? What about side effects? It would be a leap of faith, Roboz told her—and Bonder decided to take it. "I said, 'I have nothing to lose, and



Bonder's therapy, which required specific dosages based on blood samples taken just hours before each treatment, 'was literally bench to bedside,' Roboz says.

science will have everything to gain. I'll try it,'" Bonder recalls. Roboz and Guzman worked closely to develop a protocol, tweaking it in real time based on lab results, with dosage targeted to the level of epichaperome that Guzman's lab measured in Bonder's blood just a few hours before she received each treatment. ("It was literally bench to bedside," Roboz says.) Within a few weeks, Bonder was in complete remission. "It's an absolute miracle," Bonder marvels. "I don't know how else to describe it."

More than three years later, Bonder's disease continues to respond to PU-H71; she hasn't required hospitalization since starting treatment and is living a full and active life. She still comes in for treatment every three weeks, which allows the team to monitor her and to continue research that might help future patients; in fact, they've published studies based on findings from her case, including in the journal *npj Precision Oncology*. More broadly, Bonder's case underscores the possibilities that precision medicine holds for the future of oncology—including the hope that even previously deadly forms of cancer may someday be managed as chronic diseases. "Until recently, treatments were 'one for all'—one treatment for all patients with that disease," says Mosquera, also an assistant attending pathologist at NewYork-Presbyterian/Weill Cornell and a member of the Meyer Cancer Center. "But what we've been learning—and very, very rapidly—is that different patients may have the same tumor type, same stage, and apparently the same tumor, but they're still different. And it's better to have a targeted approach for each one." ■

—Amy Crawford

Bonding Experience

WCM pediatricians and obstetricians team up to let COVID-positive moms connect with their newborns at a critical time—while keeping babies safe



HAPPY FAMILY: Michelle and Michael McGovern with their five-year-old son and year-old twin daughters

By any measure, spring 2020 was a challenging time to be an expectant mother. The COVID-19 pandemic was spreading worldwide, and physicians and researchers were struggling to understand the emerging virus and develop effective treatments—as the potential impact of infection on pregnant women and their unborn babies remained an open question. “Most of the concerns were about the unknown of how COVID would impact a pregnancy and being cautious to reduce the chances that expectant mothers would be exposed to the virus—for example, doing routine visits via telemedicine,” recalls Erica Weinstein, MD, an assistant professor of clinical obstetrics and gynecology at Weill Cornell Medicine and an assistant attending obstetrician and gynecologist at NewYork-Presbyterian/Weill Cornell Medical Center, who was herself expecting at the time. “And secondarily, for all pregnant women there was the isolation of not being able to have the normal, exciting time of preparing for the baby with friends and family—as well as after delivery, not being able to have family members come in to assist them.”

But even given those universal challenges, Weinstein’s patient Michelle McGovern had a lot on her plate. For one thing, Michelle—along with her husband, Michael, and their then-four-year-old

son—lived in New York City, an epicenter of the COVID crisis in the U.S. And she wasn’t just pregnant, she was expecting twins—an inherently higher-risk scenario. Unfortunately, Michelle contracted COVID at eight months of gestation, and Michael also tested positive. While Michelle didn’t require hospitalization, she felt terrible—and the disease dragged on and on. “I was very, very sick,” recalls Michelle, an attorney living in Park Slope, Brooklyn, who met her husband when both were law students at Northwestern. “I had a fever, chills, body aches, and a cough—one thing would resolve and another would crop up. It was like pretty severe cold and flu symptoms, but it didn’t get better.”

Finally, shortly before her due date in mid-May, Michelle started to improve. With her fever gone and the initial onset of her illness more than a month in the past, she thought her battle with COVID was over. But when she came to NewYork-Presbyterian/Weill Cornell—where she’d previously given birth to her son, and which she knew would have impeccable safety protocols during the pandemic—to deliver the twins by C-section on May 8, a COVID test on admission came back positive. “I was shocked at the test result, because I’d tested positive in mid-April after having been sick for a couple of weeks,” says Michelle, who entered the hospital

at a time in the pandemic when it wasn't yet known that some patients can continue to test positive for months, and that a positive test isn't necessarily evidence of active infection. "I thought we were through that."

But amid those challenges, Michelle and Michael had a huge advantage: by the time their twins were born, NewYork-Presbyterian/Weill Cornell had instituted a groundbreaking system for COVID-positive moms that would allow them bonding time with their babies while minimizing the chance that their newborns would become infected. "We knew COVID was causing severe disease in adults, but we didn't know what the impacts were going to be in children, so as pediatricians we were watching that aspect closely—in particular, whether there would be transmission from mother to child," observes Sallie Permar, MD, PhD, chair of pediatrics at WCM and pediatrician-in-chief at NewYork-Presbyterian/Weill Cornell and NewYork-Presbyterian Komansky Children's Hospital. "If you had an infected mom, did you need to keep the baby separate from her? It's a big deal not to have that immediate mother-infant bonding after birth, and it has consequences. Even in the first hour of life, mother-infant skin-to-skin contact has been shown to enhance breastfeeding and reduce maternal depression."

Permar, also the Nancy C. Padua Professor of Pediatrics, joined the WCM faculty in late 2020. The previous spring she was still at Duke University School of Medicine—and as she recalls, when it came to establishing protocols for COVID-related pediatric issues, "we were really looking to New York—which dealt with COVID first and in such a big way—to base our practices in other parts of the country." Laura Riley, MD, the Given Foundation Professor and chair of ob/gyn, notes that amid the uncertainty of the city's initial COVID surge, her staff worked tirelessly to provide top-notch, compassionate care while keeping mothers, newborns, and each other safe from infection. "Elective surgeries closed down, but people were still having babies and C-sections," says Riley, also obstetrician- and gynecologist-in-chief at NewYork-Presbyterian/Weill Cornell. "So we were trying to practice and 'learn how to fly the plane' at the same time, which is challenging."

NewYork-Presbyterian/Weill Cornell's protocols for COVID-positive mothers and their newborns were designed by the hospital's Infection Control Group with input from Christine Salvatore, MD, MS '09, an associate professor of clinical pediatrics and chief of the Division of Pediatric Infectious Diseases at WCM and an associate attending pediatrician at NewYork-Presbyterian/Weill Cornell. They call for babies to stay in their mothers' hospital rooms rather than the nursery, sleeping in enclosed bassinettes six feet away from the mom's bed. Mothers who wish to breastfeed can do so as long as they adhere to safety guidelines, which include wearing masks and gloves and following instructions on hand- and breast-washing. The same rules are observed at home until the newborns are two weeks old, with the babies tested repeatedly through a special neonatal COVID clinic that Salvatore created. "We needed to know, Is it really safe to do what we're doing?" she says of the system, whose efficacy she and colleagues examined in a study conducted between late March and mid-May 2020. "Because if we'd found that we were wrong—if babies were becoming infected—we would have had to



Christine Salvatore,
MD, MS '09

change our practice."

Happily, research showed that the system was extremely effective. As Salvatore and colleagues reported in *The Lancet: Child & Adolescent Health* in July 2020, of 120 babies born to COVID-positive mothers, none tested positive for the virus at twenty-four hours of life. Eighty-two of those infants participated in follow-up care and most were retested at about one and two weeks of age; none were positive. As of spring 2021, of the more than 650 babies that had been born at the hospital to COVID-positive mothers, only one tested positive—at nine days after delivery—and physicians believe the virus was contracted from another relative. And Permar notes that preliminary research, including work by Riley and colleagues,

Of 120 babies born to COVID-positive mothers, none tested positive for the virus at twenty-four hours of life.

has shown that mothers who've had COVID—or been vaccinated against it—can pass protective antibodies on to their babies via breast milk, but that their strength and duration is so far unknown.

For clinicians, one of the high points of caring for these COVID-exposed babies comes at two weeks after birth, when—assuming the newborn tests negative—they can give parents the all clear. Says Salvatore: "We've actually had a lot of moms crying on the phone when we tell them, 'The baby is fine. You can finally remove that mask and give your baby a kiss.'"

Those relieved parents included the McGovern family, whose fraternal twins—daughters Fiona and Violet—are now healthy toddlers. "I want them to know that they're the strongest little babies in the world," says Michelle, contemplating what she might tell the girls when they're older. "They were handed an unfortunate deck of cards—they had a sick mommy, and they were born in one of the hardest-hit places in the world and probably at the worst time—but from day one, they've surpassed every expectation I had when I found out that they were going to be born during the pandemic. They've made our lives really rich and meaningful this year, and they've brought us so much joy." ■

—Beth Saulnier

Calling the Shots

WCM faculty are addressing vaccine confidence—and access



COMMUNITY EFFORT: MD-PhD student Nicolas Blobel administers a vaccination during a clinic in Washington Heights supported by the Clinical and Translational Science Center in May.

With vaccine availability growing in New York City and across the country, attention is increasingly turning to those who remain hesitant to receive it. Between 70 to 90 percent of the population needs to be vaccinated in order to reach herd immunity and bring the pandemic under control, according to public health experts. Yet 14 percent of Americans say they will definitely not get a vaccine and another 13 percent want to wait and see how they work or will only get one if required, a Kaiser Family Foundation (KFF) poll found in July.

Much attention has focused on hesitancy among Black and Hispanic populations, based in part on their feelings of mistrust in the healthcare system. So diversity leaders at Weill Cornell Medicine have launched ambitious community vaccination and education efforts, with the goal of improving uptake and helping those who are reluctant overcome their concerns. The July KFF poll showed

some 16 percent of Hispanic adults wanting to “wait and see” before getting vaccinated, compared to 11 percent of Black adults and 8 percent of white adults. The poll also found that resistance to vaccination is associated with younger age, lower level of education, lack of insurance coverage, and political affiliation.

Healthcare professionals who work with and belong to Black and brown communities say the focus needs to be as much on making the vaccine easy to access as on hesitancy. Although anyone aged twelve and up is now eligible in the U.S., getting an appointment can require Internet fluency—plus taking time off and traveling to a site. “If you don’t have good wi-fi or you don’t know how to navigate the websites, you’re probably just going to give up,” says Said Ibrahim, MD, senior associate dean for diversity and inclusion and professor of population health sciences.

In January, NewYork-Presbyterian opened a vaccination site at

the Fort Washington Armory in Upper Manhattan, prioritizing appointments for eligible residents of Washington Heights, Inwood, Harlem, and the South Bronx. Additionally, using information provided by Cornell Cooperative Extension–NYC, the WCM Clinical and Translational Science Center (CTSC) has worked with the Community Healthcare Network of federally qualified health centers to administer, as of late May, over 8,600 vaccine doses. The effort, led by Jeff Zhu of the CTSC, was conducted at sites staffed by Weill Cornell medical students in churches and nonprofit spaces in Manhattan, the Bronx, and Queens. And in April, WCM's future physicians teamed up with Hunter College nursing students to run clinics at churches in Jamaica, East New York, and Harlem, with the aim of vaccinating 100,000 people by September.

Julianne Imperato-McGinley, MD, director of the CTSC and a professor of medicine, says it's important to make vaccination available in people's own communities, particularly at "trusted spaces" like places of worship or a neighborhood organization. The CTSC had previously worked with a predominantly Black church on a free health screening program called Heart to Heart; its pastor reached out to the center and got vaccinated himself in front of his congregants. "The point about trust is essential," says Imperato-McGinley, also an attending physician at NewYork-Presbyterian/Weill Cornell Medical Center. "That's why we're doing this with faith-based communities, where the community knows the people hosting the event. And it's working—they are getting vaccinated."

Throughout the vaccine rollout, significant attention has also been paid to the healthcare system's historic mistreatment of communities of color—particularly the infamous Tuskegee experiment, in which researchers withheld treatment from Black people who had syphilis so they could study the disease's course. But it's not just history: COVID-19 has had a disproportionate impact on people of color, some of whom remain underserved by the healthcare system. For this reason, experts say, questions about why vaccines—which usually take years to develop—could be produced so quickly, or whether they could cause future side effects, should be seen as self-advocacy rather than hesitancy.

To help healthcare professionals respond to these concerns, in March WCM trained "vaccine ambassadors" to serve as relatable, credible sources of information. "It's not about convincing people," says Susana Morales, MD, an associate professor of clinical medicine and director of the Diversity Center of Excellence within the Cornell Center for Health Equity and an associate attending physician at NewYork-Presbyterian/Weill Cornell, who spearheaded the training. "It's about providing information that is sorely missing; it's about empowerment and access." At the training, supported in part by a \$200,000 gift by the law firm Weil, Gotshal & Manges LLP, panelists framed conversations as filling a "knowledge gap" and advised



Susana Morales, MD

'It's not about convincing people,' Morales says. 'It's about providing information that is sorely missing; it's about empowerment and access.'

approaching questions in a receptive and empathetic manner. "I tell patients, 'I promise you I've done the research to decide whether I can recommend COVID vaccines to you—and whether I was going to accept the vaccine myself,'" said Morales, who shares with them that she has been vaccinated.

In response to concerns about the speed of vaccine development, Morales describes how clinical trials were able to enroll thousands of diverse volunteers and produce results quickly because of how widespread the virus has been. Ambassadors address questions about side effects by noting that study participants continue to be monitored for serious adverse reactions, which investigators must report and drug makers and other study sponsors must disclose. They also point out long-term side effects of COVID-19 infection such as neurological damage, against which the vaccine protects.

To patients from populations that weren't included in vaccine studies, ambassadors can share findings from the latest research. For example, none of the currently approved vaccines have shown negative effects on fertility or caused pregnancy abnormalities in animal studies, and early data on vaccinated pregnant women is very encouraging, says panelist Kevin Holcomb, MD, associate dean for admissions and a professor of clinical obstetrics and gynecology at WCM and an attending ob/gyn at NewYork-Presbyterian/Weill Cornell. Holcomb has also talked to people about historical comparisons, when appropriate. For example, he has learned that some are under the false impression that in the Tuskegee study, researchers infected participants with syphilis—when in fact they denied them penicillin to treat the disease. Says Holcomb: "What happened in Tuskegee is what we might be doing by not availing ourselves of this vaccine." ■

—Elaine Meyer

Immediate Relief

In the clinic and the lab, physician-scientists explore ketamine's potentially powerful role in psychiatry



Depression is the most common mental illness as well as the number one cause of disability among people between the ages of fifteen and forty-four. And for millions of sufferers, antidepressants have literally saved lives that could otherwise have been lost to suicide. But selective serotonin reuptake inhibitors, or SSRIs—the most common class of drugs prescribed for depression—can take six weeks to begin alleviating symptoms, and that's without the period of trial and error often required to find the right medicine and dosage for a particular patient. Additionally, for as many as three in ten people with depression, SSRIs have no effect at all.

For the past two decades, however, psychiatrists have been using low doses of an anesthetic called ketamine to treat patients whose depression has not responded to other treatments. Developed in the Sixties, ketamine is used mainly in veterinary medicine, although it also has hallucinogenic effects and is sometimes abused as a street drug. Its use in psychiatry was long considered “off label,” but in spring 2019 the U.S. Food and Drug Administration approved a nasal spray version specifically for use as an antidepressant. (In August 2020, the agency expanded the approval to include patients with depression who are having suicidal thoughts or have recently tried to

take their own lives or otherwise harm themselves.)

The approval opened up new possibilities as well as new lines of research that may change the way psychiatrists think about depression. At Weill Cornell Medicine, Benjamin Brody, MD, an assistant professor of clinical psychiatry and an attending psychiatrist at NewYork-Presbyterian/Weill Cornell, is leading a program to explore the clinical use of intravenous infusions of ketamine to treat the condition. “What’s so exciting about ketamine is not only that it works for people whose symptoms are not responding to traditional treatments, but it also works much more rapidly—in days or even hours,” says Brody, who developed the protocol before the spray was approved, and still prefers infusions because they allow him to tailor each dose to a patient’s weight (while the spray only comes in two pre-set doses). “For some people, ketamine really does provide almost immediate relief. That’s wonderful and very gratifying to see.”

One problem with ketamine, however, is that its positive effects wear off within weeks or months. “Another major issue,” says Brody, “is that we have so little information on the long-term effects, or what type of treatment patients will need to remain well.” The drug can still save lives, providing relief as patients pursue other treatments that may work in the longer term. But what if the benefits of that handful of doses didn’t wear off as quickly, or at all?

That’s the tantalizing question asked by Conor Liston, MD ’08, PhD, associate professor of neuroscience in the Feil Family Brain and Mind Research Institute, whose research explores how ketamine works to create more synapses—connections between neurons—in a region of the brain called the medial prefrontal cortex. These new connections seem to be temporary, but if they could be augmented or extended by using another treatment alongside ketamine, a person might be cured of depression for good.

For a study published last year in *Science*, Liston and his team worked with mice that exhibited depression-like behavior, as determined by their reaction to a stressful situation. A mouse that freezes more than it attempts to wriggle free—what’s known as “motivated escape behavior”—is, for purposes of the study, exhibiting one important feature of depression. “Mice are not people, and many symptoms that we think of as core to depression—sadness, hopelessness—are hard or probably even impossible to imagine modeling in a mouse,” says Liston, also an associate professor of psychiatry at WCM. “But there are some things we can measure.”

Before treating their mice with ketamine, Liston and his team examined their brains; as predicted, a lack of motivated escape behavior was correlated with lost synapses in the medial prefrontal cortex. Just hours after one dose, the mice no longer exhibited that “depressed” behavior and their brains showed that synapses had regrown. But just as in humans, days later the depressive symptoms



ONE PROBLEM, TWO FRONTS:

Researchers Benjamin Brody, MD (left), and Conor Liston, MD '08, PhD

'What's so exciting about ketamine is not only that it works for people whose symptoms are not responding to traditional treatments,' says Benjamin Brody, MD, 'but it also works much more rapidly—in days or even hours.'

returned. Meanwhile, the new synapses had disappeared.

Interestingly, Liston says, the reduction in depressive behavior actually happened before the new synapses appeared—meaning they could not have caused the immediate relief. But the new synapses did seem to be necessary to maintain the antidepressant effects long after the ketamine dose. If Liston and his team eliminated the synapses, the mice quickly became depressed again. “We think that some kind of intervention aimed at boosting the restoration of those synapses or enhancing their survival over time could be useful for augmenting ketamine’s antidepressant effects,” says Liston, adding that such interventions could include another drug or something as simple as exercise or improved sleep, two known factors in synapse survival.

Liston’s mouse study is just a first step toward better understanding how ketamine could help more people; as he notes, more basic science must be done before his team can consider working with human subjects. But Brody (who did not participate in Liston’s study) has already seen ketamine’s life-saving potential in the handful of patients he has treated so far. “We’re finding that it’s safe and effective, and now Conor’s research has shown that the way it works is different from the treatments that had previously been available to us,” Brody says. “I think this is going to help a lot of people.” ■

—Amy Crawford

Take Your Medicine

Can a 'smart' pill bottle help combat HIV?



CAPPING IT OFF: Roy Gulick, MD (left), and Grant Ellsworth, MD, have been studying an Internet-connected pill bottle (seen with them and at right).

Over the past few decades, HIV treatment has advanced remarkably: simply by taking one pill each day, most patients can suppress the virus to the point where it's undetectable and can't be transmitted to someone else. While the therapy—generally a combination of three drugs in a single dose—has markedly slowed the HIV epidemic, it hasn't stopped it entirely. Although figures from the Centers for Disease Control and Prevention indicate that the annual number of new cases has dropped 9 percent since 2010, more than 30,000 people were diagnosed in the U.S. in 2018 alone. "The issue has always been adherence," explains longtime HIV researcher and clinician Roy Gulick, MD, the Rochelle Belfer Professor in Medicine and chief of the Division of Infectious Diseases at Weill Cornell Medicine. "How do we get people to keep taking these medications over time?"

Getting patients to follow a drug regimen can be a struggle for physicians in many specialties—but with HIV, taking medications consistently is particularly important. Skipping doses can allow the virus to develop resistance, which can make the drugs less effective over time. "If anyone says to me, 'I never miss a dose, ever,' I have a hard time believing them," says Grant Ellsworth, MD, an instructor in medicine within the Division of Infectious Diseases who specializes in HIV treatment and research. "As a doctor, even I have missed doses of medication in the past. But one of the most important tools to ending the HIV epidemic is making sure that everyone who's diagnosed is on treatment." That's why Gulick and Ellsworth have spent the last few years researching an existing technology that could help ensure that HIV patients take their medication on time: a "smart" pill bottle.



Manufactured by a New York City company called AdhereTech (with which Gulick and Ellsworth have no business relationship), the container resembles an ordinary white pill bottle. A blue ring around the bottom lights up when it's time to take the medication, and if the bottle isn't opened after a set interval, the patient receives a reminder via text message or phone call. Once opened, the bottle (which contains a number of internal and external sensors) sends a signal to a portal that can be accessed by both patient and physician; the features are customizable, so users can select those that best suit their needs. Though AdhereTech's product—which is already on the market and is used for care of patients with cancer and multiple sclerosis—isn't the first-ever electronic pill bottle, it does have some notable advantages: its battery lasts for months and it connects to the cellular network, so it doesn't require a wi-fi signal.

In a twelve-week pilot study that was planned and conducted from 2015 to 2018, Gulick and Ellsworth—working with Leah Burke, MD, a former assistant professor of medicine at WCM now on the faculty at Yale University School of Medicine—set out to determine if the bottle made a difference in HIV patients'

'One of the most important tools to ending the HIV epidemic is making sure that everyone who's diagnosed is on treatment,' says Grant Ellsworth, MD.

levels of tenofovir, one of the drugs in the combination pill. The study (funded through a New York City-sponsored program that matches start-ups with academic researchers) looked at some sixty people that had detectable levels of HIV virus in their blood on more than one occasion, indicating that they'd missed doses in the prior year. Patients were divided into two groups; one received the bottle, while a control group did not. After three months, participants had their blood tested again. In the control group, tenofovir levels remained mostly unchanged, indicating that patients were missing the same number of doses as before; those that received the smart bottle, however, saw their tenofovir levels nearly double.

The researchers note that although the study's sample size was small, its findings are promising. The next step in assessing the bottle's efficacy in treating HIV, they say, is to verify those results with a second, larger trial. "There's a lot of potential here," says Ellsworth. "Many of my patients could benefit from something like this." ■

— Alexandra Bond

Peace Time

Michael Bernardo '78, MS '86, MD '89, works with a U.S. veterans group helping to improve medical care in Vietnam

More than a decade after the Vietnam War ended, a group of American veterans came together to form a humanitarian nonprofit called Vets With a Mission. Their goal: to help rebuild the country where they'd witnessed so much destruction—and to make peace with their own experiences there. "These veterans were pretty messed up; they had a lot of scars, both psychological and physical," says Michael Bernardo '78, MS '86, MD '89, who didn't serve in the armed forces himself but has volunteered to serve as the organization's medical director since 2013. "But they decided to make something good out of it."

A family medicine specialist, Bernardo has practiced in rural South Carolina for three decades. But he'd once considered tropical medicine and has made many service trips abroad, including to Africa and Central America—so when a patient who was Vets With a Mission's executive director asked him to come on board, he jumped at the chance. He made his first trip to Vietnam in 2014 and—except for 2020, due to COVID-19—has returned every year since. "And I'm going to keep going," he says. "It has captured my heart."

Since Vets With a Mission was founded in 1988, it has brought more than 2,000 volunteers—both veterans and civilians—to Vietnam. In the early years, they constructed medical clinics, orphanages, and homes for the disabled. For the past few decades, the organization has been sending groups of about thirty doctors, dentists, pharmacists, and other volunteers on two-week trips to provide medical care to impoverished communities. The teams set up shop in a rural clinic for two or three days and provide free treatment—medical consultations, eye exams, dental work, and more—to 200 to 250 patients a day before moving on to the next village. "People are living longer all over the world, so now it's not just infectious diseases that we see," Bernardo observes. "It's chronic diseases like heart disease, COPD, diabetes, hypertension—the same ones we have in the U.S." Other common maladies include arthritis, acid reflux, parasites, and fungal infections; for patients with more serious conditions than can be treated at a clinic, Vets With a Mission arranges for them to travel to a nearby hospital and funds their care.

While the organization's founders are approaching retirement, Bernardo says that Vets With a Mission plans to continue its work indefinitely. And in recent years, it has expanded to training local providers. It offers a three-day course in basic first aid and life support; those who complete it receive a certificate and a supply pack, becoming an emergency medical resource for their community. In 2019, Vets With a Mission began training students from two Vietnamese medical schools, who gain valuable hands-on experience in patient care. Says Bernardo: "It's the old 'give a man a fish, teach a man to fish' adage. We don't want to 'do for' them; we want to help teach



SERVICE TRIPS (clockwise from top left): Bernardo examines a patient in Vietnam; first-aid students learn to stabilize a volunteer portraying a trauma victim; local nurses (seated) attend a training session with Bernardo (at left) and colleagues.

them how to do for themselves."

Bernardo notes that even more than four decades after the war ended, its effects linger; his patients have included a young man who suffered severe facial trauma when a decades-old mine detonated while he was working in his fields, and villagers with neuropathy resulting from exposure to Agent Orange. But he believes that Vets With a Mission has made important strides toward repairing the

Bernardo believes that Vets With a Mission has made important strides toward repairing the relationship between the two nations.

relationship between the two nations. Bernardo recalls one man in particular who had a scar on his arm from a bullet wound he got while fighting for the Viet Cong against U.S. forces. "I brought him out to where the American veterans were, and they all gathered around and this beautiful thing happened—these guys, who had at one time shot at each other, started talking and hugging and showing off their old wounds," he says. "The man kept saying one word over and over, so I asked my translator what it was. He was saying 'brothers.' ■

—Alexandra Bond

High Drama

When an airline passenger had a heart attack mid-flight, a WCM-trained clinician leapt into action to save him



Beth Higgins, PA '07

Apart from being a neurosurgery physician assistant at NewYork-Presbyterian/Weill Cornell, my primary responsibility for several years was taking care of my father, Eddie, managing his medications and the symptoms of his Parkinson's disease. It was a difficult and trying few years for my family, but mostly for my dad, and in March 2019 he passed away.

We decided to take his ashes home to bury in the family grave in County Galway, Ireland, and to celebrate his life with our family there. On the flight back to New York after a difficult weekend—which included visiting a cousin who lost her husband on Mount Everest while expecting their second child—there was an announcement for doctors to make themselves known to the flight crew. My siblings all looked at me, and I looked around for airline staff to see if I could be of service, but didn't see anyone. There was a crowd in the aisle about fifteen rows in front of mine, and I went up there.

I saw an unresponsive man lying in the aisle with a fellow passenger attempting to push on his chest while someone else was feeling around on his neck. I told them to stop while I checked for a pulse. There was none, so I started compressions, breaking ribs around the third compression (not a pleasant experience, and one I still feel to this day). I shouted for anyone who was trained, willing, and able to assist in CPR to step up. A nearby man was willing to give mouth-to-mouth, and after having him reposition a few times to ensure chest rise—that the lungs were filling with air—we started a cycle of thirty compressions and two breaths. In my head I kept hearing Larry Wheeler, my amazing CPR instructor at NewYork-Presbyterian: “allow for chest recoil”; “ensure chest rise”; “you can’t hurt him, he’s dead!”

A flight attendant said he could help with compressions, so I rotated with him, which allowed me to relieve the other passenger giving mouth-to-mouth when needed. I told the crew that we needed to land as soon as possible, expecting we would divert to Boston or Albany, as we had been over northeast Canada when this all started. I kept asking the crew for their med kit; I was wondering if I'd have to intubate him in the aisle and administer epinephrine (a medication that can restart the heart during cardiac

arrest). But they were unable to provide anything more than an ambu-bag (a mask and bag combo that allows you to deliver oxygen without doing mouth to mouth), a piece of tubing, and an oxygen tank that didn't connect to the ambu-bag.

At one point, we were unable to move air into his lungs because of saliva pooling in his throat. Fearing he would aspirate, I used the tubing as a straw to clear his airway. We resumed CPR and after multiple cycles and about three shocks with an automated external defibrillator (AED), which another female passenger helped to use and monitor, we got return of spontaneous circulation (ROSC). The man resumed consciousness and was able to tell me where in Ireland he was from. He then went into ventricular fibrillation (a potentially deadly cardiac arrhythmia) and we resumed CPR. We delivered about four more AED shocks and got ROSC again; we had been doing CPR on

I FEEL THAT WHILE THERE IS NO LEGAL OBLIGATION TO ACT IN A MEDICAL EMERGENCY OF THIS SORT, THERE IS AN ETHICAL ONE THAT STEMS FROM THE HIPPOCRATIC OATH WE TAKE.

him for about forty minutes at this stage. He was speaking, answering questions, and following commands.

We braced for landing, with the patient still on the floor and me beside him. EMS was waiting for us on the ground and took him straight to the hospital, awake, alert, and oriented. (It turned out we had not diverted and ended up in our original destination, Stewart International Airport in the Hudson Valley.) My hastily assembled crew of volunteer life-savers sat back in disbelief and disarray—I was drenched in sweat and had rug burns on my knees; two days later my abs would be killing me!—amazed that we had somehow come together in the narrow confines of an airplane aisle to bring a man back to life. My dad and cousin-in-law were certainly there with us that day.

As a healthcare provider I responded to this man's emergency reflexively, but many people have since asked me what obligation I had to get involved. I feel that while there is

no legal obligation to act in a medical emergency of this sort, there is an ethical one that stems from the Hippocratic Oath we take. Intervening in an out-of-hospital medical emergency can be extremely challenging. Given the low likelihood of surviving a heart attack outside the hospital, I am grateful I was able to apply my medical knowledge and training that day and that we had a good outcome. The Good Samaritan Law also helps providers responding to an emergency by protecting them from potential liability. I hope that our experience inspires others to take CPR training, and that they encourage their family and friends to do the same.

I realize that the outcome would have been different during the pandemic, given concern for infection and the risk of viral transmission during chest compressions—and I am grateful we didn't face those circumstances. A CPR mask could help prevent infection, and compression-only CPR—recommended by the American Heart Association during COVID—is better than no intervention in the right circumstances. Scene safety is the first rule in these situations, and protecting the health of everyone on that flight would be considered part of that.

The man we helped tracked me down two months later, and I learned that he had suffered a massive heart attack and required two stents. He lives in the U.S., runs his own business, and is a single father to a teenage daughter. His mother had passed away, and he had been home in County Wexford for the Blessing of the Graves; his mother was certainly there with us that day as well. He and I and the woman who managed the AED, along with my partner and mother, met for lunch in August 2019 and could not believe the coincidences and events that led us to be on the same flight. He has also tracked down the passenger who did most of the mouth-to-mouth, an Irishman who'd been on holiday with his family.

The next time that passenger returns to the States, we all plan to reunite under better circumstances. Our reunion has been delayed due to COVID, but I spoke with my patient on the anniversary of his cardiac arrest—his “re-birthday,” as his daughter and I have taken to calling it—and we look forward to getting together in 2021. ■

—Beth Higgins, PA '07

Ready to Launch

Weill Cornell Has an Ambitious New Plan to Change Medicine

By Elaine Meyer

Medicine is at a watershed moment: decades of technological advances have revealed unprecedented insights into human biology and how various physiological, genetic, and lifestyle factors shape health. These findings have laid the groundwork for enduring change in medicine—an opportunity Weill Cornell Medicine is seizing with its June 17 launch of *We're Changing Medicine*, a campaign to raise \$1.5 billion for an expansive vision of medicine that will make a global impact. The historic investments will serve as the foundation for discovery of new approaches to prevent, detect, and cure disease, a vision of care that is equitable and individualized to each patient, and the training of diverse future healthcare leaders. It's an ambitious pursuit, one befitting the brainpower and achievements of an institution credited with life-changing healthcare innovations.

With more than \$750 million raised already, the campaign creates a new synergy between WCM's tri-partite mission to care, discover, and teach, with a laser focus on three areas. The institution hopes to revolutionize the rapid acceleration of therapeutics from the bench to the bedside by harnessing the latest scientific approaches—such as translational cellular therapy, regenerative medicine, and artificial intelligence—and reimagining the foundational research landscape to benefit millions of patients around the world. It plans to build a world-class precision health enterprise that uses

breakthrough data science to personalize prevention and care, with the long-term goal of changing the trajectory of preventive medicine. And it is poised to transform the medical school experience for a gifted student body through debt-free medical education and the construction of a new residence hall for students to thrive and realize their highest potential.

In addition to representing an investment in WCM, the campaign will encourage further collaborations with Cornell's Ithaca campus, as well as Cornell Tech and Weill Cornell Medicine-Qatar, and partners and affiliates NewYork-Presbyterian, Memorial Sloan Kettering Cancer Center, The Rockefeller University, Hospital for Special Surgery, and Houston Methodist. "Science is a team sport, and when you can bring different disciplines together, it can transform patients' lives," says Jessica M. Bibliowicz, chairman of the Board of Fellows. "There are so many opportunities for us to collaborate with world-class researchers and clinicians in our own ZIP code, as well as across the country and around the world. Collaboration is who we are, and it's how we change medicine."

Adds Sanford I. Weill, chairman emeritus of WCM's Board of Fellows and campaign co-chair: "Weill Cornell Medicine's world-class physicians, scientists, and students are making tremendous strides every day to ensure that patients around the globe receive the best medical care. Leveraging

PHOTO: GABI PORTER





BENCH TO BEDSIDE: Juan Miguel Mosquera, MD (left), professor of research pathology and laboratory medicine and director of pathology at the Englander Institute for Precision Medicine, with technician Joonghoon Auh, who helps identify therapeutics based on a patient's tumor type

'We can take insights from our patients and from their data and use that to make important research breakthroughs, and on the order of weeks to months, reintroduce that into practice to transform the way we're delivering medicine.'

— RAINU KAUSHAL, MD



our strengths and sharing our talents with the world, we're changing medicine for the better, but there is always more work to do. By further investing in what makes us special, we can realize our new vision of healthcare. I am so excited about what we can—and must—accomplish together with this new campaign."

Already, generous philanthropic investments over decades have enabled WCM to translate breakthrough research discoveries into providing world-class patient care. Campaign leaders expect that the latest fundraising will help the institution's physicians and scientists make further strides that once would have been unachievable, enabling them to care for patients and their families over the course of their lives. "For four generations—now including my grandchildren—my family has benefited from the extraordinary medical care and scientific innovation that flourish at this institution," Jeffrey Feil, vice chair of the Board of Fellows and campaign co-chair, said in remarks at the June 17 launch. "What makes Weill Cornell so special is the people—doctors and researchers—and the relationships that are forged over time. Through the *We're Changing Medicine* campaign, we will support our remarkable healers."

The Place to Change Medicine

The "secret sauce" that enables WCM to change medicine is its uniquely interconnected research, education, and patient care infrastructures, according to Augustine M.K. Choi, MD, the Stephen and Suzanne Weiss Dean of WCM. "Weill Cornell Medicine has a one-of-a-kind culture that makes anything possible. Our culture of collaboration and teamwork—widely acknowledged on our campus and beyond—breaks down silos and fosters unique discoveries that impact our patients' lives," Choi said in his remarks at the launch event, which occurred virtually from the Belfer Research Building. "Exciting advances in foundational sciences, genomics, artificial intelligence, population health science, and other data-centric technologies have opened a new frontier of opportunity for our students and faculty. And most importantly, we have the opportunity to provide novel impactful diagnostics and therapeutics for our patients. Weill Cornell Medicine

is ready to leverage these new possibilities and launch a new era of biomedicine and healthcare."

To realize this vision, the institution will invest in construction of new and expanded laboratory space across disease areas, advanced technology for precision health and artificial intelligence (AI), and recruitment and retention of top physician-scientists from around the world. "To be at the cutting edge in discovery and treatment, we need to support the most advanced, most sensitive, most high-resolution techniques available," says Hugh C. Hemmings, MD, PhD, senior associate dean for research and chair of anesthesiology at WCM and anesthesiologist-in-chief at NewYork-Presbyterian/Weill Cornell. "We have to invest broadly and facilitate interdisciplinary research, because any of our talented scientists could make the next discovery that will change patients' lives."

The aim of these investments is to expand federal research funding and advance care in high-priority areas like cardiology, metabolic health, cancer, brain health, and women's and children's health. "We have all had a front-row seat during the pandemic to the power of science, and what it allows us to accomplish," says Barbara Hempstead, MD, PhD, dean of the Weill Cornell Graduate School of Medical Sciences and the O. Wayne Isom Professor of Medicine, referring to the speed at which scientists around the world collaborated to sequence the SARS-CoV-2 genome and create effective COVID vaccines. "I can't think of a better time for us to invest in science that will transform patient care."

The WCM vision of changing medicine is centered around making patients partners in their care, says Rainu Kaushal, MD, senior associate dean for clinical research and chair of the Department of Population Health Sciences: "We can take insights from our patients and from their data and use that to make important research breakthroughs, and on the order of weeks to months, reintroduce that into practice to transform the way we're delivering medicine." In addition, investing in powerful, transparent, and ethical methods of collecting, analyzing, and storing patient data represents an unparalleled opportunity for clinical care

at the population level—including the development and use of precision health techniques—to account for the diversity of New York City. “Our investments in precision health will allow us to utilize data on patients’ risks, behaviors, and environment in order to reduce disparities, promote health equity, and enable everyone to attain their full health potential,” says Robert J. Min, MD ’90, president and CEO of the Weill Cornell Medicine Physician Organization, chair of radiology at WCM, and radiologist-in-chief at NewYork-Presbyterian/Weill Cornell. “This is a top priority for Weill Cornell Medicine.”

WCM is also making a long-term investment in education by recruiting students from historically excluded communities, to train a healthcare workforce that better reflects the country’s demographics. A significant piece of this strategy is funding the endowment for Weill Cornell Medical College’s two-year-old debt-free program, which insures future physicians and scientists can access medical education regardless of ability to pay for it (see sidebar). “Diverse care teams lead to more innovation and creativity and better health outcomes for patients, and diverse communities are more likely to trust the system when they see we have a workforce that represents all of society,” says Linnie Golightly, MD ’83, associate dean of diversity and an associate professor of clinical medicine and of medicine in microbiology and immunology. “This is why at Weill Cornell, we must invest in recruiting students from historically disadvantaged populations and teaching and mentoring all of our students to provide culturally sensitive care across populations.”

Precision Medicine and the Future of Precision Health

WCM’s Englander Institute for Precision Medicine is at the forefront of using computational biology to tailor the treatment of cancer, working closely with the Meyer Cancer Center and researchers in molecular and genomic pathology. (Read about how precision medicine helped one cancer patient on page 12.) “Precision medicine is a whole new way to think about and treat cancer,” says Olivier Elemento, PhD, director of the Englander Institute, a professor of

physiology and biophysics and of computational genomics in pathology and laboratory medicine, and a member of the Meyer Cancer Center. “We now have access to technologies like high-throughput sequencing that help us scan entire genomes in just a few hours and understand what is driving the disease within each patient.” Unlike treatments that use a blanket strategy of radiation or chemotherapy to destroy tumors, precision medicine is about creating a therapy that targets a particular mutation, which varies from patient to patient. “The idea is to gain insights into the disease you’re treating, so if the patient’s tumor is expressing a gene or protein that is mutated, and we fully understand its biological function, we can target it specifically,” says Massimo Loda, MD, chair of the Department of Pathology and Laboratory Medicine at WCM, pathologist-in-chief at NewYork-Presbyterian/Weill Cornell, and deputy director of the Meyer Cancer Center. “Then ideally we develop a therapy that is precise for that patient.”

In order to radically improve diagnostic and treatment capabilities and develop strategies tailored to the individual patient, WCM is investing in an expansion of precision medicine that goes well beyond cancer. This effort will require the expertise of physician-scientists at the Meyer Cancer Center and others in computational biology, data science, genomics and epi-genomics, population health sciences, cancer, pathology, and clinical research, as well as massive computing power to collect and aggregate information from genetic sequencing, imaging, pathology labs, and other sources. Using this information, clinicians can identify high-risk patients and recommend early intervention strategies to not just treat but prevent disease—a concept called precision health. “The future of medicine is about applying precision health to every disease,” says Elemento. “Whole genome sequencing will allow us to understand how to treat illnesses like diabetes and heart disease and how to match each patient to the right therapy based on his or her genes and how to prevent such diseases from occurring in the first place.”

One preview of what’s to come is an AI model developed by Englander Institute scientists to automate the process of analyzing

‘To be at the cutting edge in discovery and treatment, we need to support the most advanced, most sensitive, most high-resolution techniques available.’

— HUGH C. HEMMINGS, MD, PHD



'Through investment in AI and machine learning, we're going to have diagnostic capabilities far beyond what we can do today, and we'll be able to target therapies in ways that will allow us to treat more diseases more safely and with shorter recovery periods.'

— ROBERT J. MIN, MD '90



radiology images and mapping them to biopsy results. This can be used to predict, for instance, whether someone has an aggressive form of cancer. "Through investment in AI and machine learning, we're going to have diagnostic capabilities far beyond what we can do today, and we'll be able to target therapies in ways that will allow us to treat more diseases more safely and with shorter recovery periods," says Min, also a member of the Meyer Cancer Center. "These are advances we're on the cusp of attaining."

Health Beyond the Hospital

In a related effort, WCM scientists are conducting bold research to understand its diverse patient population. Data scientists, epidemiologists, and informaticists have the capability to aggregate and analyze massive amounts of population data such as where someone lives, their environmental exposures, and their electronic health record information. "The way in which we deliver healthcare across the country has not caught up yet to the explosion in data," says Kaushal. "That's why it's urgent for us to invest in data science, to understand our patients' lives outside the hospital."

Analyzing information from a variety of sources—including de-identified data from electronic health records, patients' responses to mobile health applications, and government data on social and economic conditions in the neighborhoods of WCM patient populations—clinicians can recognize health disparities and take action. For example, after identifying characteristics that put people at higher risk of cancer, WCM care teams have conducted outreach to help at-risk patients attain screening. They've also acted on data showing some patients had limited transportation to their healthcare facilities by assigning care managers to their homes. "A lot of this work focuses on very vulnerable patients who have significant interaction with the healthcare system that could be averted or prevented," says Kaushal.

Committing to Health Equity and Anticipating the Next Pandemic

WCM's long-standing commitment to diversity and inclusion positioned the institution to meaningfully address the race and ethnic disparities amplified during the pandemic

and the social justice movement of 2020. Researchers put out findings early on showing COVID-19 infections were concentrated in overcrowded neighborhoods. In the spring and summer of 2020, diversity leadership held weekly virtual town halls to address racial inequity in infection and death as well as larger structural inequalities that predicted the pandemic fallout. In response to conversations from town halls and other community meetings, Dean Choi put forward a list of concrete steps to promote anti-racism at WCM.

The institution is currently working to vaccinate over 100,000 New Yorkers in underserved areas with the help of medical student vaccinators (see story on page 16). To address hesitancy, trainings were provided so clinicians can answer patients' vaccine questions. An NIH grant is funding a multi-disciplinary investigation of inequities in COVID outcomes based on race and socio-economic status. "The historic events of the last year have made our action on diversity, inclusion, and anti-racism more important than ever," says Golightly.

Part of an equitable approach to healthcare means anticipating future pandemics, which, like COVID, may have worse effects on those who are socially disadvantaged. When COVID hit New York in March 2020, research and clinical teams across the institution worked at unprecedented speed to treat the growing number of infected patients. The Division of Infectious Diseases, which has a history of running large NIH-funded clinical trials on treatments and vaccines for infectious diseases, pivoted quickly. WCM became the only site in New York City to run a clinical trial of the highly effective Moderna vaccine, which, along with Pfizer's, was the first to be authorized for emergency use. The infectious disease team also decided in March 2020 to study remdesivir, one of the earliest medications found to treat COVID-19 symptoms.

Specialists in areas like pulmonology, rheumatology, infectious diseases, hematology, and obstetrics/gynecology worked together to create standards of care on intubation, blood clotting, postpartum care, and cancer treatment. WCM scientists also made some of the earliest findings on risk factors for severe COVID such as obesity. ▶

'New York City provides an incredibly diverse and enriched living and learning environment for our medical students, and the York Avenue scientific and clinical care corridor offers an astounding opportunity for our students to grow and discover.'

— YOON KANG, MD



EQUAL OPPORTUNITIES

Making a WCM education affordable to all

Weill Cornell Medicine's debt-free medical education program represents a historic effort to level the playing field for future physicians. In 2019, Weill Cornell Medical College replaced student loans with scholarships that cover tuition, housing, and other living expenses so students can attend the top-ranked medical school regardless of their economic background.

That year, during the campaign's quiet phase, a lead gift from The Starr Foundation, chaired by WCM Board of Fellows member Maurice R. Greenberg—in partnership with gifts from The Weill Family Foundation, created by Joan and Sanford I. Weill, and other generous donors that together totaled \$160 million—established a game-changing scholarship program that provides debt-free education to medical students in financial need. The *We're Changing Medicine* campaign will raise \$46 million for an endowment so it continues in perpetuity. "Since its founding in 1955, The Starr Foundation has donated hundreds of millions of dollars to scholarship funds around the world, but our grant to Weill Cornell is the largest in our history," says Greenberg, chairman of The Starr Foundation. "We are pleased to help Weill Cornell students who otherwise would graduate from medical school with significant debt."

According to a *JAMA* study earlier this year published by Yoon Kang, MD, senior associate dean for education, and others, the program impacted the diversity of the Class of 2024—the first incoming class to benefit from it. Compared with an average from the preceding four classes, the percentage of students from underrepresented minority groups rose from 20 to 29 percent and those from public colleges increased from 24 to 35 percent. "New York City provides an incredibly diverse and enriched living and learning environment for our medical students, and the York Avenue scientific and clinical care corridor offers an astounding opportunity for our students to grow and discover," Kang says. "For students who may not have thought about coming to medical school, the debt-free initiative gives them that opportunity—and ultimately creates diverse thought leadership in medicine."

Free of debt, students are empowered to choose a specialty based not on how lucrative it is, but on their passion.

The support has been transformational for Briana Lui '24, a medical student from Queens who is interested in working to reduce health disparities as a physician. "It was a miracle that Weill Cornell had the debt-free initiative when I was applying," says Lui.

"I wouldn't be able to pursue a career in medicine if the school didn't have this program. Having the school's support relieves not just a financial burden but an emotional one."

Briana Lui '24, medical student





HOME SWEET HOME: A rendering of a lounge space in the new residence

LIVING & LEARNING

New student housing will be more than just a dorm

When students decide to attend Weill Cornell Medicine, one of their biggest concerns is finding housing in New York City. That's why WCM's *We're Changing Medicine* campaign is supporting the construction of a new student residence at the corner of East 74th Street and York Avenue. "As medical and graduate students pursue their biomedical training, it is critical to provide them with a nurturing living and learning environment," says Jeffrey Feil, Board of Fellows vice chair and campaign co-chair, who with the Feil Family donated \$55 million to support its construction. "We are thrilled to support this new residence hall, which will encourage a culture of innovation, collegiality, and collaboration to inspire our future leaders to keep changing medicine."

The proposed 148,000-square-foot building will feature spacious apartments and modern amenities to enhance student life for MD, MD-PhD, and PhD students. It will have amenities including a fitness center, meeting rooms, and places for students to relax, and will give students more housing options within blocks of the medical campus. "We expect an awful lot of our students: they're expected to do their best, to work hard, and to dream big," says Barbara Hempstead, MD, PhD, dean of the Weill Cornell Graduate School of Medical Sciences and the O. Wayne Isom Professor of Medicine. "We need to be able to support them as they strive to meet those expectations, and having a state-of-the-art residence hall is key to us helping them to do that."

Tom Rossetti, a doctoral student in pharmacology who volunteers with recruitment for the Graduate School of Medical Sciences, says housing options are a key factor in prospective students' choice of medical and graduate programs. "It's extremely important to the students if they know they don't have to worry about housing," he says. "Weill Cornell Medicine gives students the tools to succeed, and housing is one of them—not only does it make graduate school more affordable, it reinforces the nurturing, genuinely happy community that made it my top choice to become a scientist."

Tom Rossetti, doctoral student

'Weill Cornell is already changing medicine every day, and through this fundraising campaign we can go even further.'

—DEAN AUGUSTINE M.K. CHOI, MD



RENDERING: PROVIDED

and created models relied on by the New York state government to monitor the infection rate. Across disciplines, researchers have published findings illuminating long-haul symptoms of the virus including neurological disorders, lung pathology, and heart damage, as well as research showing the virus's distinct epigenetic signature. "The collaboration has been truly phenomenal here," says Roy M. Gulick, MD, chief of the Division of Infectious Diseases and the Rochelle Belfer Professor in Medicine. "I have been at Weill Cornell for twenty-three years; COVID-19 opened doors and introduced me to people I'd never met before."

In a globalized world, the next pandemic is not a question of "if," but "when." For this reason, WCM plans to invest in infectious disease research and training to develop vaccination and immunization tools for future infectious diseases as well as existing viruses. This will include expanding virology laboratories and advancing clinical research projects within WCM global health initiatives in Brazil, Ghana, Haiti, and Tanzania, where infectious disease experts have already made advances on HIV/AIDS, hepatitis, malaria, and tuberculosis. "We know there's likely to be another infectious disease that could spread around the world again, and we want to be ready," Gulick says. "We need laboratory scientists who can apply their tools to the next big threat, clinical research to test new drugs, and clinicians who are ready to take whatever next challenge comes along."

The Future of Pediatric Research

In the last year, WCM obstetrician/gynecologists, pathologists, and microbiologists have helped set the standard of care for pregnant mothers through findings on how antibodies and vaccines are transferred between mother and child to confer some immunity to COVID-19. (See how this work benefited one family on page 14.) "Our work is focused on learning about the maternal and infant immune systems, vaccinating mothers to prevent viruses from being transmitted to the baby, and leveraging the unique qualities of the infant immune system for protection that will last throughout life," says Sallie Permar, MD, PhD, chair of pediatrics at WCM and pediatrician-in-chief at

NewYork-Presbyterian/Weill Cornell, who was recruited to WCM as the Nancy C. Paduano Professor of Pediatrics.

The capital campaign will support expanding pediatric research initiatives such as bio-banking and a virology and vaccine center, so scientists can develop COVID-19 vaccines and others targeted for maternal and infant immune systems. Investments will go toward recruiting pediatric clinicians and researchers who will collaborate with scientists in the Drukier Institute for Children's Health. "An important lesson has come out of this time: we can't leave vulnerable populations as the last piece of the research," says Permar. "We are not just changing medicine for one hospitalized child but for a community of children—not only in New York City but around the globe."

A Dynamic Biomedical Corridor

The vision of the *We're Changing Medicine* campaign will be reflected through architectural changes on the York Avenue biomedical corridor, the heart of WCM's medical campus. Changes will include new laboratories in the Belfer Research Building and an upgrade to basic, translational, and clinical labs at 1300 York Avenue, to accommodate the growth of research programs. The lobby at 1300 York will be opened up to create a livelier and more accessible entrance for patients, faculty, students, and staff, and renovations to Uris Auditorium will encourage community events on campus.

Philanthropy allows academic medical centers like WCM to advance quickly and prepare for the future. With more than \$750 million in commitments for the *We're Changing Medicine* campaign already secured, meeting the \$1.5 billion target through philanthropic donations is essential to realize its lofty goals. "Weill Cornell is already changing medicine every day, and through this fundraising campaign we can go even further," Choi said in his campaign launch remarks. "Transformational growth like this could not happen without an extraordinary community of devoted individuals. Through these strategic efforts, we will continue to change medicine for the better—because we can. And because our patients need us, we must." ■

'We expect an awful lot of our students: they're expected to do their best, to work hard, and to dream big. We need to be able to support them as they strive to meet those expectations.'

— BARBARA HEMPSTEAD, MD, PHD



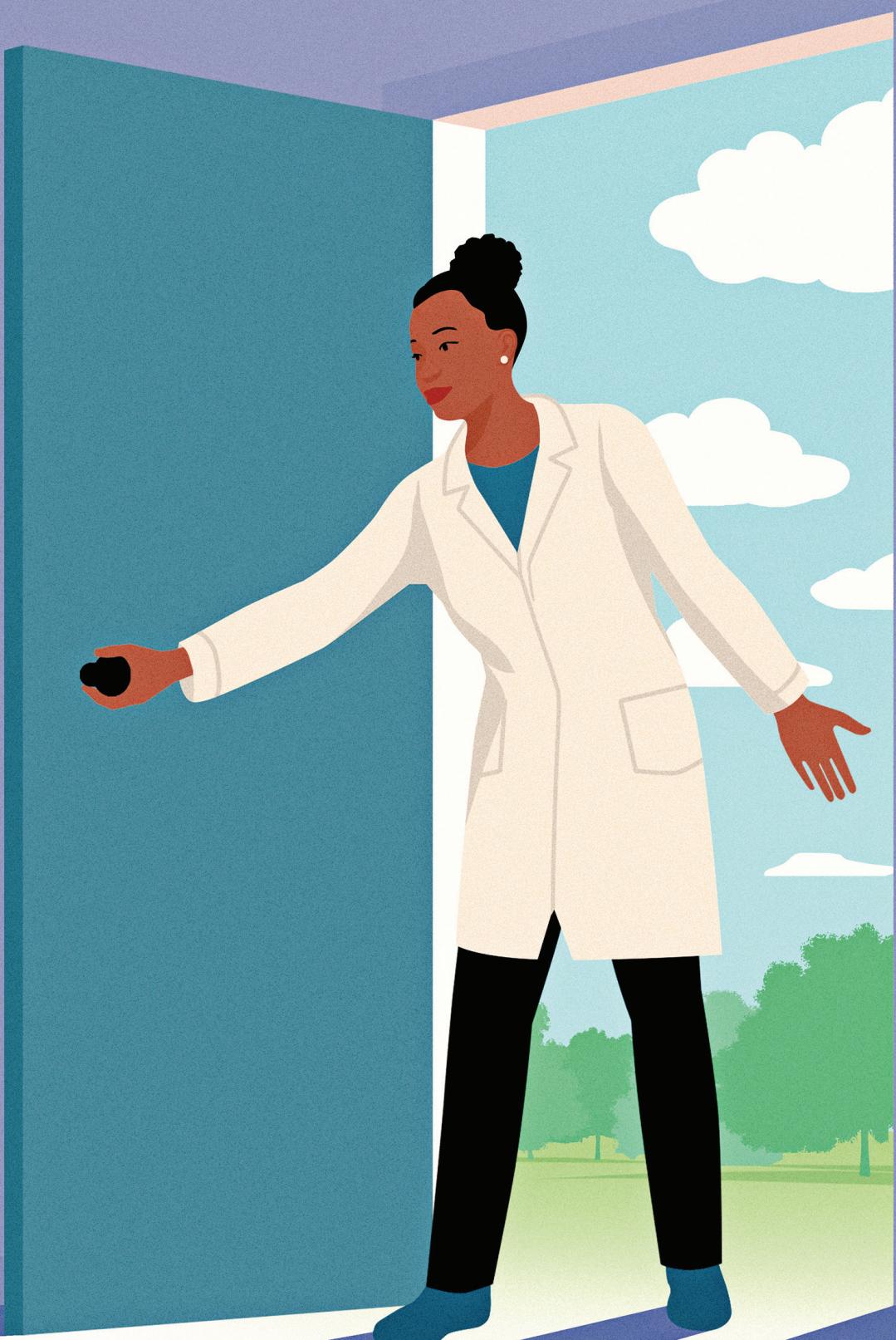
Saving Grace

**At Weill Cornell Medicine, a pioneering team
protects victims of elder abuse**

BY BETH SAULNIER

ILLUSTRATIONS BY JOEY GUIDONE





GERIATRICIAN MARK LACHS, MD, CALLS DETECTING AND INTERVENING IN ELDER ABUSE CASES WHEN VICTIMS ARE BEING TREATED IN THE E.D. 'A TRANSFORMATIVE APPROACH THAT HAS HUGE POTENTIAL.'

When emergency services arrived at Mary Patterson's Manhattan apartment, they found the seventy-eight-year-old widow on the living room floor, unable to get up after a fall; although she'd fractured her right hip and suffered from mild dementia, she'd been able to reach the phone to call 911. The environment that greeted the EMTs was disturbing: there was almost no food in the refrigerator and the poorly kept apartment was littered with expired, half-filled bottles of her medication. Her middle-aged son, who was supposed to be her caregiver, was nowhere to be found.

At the NewYork-Presbyterian/Weill Cornell Medical Center emergency department, the medical team discovered that in addition to the hip fracture—which would require surgery—Patterson was emaciated and the left side of her face was covered in a mottled rainbow of bruises, which she insisted were all due to the fall. When her son finally arrived in the ED, a nurse overheard him blaming his mother for having fallen down and noticed that the older woman seemed scared of him. Suspecting that the woman might be a victim of abuse, the ED staff decided to call a pager number that would tap a unique and invaluable resource: the hospital's Vulnerable Elder Protection Team (VEPT).

While Mary Patterson is a fictional character—a representational case study created by Weill Cornell Medicine clinicians—the issue her scenario highlights is all too real. According to a 2015 study published in the *New England Journal of Medicine* by two longtime leaders in elder abuse research—Mark Lachs, MD, the Irene F. and I. Roy Psaty Distinguished Professor of Medicine at WCM, and Karl Pillemer, PhD, a professor of human development on the Ithaca campus—about one in ten home-dwelling adults over age sixty have suffered some form of mistreatment including physical, psychological, verbal, or sexual abuse; financial exploitation; or neglect. And since such cases are rarely detected, precious few victims get help. As the 2011 New York State Elder Abuse Prevalence Study—of which Lachs was a principal investigator and Pillemer served as an adviser—noted, for every case of elder abuse that is reported, twenty-four are not.

VEPT is designed to change that. Launched in April 2017, the first-of-its-kind

initiative aims to detect cases of elder abuse and intervene, not only by providing victims with appropriate medical care but working to ensure that they are protected after discharge—which could include connecting them with social services for home-based assistance or facilitating placement in a shelter or care facility. The team is the brainchild of Tony Rosen, MD '10, an assistant professor of emergency medicine at WCM, an assistant attending physician at NewYork-Presbyterian/Weill Cornell, a mentee of Lachs, and a pioneer in the field of using the ED as an intervention point for elder abuse. As Rosen explains, it's modeled after the multidisciplinary teams that have long been deployed in cases where child abuse is suspected. Says Rosen: "Even though there are several hundred child protection teams currently active in the U.S.—including one in every hospital I've ever worked in—we knew of no analogous teams that focused on older adults."

Rosen—who already had a master's in public health from UCLA when he came to WCM—began delving into the topic of elder abuse as a medical student working under Lachs, who hoped that his mentee would specialize in internal medicine and geriatrics. "Tony has been able to have just as important an impact on geriatric care here at Weill Cornell and nationally as an emergency physician," observes Lachs, also an attending geriatrician at the Center on Aging at NewYork-Presbyterian/Weill Cornell. "An intervention to improve care for elder abuse victims in the emergency department allows us to identify particularly vulnerable older adults at a critical time. It's a transformative approach that has huge potential."

In addition to several physician assistants and two social workers, VEPT comprises three physicians in the NewYork-Presbyterian/Weill Cornell ED, all of whom have completed WCM's fellowship in geriatric emergency medicine: Rosen; Michael Stern, MD '01, an associate professor of clinical emergency medicine at WCM and an associate attending physician at NewYork-Presbyterian/Weill Cornell; and Mary Mulcare, MD, an assistant professor of clinical emergency medicine at WCM and an assistant attending physician at NewYork-Presbyterian/Weill Cornell. If an ED staffer suspects a patient is a victim of abuse, the team can be activated by pager>





24/7, similar to other specialty consults. And to prevent any further harm, staff can take practical measures such as changing their name in the computer (in case their abuser tries to find them), forbidding visitors to the bedside, and alerting hospital security of the situation. "Sometimes the emergency department is the only opportunity for a patient who is vulnerable and subjected to abuse to see a healthcare provider," Stern observes. "These are patients who are sequestered away, who are scared, and who might not have the mobility or means to have follow-up care with a regular provider."

As the physicians note, elder abuse cases are not only heartbreaking but often excruciatingly complicated. A person's caregiver may also be their abuser; as much as an older adult may want the abuse to stop, he or she may have an even greater fear of being removed from familiar surroundings and placed in a nursing home. An abuser may be dependent on their victim for financial support, and that same abuser's caretaking—however fraught and flawed—may be the only thing preventing the victim from being institutionalized.

Experts also believe that the frequency and severity of abuse has likely increased during the COVID pandemic—with more older adults isolated, community-based resources limited, and evidence suggesting that rates of other types of family violence, such as intimate partner abuse, have risen—making a program such as VEPT even more important. "We're working with a very sensitive topic, similar to child abuse or domestic violence," says Mulcare. "It has a lot of social connotations to it, and obviously there are legal implications as well. You're not just asking a patient, 'Does your chest hurt?' You're asking very sensitive questions. The key is to interview the patient alone in a safe environment, and not with other people in the room that might change their answer or put them in a more vulnerable position than they already are."

Identifying Victims

While there are myriad forms of elder abuse, VEPT—given its position within the emergency department—focuses on physical abuse. That work dovetails with ongoing research (published in July 2020 in *Annals*

of Emergency Medicine and funded by a five-year, \$800,000 Beeson Emerging Leaders Career Development Award in Aging from the National Institute on Aging and the American Federation for Aging Research) by Rosen and colleagues on ways to distinguish accidental injuries from those caused by acts of violence. Again, their efforts echo strides that have been made over the past few decades in the field of child abuse—where, for example, a spiral fracture is more likely an indication that the victim has had their arm brutally twisted than that they took an innocent spill on the playground. "As ER doctors, we do a much better job of identifying child abuse than elder abuse," says Rosen, who has given talks about his work with VEPT at institutions and conferences around the country, and ultimately hopes to see it replicated nationwide. "The way we do it is, 'Gosh, that injury pattern just shouldn't happen as a result of a fall off the monkey bars.' But when we looked, there were over 1,000 articles in the extant literature on the differences between patterns of unintentional and intentional pediatric injury—and only five on elder abuse."

Given that elder abuse is so seldom detected—and even when it is, issues of informed consent would be challenging in cases where victims suffer from dementia—Rosen and his collaborators needed a creative approach to conducting their research. They wound up partnering with district attorneys' offices in Brooklyn, New York's Westchester County, and Seattle, which provided detailed documentation of physical injuries in criminal cases of elder abuse. "We have data on close to 200 victims—cases that have been successfully prosecuted and are indisputable," says Sunday Clark, ScD, former director of research for the Department of Emergency Medicine and now an adjunct associate professor of epidemiology research in emergency medicine and of research in population health sciences. As a control, they gathered data on more than 500 older adults who came to the ED after a fall (and whose injuries were definitively shown not to have stemmed from abuse) and consented to participate in the study.

Together, that body of information allowed the researchers to discern some key differences between injuries in older adults who have suffered abuse and those who've ➤



TONY ROSEN, MD '10

'AS E.R. DOCTORS,
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**COMMON CONDITIONS
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A RESULT OF VIOLENCE.**

had an accidental fall—not only a typical reason for an ED visit, but a common way that evidence of abuse is explained away. (Some of the groundwork for the project was laid with previous research on systematic ways to describe injuries, published in *Injury Prevention* in 2017, and on protocols for photographing acute injuries, published in *Academic Emergency Medicine* in 2016.) “We found a couple of critical things,” says Rosen. “The first is that abuse victims are more likely to have injuries on the left side of their face, which is consistent with research in intimate partner violence and child abuse.” The simple reason: most people—and therefore most abusers—are right-handed.

They also found that injuries to the ear are almost always due to abuse—and the same is true of the neck. “That was one of the most compelling findings,” Rosen says. “It turns out that neck injuries occur commonly in abuse and almost never in falls. This makes intuitive sense; when you fall, the neck is protected by your shoulder and your face. The only way to injure your neck is to, say, fall against the edge of a refrigerator or a table—and that already sounds unlikely.” Another red flag: injuries on the face but not on the legs. “If you fall, you’re supposed to have findings all over your body,” he says. “But if you just have them on your face and nowhere else, that’s concerning. Therefore, it’s not just the presence of injuries, but the simultaneous presence and absence that may be helpful.”

A Vital Resource

Since VEPT’s inception, it has been activated more than 300 times—an average of about twice a week. Though abuse was ruled out in some of those cases, Rosen and his colleagues note that the activation numbers underscore the fact that clinicians are becoming increasingly aware of the phenomenon and are eager to tap resources to combat it. “These cases are really time-consuming and complex, and knowing that there’s a team that can provide support and assist in their management has helped boost identification, intervention, and understanding,” says social worker Alyssa Elman, who manages the VEPT program and serves as a liaison to community agencies that aid victims. The team’s acronym has even become shorthand

for seeking out expertise to intervene in potential abuse cases. Says Rosen: “They have a verb now: ‘VEPT’ the patient.”

While VEPT was intended as an ED resource, it has also responded to consult requests from colleagues elsewhere in the hospital. And under a three-year, \$2 million grant from the New York State Office of Victims Services that WCM and NewYork-Presbyterian were awarded in summer 2019, the team will expand further, with plans to add a geriatric psychiatrist and to offer its expertise to other NewYork-Presbyterian emergency departments through telemedicine technology. “It addresses a societal need,” says Rahul Sharma, MD, chairman of emergency medicine at WCM and emergency physician-in-chief at NewYork-Presbyterian/Weill Cornell. “Elder abuse is something that we probably don’t talk about enough, and it’s under-recognized. There’s no better environment than the ED to identify these patients. A lot of these elder abuse cases would come back numerous times, and it was very hard to put the pieces together; if you thought someone had a fall, you’d suture up the laceration and think you were done. But now by identifying these patients, getting them on the right track, and giving them the appropriate support system, we’ve been able to reduce visits to the ED and change their living situations at discharge. We can have a tremendous impact on their lives.”

As social worker Risa Breckman notes, medical providers overall can play a vital role in stopping elder abuse—for reasons that go beyond the clinical, and which underscore the challenges in combatting it in comparison to child abuse. “Children are expected to be in school, and if they’re not, someone notices,” says Breckman, the recently retired director of the New York City Elder Abuse Center, which is part of WCM’s Division of Geriatrics and Palliative Medicine. “With older adults, often there’s not any place they’re expected to be; the one place they might go regularly is an annual doctor’s visit. Or when they come to the ED, the staff might be the only people who can detect and intervene before they go back to the invisible place where the abuser wants them to be, hidden from view.”

Another major issue in detecting abuse of elders versus children, of course, is their



inherent physiological differences. Common conditions of old age—and the way they're treated—can mask injuries incurred as a result of violence. "A lot of older adults tend to be on blood-thinning medications that may make them bruise easily; they could bump into the kitchen table and get a massive bruise on their thigh. And they have thinner bones because of osteopenia and osteoporosis, so they're more likely to fracture bones with minor trauma," says Rosen. "When a child has a rib fracture, the whole hospital goes crazy, and appropriately so. Part of the reason is that children aren't supposed to have rib fractures. They require a lot of force; it's a very uncommon injury and strongly suggestive of something bad, potentially abuse. In contrast, if an older adult has a rib fracture, the radiologist might not even comment on it. It's too common, so they think it may be a result of minor trauma and is unlikely to be relevant."

With funding from the National Institute on Aging and in collaboration with WCM's Department of Population Health Sciences, Rosen and colleagues are currently using both Medicare claims data and the information they'd previously gleaned from district attorneys' offices to study how abuse victims tend to intersect with the healthcare system. "That's the next set of questions from a research perspective," he says. "Can we describe the healthcare utilization of these patients—and is it fundamentally different from other patients in an important, measurable way, so we can use it to identify early that these folks are being victimized?"

When Rosen was contemplating whether VEPT was feasible, among the experts he tapped was Deborah Holt-Knight, deputy commissioner of New York City's office of Adult Protective Services. A veteran of more than three decades in the field, Holt-Knight calls the team "a resource that no one else

is offering, and a way to keep people safe." VEPT, she says, is an invaluable tool for case workers coping with potential abuse cases in the city. One particularly useful aspect: through a dedicated phone number, elders suspected to be abuse victims can be transported directly to the NewYork-Presbyterian/Weill Cornell ED for evaluation by VEPT staff. "Being out in the field, believing that someone is a victim of abuse, and having no resources at your fingertips is a very scary situation; you know in your gut that something's going on, and you believe that if you leave them they will be further at risk," she says. "There have been times where we'd call 911, the person is taken to an emergency room, and they're cleared medically and go right back home. VEPT gives us an option to take someone out of a dangerous situation and bring them to an ER where people are equipped to deal with their issues. I believe that this resource is going to save lives." ■

NEWS OF MEDICAL COLLEGE AND GRADUATE SCHOOL ALUMNI



Dear Alumni,

When I joined the faculty of Weill Cornell Medicine earlier this year, I was excited to come back to a place where I had learned so much, not only as a medical student but also as a student representative to the Board of Fellows. I now have the honor of serving once again on the Board of Fellows in my new role as president of the Weill Cornell Medical College Alumni Association Board of Directors.

I am so impressed by the notable changes on campus, including the addition of critical clinical space in the Weill Greenberg Center, a state-of-the-art research facility in the Belfer Research Building, and modernized resources in all of our educational spaces—to name just a few. I have also been heartened by the key foundational principles that have stayed the same: first and foremost, our commitment to service; our strong sense of community and support of each other; and our innovative and forward-thinking approach to medical education, scientific discovery, and patient care.

I've never been more proud to be a Weill Cornellian as I was this past year, as we responded swiftly and effectively to the unprecedented COVID-19 pandemic. Our rapid but thoughtful approach to researching the virus and its treatments helped lead to breakthroughs. Our expertise with new paradigms of care—such as the telemedicine program pioneered by our Emergency Department years before the pandemic hit—meant New York's medical institutions had a place to look and learn when virtual care became the safest way for clinicians to see patients. And witnessing the leadership of Anthony Fauci, MD '66, has been truly inspirational. We are so proud that he's one of our own.

As president of your Alumni Association, my hope is to build upon our already robust alumni community and continue to infuse all of our activities with the same visionary, out-of-the-box approach that has shaped our alma mater. I'd like us to take a fresh look at what we are already doing so well, expand on those successes, and make us an even stronger network. Some key ways we will do this are by continuing to:

Celebrate those among us who have accomplished great feats in medicine, such as Peter J. Hotez, MD '87, PhD, who in May received the Award of Distinction, along with Eric J. Huang, MD, PhD '93, the Weill Cornell Graduate School recipient. We will also honor 2019 Alumni Special Achievement Award recipient Carol Storey-Johnson, MD '77, and 2020 recipient Donald A. Fischman, MD '61, at our Reunion this fall. Mark Pochapin, MD '88, will receive the 2021 Alumni Special Achievement Award at our 2022 Reunion celebration.

Grow and diversify our board of directors. In the past few years, we have nearly doubled the size of the board and enhanced its membership to better represent our alumni community in terms of race, gender, age, geographic location, and specialty.

Find meaningful ways to engage with current students such as through our successful stethoscope initiative, Alumni-to-Student Knowledge (ASK) programs, mentorship activities, and scholarship funds.

Enhance our virtual platform for programming. The silver lining of going virtual has been that it allows us to have further geographical reach than ever before, which means even more alumni can participate in our informational and educational events.

I know we'll accomplish these goals because of the incredible energy, focus, and dedication of the directors of our board—and of you, our alumni community. With COVID vaccinations now widespread, I'm optimistic we will be able to reunite again in person soon and safely celebrate together.

Thank you for everything you do.

*Joseph Habboushe, MD '06
joh2006@med.cornell.edu*

Medical College

1950s

Ames L. Filippone, BA '50, MD '53:

"Some 70 years after graduation I am living at the Jersey Shore and have enjoyed the last 20 years of retirement. Sequestering for the better part of this past year has posed no problem because I've occupied myself building architectural models and thoroughly enjoying it. So far, I've made about eight domes including the Pantheon, the Duomo, and St. Mark's. The latest is the Parliament in Budapest. They take about six months to make and with some music in the background it's great fun."

William Hillis, MD '55, has lived for the past six years in Ashlar Village in Wallingford, CT. He has five daughters, six grandchildren, and three great-grandchildren. He and his wife, Barbara, are both well.

Charles A. Santos-Buch, MD '57: "I have bad and good news. Carol, my wife by my side for 64 wonderful years, is in progressive bad health; as best we can, we are successfully maintaining her without her suffering. The good news is that after nine years of work, my book, *A Differing View of Cuba's History*, is finally published. You can read its summary at cubalegacy.com. It tells of our family's journey from Moorish Spain to modern times. Another piece of excellent news is that we now have our first great-grandchild, Sadie Taylor Mullaney, who has navy blue eyes and reddish hair. Celtic rather than any Cuban gene she could have mustered."

Bernie Siegel, MD '57: "I'm readjusting my life to figure out the next step. Where do I live? With whom? Family or senior living? What makes me happy versus still working? I love my four-legged pets. I remember Joseph Campbell saying you don't retire, you engage and disengage, so I am working those issues out. I also had an injury from chiropractic treatment and was hospitalized with severe pain for a week. I'm home now, recovering and learning about life."

Donald A. Taylor, MD '57: "I am fully retired since 2007 and recently celebrated my 89th birthday. I garden, read, do daily NYT crossword puzzles, and walk my dog (a Yorkie named Dylan). I had a visit last summer from my WCM classmate and ex-roommate

MATCH DAY PHOTOS THROUGHOUT: STUDIO BROOKE



HEADED TO RESIDENCY: Class of 2021 members (from left) Aoife MacMahon, Alex Huang, and Mark Lee celebrate Match Day during a socially distanced event at the Belfer Research Building, where the future physicians picked up swag bags and posed for photos.

Volker Brandt, MD '57. My wife, Cherie, is a gourmet cook, so I watch my weight. I do the Case of the Day from the ACR but have given up reading imaging studies for a New York-based portable x-ray company since COVID-19 limited their usage. I've had bilateral hip replacement, which limits my mobility, but so far so good! Last November I had bilateral cataract surgery and the world is now remarkably brighter."

David K. Berler, BA '55, MD '58: "I was a second-generation Cornelian and my two sons went there as well. We have a granddaughter, a fourth generation, currently in her junior year. We are still quite active with travel and outdoor activities and hope that COVID subsides and we can plan for the next Reunion."

George Shambaugh III, MD '58, professor of medicine emeritus at Northwestern University Medical School, received an exemplary service recognition award in December 2019 from Emory University School of Medicine for 20 years of volunteer service as an adjunct professor at Grady Memorial Hospital, Division of Endocrinology.

"At this time," he writes, "I continue to teach endocrine fellows, virtually."

James E. Shepard, MD '59: "I was impressed by all the good work you are doing in response to the COVID crisis. Very good."

James K. Van Buren, BA '55, MD '59: "We're doing well sheltering at our house of 48 years. Mary is okay. I still play golf weekly and try to do a three-mile bike ride daily. Not much medical activity, but I do enjoy my membership in Emory's Emeritus College."

1960s

Robert E. Fear, MD '61: "Jane and I are both doing well. No complaints. I enjoy reading class notes (except obits!)."

Lawrence W. Raymond, MD '64, an expert in occupational lung disorders and pulmonary diseases, was recognized for his significant contributions to the American College of Occupational and Environmental Medicine (ACOEM) as a member of its scientific council and an author of and contributor to numerous position statements, including developing a pulmonary section for the



MATCHING OUTFIT: Prithvi Mohan, MD '21, sports Weill Cornell colors at the March festivities marking residency assignments.

ACOEM practice guidelines. "Without the solid foundation in biomedical science and clinical medicine that the Medical College gave me, I could not have had such an enjoyable career as a physician," writes Dr. Raymond, medical director of occupational and environmental medicine for Atrium Health Employer Solutions in Charlotte, NC.

Robert L. Wilson, MD '64: "For the last 15 years I've been a member of the orthopedic department at UC San Diego; 2020 was my 50th and final year teaching med students, residents, hand surgery fellows, and therapists about the complexities of the hand and wrist. Now it's time to write a book."

Gus Kappler, MD '65: "My CUMC '65 classmates have been digitally sharing their life stories in place of our canceled Reunion. Their extraordinary accomplishments humble me. Our country anointed about seven of us to serve in Vietnam. A few were wounded. Some endured enemy mortar fire and ground attacks. We all flew in flimsy choppers. Any of us could have become KIA. We were changed forever. It's time for WCM to recognize those who served in the military, whether or not deployed, during the Vietnam War era."

Dick Hodder, MD '66, had a defibrillator/pacemaker replacement while "snowbirding" in Vero Beach, FL.

Rowland Pritchard, MD '67, is retired in Vero Beach, FL.

1970s

Thomas S. Harbin Jr., MD '70: "I published a book, *Practical Ethics in Ophthalmology*, where I discuss ethical issues such as: prescribing medications, recommending surgery, and adopting new procedures; communicating with patients and colleagues; dealing with problems such as substance abuse, disruptive behavior, and boundary issues; and managing personal and institutional obstacles to ethics. It has been highly praised by prominent leaders in ophthalmology."

Arnold W. Cohen, MD '71: "Fifty years after stepping into the ER of HUP (Hospital of the University of Pennsylvania) as a medical intern, I am planning on retirement. I have mixed feelings. I have been blessed with a meaningful and wonderful life, professionally and personally. I have been lucky to have married my high school sweetheart, and after 53 years we are still happy to spend time together. We have a house on top of a mountain in Vermont and have basically been there by ourselves since the start of the pandemic and still enjoy being together. In a year from now, I will know if travel, fishing, skiing, and golf are enough to make retirement the right choice. I will have my wife, kids, and grandkids—but will that be enough to make me feel 'relevant'? I guess we are all going through this and will be finding out for ourselves."

Richard A. Lynn, MD '71: "I am proud and humbled that in October I was appointed second vice president-elect of the American College of Surgeons. I have been privileged to stand on the shoulders of giants."

Bill S. Schnall, MD '71: "For eight years I was the unpaid CEO of a local 501(c)(3) botanical garden foundation as it morphed from private ownership to a local city-owned gem. Several years later, a 30-something friend of my daughter's stopped by for a chat and that resulted in a ten-year 'next career' in rental residential and commercial real estate. And most recently and most amazingly to me, I became a part-owner of two retail marijuana dispensaries—having never used the stuff even during the crazy college years of the '60s. Until COVID, my wife (high school sweetheart as well) and I traveled at least four months each year to every continent (including Antarctica)."

Winston Price, MD '74, was honored as Practitioner of the Year by the National Medical Association at the opening ceremonies of this year's annual convention.

Thomas M. Anger, MD '75: "Having gotten both Pfizer COVID shots, I am back to part-time practice as of 2/1/21. Such a crazy time to be a doc. The Old Town School of Folk Music is sponsoring online classes and a weekly Zoom open mic, which has kept me playing guitar and singing songs I (and others) have written. My son, Tom, and his wife, Lori, are both working from home in Columbus, OH. Grandkids Maya and Livia are learning well online."

Paul Miskovitz, MD '75: "I continue clinical practice through the COVID pandemic, albeit on a smaller scale. We have moved and downsized our medical office, which I share with **Robert Cooper, MD '81**, and Dr. Angie Eng. Leslie and I have not traveled in some time but enjoy seeing our four grandchildren (outdoors) whenever possible. We both miss alumni reunions with classmates, which we always looked forward to."

Lydia Kernitsky, MD '76: "Having retired last summer as a child neurologist/electroencephalographer at Virginia Commonwealth University (Medical College of Virginia), I spent the next year on the opposite end of the doctor-patient relationship: mammogram, breast cancer (surgery, chemo, and radiation therapy), with a stint in the neuro ICU for removal of collateral findings of intracranial meningiomas. One of my three children's job as an inner-city policeman added another layer of excitement. Now doing great!"

Dennis M. Kesden, MD '76, and Sherry Horn Kesden, MD '77: "Greetings to fellow classmates. We retired in Scottsdale, AZ, from our shared ophthalmology practice. We are enjoying life greatly, one day at a time. We exercise daily, bicycle biweekly, play golf often, read voraciously on our own and for book clubs, Zoom multiple classes on diverse subjects, socialize (at appropriate outdoor settings), and enjoy our grandchildren sleepovers weekly. We recognize we are most fortunate, try not to whine, and campaign actively for a better future."

Vincent "Vinny" deLuise, MD '77: "I have retired from the clinical practice of ophthalmology. I still teach at Yale University School of Medicine. I have been named a distinguished visiting scholar in the division of bioethics and medical humanities at Stony Brook University Renaissance School of



Medicine. I continue to work on developing a curriculum of compassion and empathy for medical school education."

Charles Sorenson, MD '77: "It was wonderful to see a few of you at our Reunion dinner in NYC in 2018. I retired from administrative responsibilities at Intermountain Healthcare in late 2016 after eight years as president/CEO and 11 years before that as COO. For the last four years I've been the founding director of the Intermountain Healthcare Leadership Institute, where we have the privilege of welcoming mid-career high-potential leaders from academic and not-for-profit health systems around the country and abroad to a program that focuses on helping develop trusted leaders with the competencies and character needed to lead in a rapidly changing, high-stakes environment. Sharee and I have four children, the oldest of whom is a surgical oncologist who spent six years in surgery residency at what was formerly known as New York Hospital, three years in the lab at Memorial, then two years in fellowship at Fox Chase. Thanks for the great years at Cornell!!"

Patricia Treadwell, MD '77, is special adviser to the dean and chief diversity officer at Indiana University School of Medicine. In a message to her school community, she highlighted the healthcare disparities that exist in Indiana and the US: "COVID-19 has shined a spotlight on the higher burden of illness, injury, disability, and mortality borne by people of color in the United States. . . . COVID-19 is

FRIENDS AND CLASSMATES: Class of 2021 members (from left) Sarita Ballakur, Emily Eruysal, Elena Beideck, Kimberly Bogardus, and Joel Nario on Match Day

'We are enjoying life greatly, one day at a time.

We recognize we are most fortunate, try not to whine, and campaign actively for a better future.'

— Dennis M. Kesden, MD '76
& Sherry Horn Kesden, MD '77



IT'S IN THE BAG: Ahmed Toure, MD '21, with his Match Day memorabilia

'This summer I retired from my position as chief of ob/gyn at Yale Health. After 37 years of staying up nights to deliver babies I look forward to getting some sleep.'

— David M. Roth, MD '83

but one of many healthcare disparities facing our minority populations. As a medical school, before we can make significant inroads in challenging these health disparities in our communities, we must first look inward, at the root causes of these disparities. As students, residents, faculty, and staff, we must learn to exhibit cultural competence and humility. We must begin taking sizable strides in thwarting the racism that pervades our society."

Irene Ludwig, MD '79: "I live in Brentwood, TN, which is in the Nashville area, and my two adult sons live nearby. My specialty is pediatric ophthalmology and strabismus and I still work full time with offices in Tennessee, Alabama, and northern Florida. My main interest is the correction of complex strabismus problems, and to that end I have developed a number of new surgical procedures. I recently completed a textbook with 23 contributing authors and 91 videos, *Strabismus Surgery: Innovative and Classic Approaches*, which was published by Thieme on January 27, 2021. This was a four-and-a-half-year endeavor!"

Thomas J. O'Dowd, MD '79: "I'm still working and operating. COVID-19 really hurt our surgical practice, but there's no choice with this virus. Did I mention COVID-19 really, really sucks?"

Harley A. Rotbart, MD '79, writes that he recently published a self-help book entitled *No Regrets Living: 7 Keys to a Life of Wonder and Contentment*, which offers strategies "to help us better appreciate what we have in our lives and take greater pride in what we've done with our lives—without spending precious time and energy wishing things had turned out differently." Dr. Rotbart, professor and vice chair emeritus of pediatrics at the University of Colorado School of Medicine, previously published *No Regrets Parenting: Turning Long Days and Short Years into Cherished Moments with Your Kids and Miracles We Have Seen: America's Leading Physicians Share Stories They Can't Forget*.

1980s

Barnaby Starr, MD '82: "I am excited about retiring after many years of running an old-fashioned pediatric practice in Baltimore. I hope to renew some old friendships with classmates."

Mary Nolan Hall, MD '83: "I am the chief academic officer at Atrium Health in Charlotte, NC. It is great to work with medical students, residents, and faculty of all specialties. My husband just retired from a 30-plus-year career as a family physician."

Dave Lyons, MD '83: "We are very excited that our son, Dr. Keith Lyons, will be starting his spine fellowship at Hospital for Special Surgery this summer following completion of his orthopedic surgery residency at Dartmouth Hitchcock Medical Center. Michelle and I look forward to visiting our old neighborhood and seeing all of the changes since 1983."

David M. Roth, MD '83: "This summer I retired from my position as chief of ob/gyn at Yale Health. After 37 years of staying up nights to deliver babies I look forward to getting some sleep. My wife and I are downsizing and moving from Connecticut to New Jersey, where I'm planning to get a part-time 'day' job."

David A. Houghton, MD '84: "If it takes a village to raise a child, I require a posse of talented people to help me put on an exhibition. As always, my wife, Lyne, encourages me—and, when I am struggling to decide if a painting is finished, assesses whether it has 'oomph' (with a French accent, of course)."

Theresa M. Rohr-Kirchgraber, MD

'88: "We are now living in North Carolina and Georgia. **Paul Kirchgraber, MD '88,** has been busy with testing and vaccine development with COVANCE/LabCorp. I have left Indiana and will start with the Medical College of Georgia at the UGA campus in March. I was recently awarded the American Medical Association's Political Action Committee Award for Political Participation. We are enjoying being closer to family and are grandparents to two fabulous little girls! Miss the other travel but have done some virtual concerts and wine tastings. No significant COVID illnesses, so we are blessed."

Bill Bernstein, MD '89: "I was named director of medical education and designated institutional official at St. Peter's University Hospital in New Brunswick, NJ. Also, I received the 2020 Healthcare Education Hero Award from NJBIZ. I am currently associate chair of pediatrics at St. Peter's and clinical associate professor of pediatrics at Rutgers Robert Wood Johnson Medical School."

Sarah Stackpole, MD '89: "Greetings from Manhattan, in the second surge. As an 'outpatient' otolaryngologist, I was spared the worst of the initial COVID spring 2020 peak in New York as well as last winter's surge—but since ENT is a frontline specialty, still seeing some folks, albeit outside the hospital. The good news is the hospitals prioritized healthcare professionals, and I received both doses of Pfizer by January 30. Not pleasant with the side effects, but so epidemiologically important. Who would have thought our two-week public health rotation would have been so very important in the 35 years to come? Having done those two weeks with Dr. George Reader and **Lew Drusin, MD '64,** and then six weeks in a South African homeland mission hospital, I have become a total advocate of public health issues. At a Ben Keane memorial lecture in infectious disease more than ten years ago, I was the only otolaryngologist I identified in the audience. Dr. Keane had advocated for me in winter 1988–89 in applying for funding to go to a mission hospital in the Transkei homeland. I had both a local sponsor and a WCM sponsor trained in South Africa. A truly amazing experience—seeing parasites, rampant TB, and infections I'd never seen in Manhattan. On the advice of my ENT chairman, Dr. Shain Schley, I only took with



me the Merck manual (great overarching medical advice, of every sort) and Dr. Keane's parasitology textbook.

This extended training under the aegis of Weill Cornell Medicine, as well as a year in the WCM surgical metabolism laboratory (early cytokine research), has informed me over the last three decades in such unexpected ways. Although never a lover of bench work, I gained such an appreciation of its importance in our ongoing education about the science of how the body works. In my 'year in the lab,' courtesy of Dr. Stephen Lowry, I did early bench research on IL-6 (Interleukin-6) and IL-1 RA antagonist, one of the first agents used against systemic sepsis due to gram-negative infection. Our lab also did major research on the APACHE grading score for severe ICU patients. Dr. Kevin Tracey, chief resident in neurosurgery when I was a surgical resident at what is now NewYork-Presbyterian/Weill Cornell Medical Center, was an initial reporter on tumor necrosis factor alpha, initiating the understanding of cytokines. He is now president and CEO of the Feinstein Institutes for Medical Research at Northwell Health and a current leader in cytokine research, trained at NewYork-Presbyterian/Weill Cornell. A credit to Weill Cornell, like **Anthony Fauci, MD '66.** I am so very grateful for the incredible training in such broad areas that I was

MAJOR MILESTONE: Conor Jones, MD '21 (left), and Eric Caliendo, MD '21, are all smiles at the celebration at the Belfer Research Building.



Weill Cornell Medicine



TOAST TO THE FUTURE: Andrew Eidelberg, MD '21 (left), and Alice Chung, MD '21, on Match Day

given at Weill Cornell Medicine. I hope today's students will benefit even more."

2000s

Michelle Loy, MD '01: "I am thrilled to return to NewYork-Presbyterian/Weill Cornell as an integrative medicine physician at the Integrative Health and Wellbeing Program, with joint appointments in the departments of medicine and pediatrics. I utilize evidence-based modalities of both innovative modern medicine and time-tested integrative and lifestyle modalities of nutrition, acupuncture, botanical medicine, medical yoga, and mind-body medicine to help my patients achieve optimal wellbeing. I have enjoyed lecturing and mentoring med students, residents, and fellows and am passionate about supporting fellow physicians and physicians-in-training in self-reflection and healthy self-care."

Lilly-Rose Paraskevas, MD '04: "I graduated in 2004 and did my residency in dermatology. I am in solo practice at Rose Dermatology and have been serving the New York City community since 2012. I volunteer to teach dermatology residents at SUNY Downstate in advanced cosmetic techniques. I am also a mother of three, all under 8 years old."

2010s

Katherine Heyman Saunders, MD

'11: "My son, Parker, is now 2-1/2 and I had boy/girl twins, Griffin and Charlie (short for Charlotte), in May 2020. I'm still practicing obesity medicine at the Comprehensive Weight Control Center at Weill Cornell Medicine and I'm working with our medical director, Dr. Louis Aronne, on a software platform for large-scale delivery of obesity medicine. Our company is called Intellihealth. We're currently integrating with Epic and working with several large academic institutions, self-insured organizations, payers, and pharmaceutical companies."

Peng Wu, BA '03, MD '13: "I am an instructor of pediatrics at Stanford School of Medicine/Lucile Packard Children's Hospital. I received the Damon Runyon-Sohn Pediatric Cancer Fellowship award for 2019–23, which funds innovative research on hepatoblastoma, using new methods to culture patient-derived cells in 3D."

Paul W. Furlow, MD '15, completed his general surgical residency at the Massachusetts General Hospital in June and is remaining there as a cardiothoracic surgery fellow on the thoracic track. He and his wife, Jennifer, welcomed their second child, Stella Daisy, in September 2019.

Graduate School of Medical Sciences

Ian A. White, PhD '09, an expert in regenerative medicine research and founder and chief scientific officer of NeoBiosis, is working with the University of Florida's UF Innovate Sid Martin Biotech incubator to develop a therapy for COVID-19 long-hauler syndrome. His company has submitted an investigational new drug application to the FDA.

Aaron Chang, PhD '18: "I have started a new position as a scientist in the bispecific antibodies department at Regeneron Pharmaceuticals."

Meredith Whitaker, PhD '20: "I am volunteering with an organization called Covid Act Now to run a newsletter about COVID research, with the goal of helping individuals with backgrounds in science and medicine be well-informed about the primary literature coming out during the pandemic. The newsletter is very much aimed at an academic and clinician audience, so it may be of interest."

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ALUMNI

'45 MD—Charlotte Rush Brown of Providence, RI, February 4, 2021; pediatrician; one of two women graduates in her WCM class; director of health for New Canaan and Wilton, CT; taught pediatrics at Bellevue Hospital on the faculty of NYU Grossman School of Medicine; recognized for her work in substance abuse prevention, housing for the elderly, fluoridation, HIV/AIDS, and school health; volunteered in Haiti, Africa, and the Middle East; served on mission boards for the National Presbyterian Church; enjoyed travel, figure skating, kayaking, cycling, sailing, sculpting, and speaking French; active in community, professional, and religious affairs.

'47 BA, MD '50—David Barr of East Hampton, NY, November 8, 2020; thoracic surgeon, Lenox Hill Hospital; fellow in heart surgery, the Cleveland Clinic; enjoyed classical piano, gardening, and photography; active in professional affairs.

'53 MD—Ward O. Griffen Jr. of Frankfort, MI, July 21, 2020; executive director and secretary-treasurer, American Board of Surgery; chairman, department of surgery, University of Kentucky; professor of surgery, University of Minnesota; Rotarian; counseled prisoners as part of St. Ann's Church jail ministry; enjoyed fishing, gardening, reading, and playing cards; active in community and professional affairs.

'49 BA, MD '53—Ira H. Kaufman of Houston, TX, August 21, 2020; clinical professor of ophthalmology, Weill Cornell Medicine; attending physician in charge of ophthalmology, North Shore University Hospital; patron of the arts; accomplished jazz pianist; active in community and professional affairs.

'53 MD—Heinz Valtin of Alexandria, VA, October 11, 2019; professor emeritus and chair of physiology, Dartmouth Medical School (now Geisel School of Medicine); expert in renal physiology; endocrinologist; performed pioneering research on the effects of the hormone vasopressin on water regulation in the kidney; wrote three textbooks on the kidneys and water balance; enjoyed opera, art, and travel; active in professional affairs.

'50 BA, MD '54—David Eisenberg of Rochester, NY, May 6, 2020; internist and gastroenterologist, Highland and Strong Memorial hospitals; veteran; enjoyed reading, music, skiing, racquet sports, golf, swimming, camping, sailing, and travel; active in com-

munity, professional, and religious affairs.

'55 MD—Jane Walker Garfield of Blue Hill, ME, September 22, 2020; worked on the initial cure for tuberculosis; director, pulmonary clinic, Bellevue Hospital; head of the international medical department of Mobil Oil; operated three clinics in the Bahamas; operated MedNow and the Free Clinic in Blue Hill, ME; enjoyed sailing, reading, scuba diving, and bridge; active in community, professional, and religious affairs.

'57 MD—Wallace G. Campbell Jr. of Jacksonville, FL, November 10, 2020; professor of pathology at Weill Cornell Medicine and Emory University School of Medicine; staff pathologist at Emory University, Grady Memorial, and Henrietta Egleston hospitals; US Public Health Service research training fellow in pathology; president, Atlanta Society of Pathologists; published articles on experimental hypertension and vascular disease, synovial ultrastructure, and *Pneumocystis*; veteran; enjoyed reading, gardening, tennis, golf, travel, music, poetry, languages, dogs, and building models; active in community and professional affairs.

'57 MD—Audrey W. Mertz of San Luis Obispo, CA, formerly of Honolulu, HI, May 25, 2020; California state staff physician and forensic psychiatry expert in Sacramento and at Atascadero State Hospital; deputy director of health, State of Hawaii; advocate for women and children; enjoyed gardening; active in civic, community, and professional affairs.

'58 MD—Sumner Marshall of Kensington, CA, October 26, 2020; urologist; surgeon; taught at UC San Francisco; author; enjoyed travel.

'56 BA, MD '60—Gideon G. Panter of Palisades, NY, December 23, 2020; ob/gyn; associate professor of ob/gyn, Weill Cornell Medicine; expert in women's health and infertility; innovator in surgical technology; active in professional and religious affairs.

'61 MD—Donald T. Fredrickson of New York City, August 27, 2020; physician, US Public Health Service; director, Inter-Society Commission for Heart Disease Resources; district health officer, New York City; advocated for the elimination of cigarette advertising on TV and the establishment of no-smoking sections on commercial aircraft; taught at NYU Grossman School of Medicine and Manhattan

VA Medical Center; active in community and professional affairs.

'58 BA, MD '62—Robert W. Brennan of Cornwall, PA, March 17, 2020; neurologist.

'62 MD—Edwin Ettinger of North Palm Beach, FL, February 26, 2021; born in Yonkers, NY; served in the US Navy; cardiologist in NYC for many years.

'66 MD—John J. Carthy of Tampa, FL, February 6, 2021; practiced family medicine at Clifton Fine Hospital for more than 45 years; established family medicine and laser therapy practices in Tampa; veteran; avid pilot, sailor, and fisherman.

'69 MD—David W. Boyer Jr. of Rapid City, SD, and Westcliffe, CO, November 28, 2020; orthopedist; founder, Black Hills Orthopedic and Spine Center; veteran; active in professional affairs.

'75 MD—Thomas R. Beck of Concord, MA, May 25, 2020; executive partner, F-Prime Capital; president and COO, Dyax Corp.; corporate VP of research and development, UCB; CEO, Cytomed; president, Enzytech; nephrologist; assistant professor of medicine, Temple University; enjoyed travel, theater, music, and the Red Sox; active in community and professional affairs.

'75 MD—Joseph P. Ferrara of Rockville Centre, NY, June 9, 2020; primary care physician, Prominis Medical Services; general surgeon; active in professional affairs.

'82 MD—James W. Feeley III of Warrenton, VA, April 11, 2020; family medicine physician.

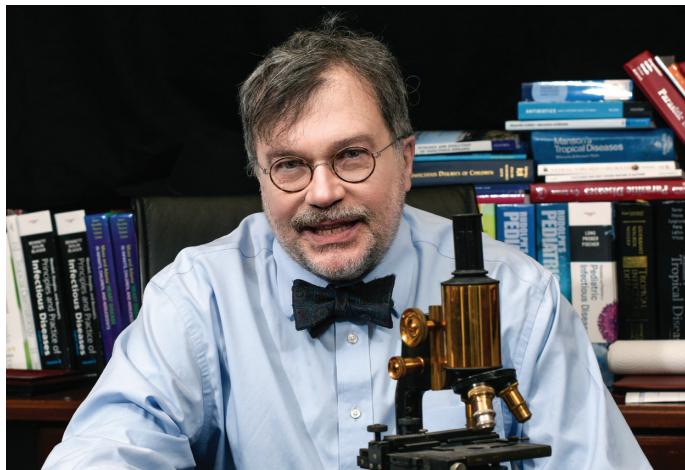
'82 MD—Jose F. Flores Jr. of Montebello, CA, October 2020; NASA physician; endocrinologist; worked at the International Space Station headquarters in Moscow, Russia; musician; spoke seven languages.

FACULTY

Hung-Ching (Helen) Liu, PhD, of New York City, January 8, 2021; director, Reproductive Endocrine Laboratory, Weill Cornell Medicine; director of endocrine diagnostic laboratories at the Jones Institute, Eastern Virginia Medical School; established the reproductive endocrinology laboratory at SUNY Health Science Center at Stony Brook; assistant professor of ob/gyn at the State University of Campinas, São Paulo, Brazil; researched the possible anti-cancer properties of anti-Mullerian hormone.

His Best Shot

Peter Hotez, MD '87, PhD, advocates for acceptance of vaccines—and works to develop new ones to protect some of the world's most vulnerable people



Peter Hotez, MD '87, PhD

As co-director of the Texas Children's Hospital Center for Vaccine Development, Peter Hotez, MD '87, PhD, has appeared on TV and radio throughout the COVID-19 pandemic—not just to educate Americans about getting vaccinated against the virus, but also to decry anti-vaccine and anti-science activism. And with that work has come periods when he receives a slew of hate mail. “I've been enduring some threats by extremist groups,” he observed during an interview in mid-May, noting that he has been in contact with law enforcement and sought advice from the Anti-Defamation League.

Hotez—who is also founding dean of the National School of Tropical Medicine at Baylor College of Medicine—is one of the world's few experts who focuses on all three aspects essential to the success of vaccines: developing new ones, addressing resistance to accepting them, and promoting efforts to make them available worldwide. In May, his alma mater honored his achievements with the 2021 Weill Cornell Medical College Alumni Association Award of Distinction.

Hotez co-leads a vaccine science team (with his twenty-year science partner, Maria Elena Bottazzi, PhD) at Texas Children's Hospital, where they've developed new vaccines for so-called “neglected” tropical diseases such as hookworm infection—a project he began as a student in the Tri-Institutional MD-PhD Program—schistosomiasis, and Chagas disease. The Center for Vaccine Development is also no stranger to coronaviruses; they've been working on SARS-CoV and MERS-CoV vaccines for nearly a decade, experience that enabled them to mobilize quickly to help develop a low-cost COVID-19 vaccine that could protect millions in the developing world. In 2014, Hotez was named a U.S. Science Envoy by the Department of State, tasked with spearheading joint

development of vaccines between the center and institutions in the Middle East and North Africa. That work was part of an endeavor known as “vaccine diplomacy”—which, in his recent book, *Preventing the Next Pandemic*, he calls essential to addressing “this new world order in disease and global health.”

Growing up in Connecticut, Hotez was fascinated with geography and microbes; tropical medicine, he says, “was a perfect combination of those two.” After earning an undergraduate degree in molecular biophysics from Yale, an MD from Weill Cornell, and a doctorate in biochemistry from The Rockefeller University, he went on to residency in pediatrics at Massachusetts General Hospital and fellowship in infectious diseases and molecular parasitology at Yale. When he began his career, he didn't anticipate that so much of his time would be taken up by public engagement. But, he says, “I realized that the diseases we were working on were getting left out by global policymakers in favor of AIDS, malaria, and tuberculosis; in fact, they called our diseases ‘other diseases.’ ”

This led him and colleagues to—in what he calls a “rebranding exercise”—coin the term “neglected tropical diseases”; it also showed him the power of advocacy. Over the past decade, Hotez has taken on additional science policy work and has been increasingly involved in opposing the anti-vaccine movement—which he has challenged not only as an expert but as a father. “I said, ‘I am a vaccine scientist, a pediatrician, and the parent of an adult daughter with autism; if I don't speak up against this, who will?’ ”

Hotez is one of the world's few experts who focuses on all three aspects essential to the success of vaccines.

recalls Hotez, noting that what began as a fringe group formed around the now-debunked belief that vaccines cause autism has evolved into a politicized movement that's becoming more mainstream across conservative groups. In 2018, Hotez published *Vaccines Did Not Cause Rachel's Autism: My Journey As a Vaccine Scientist, Pediatrician, and Autism Dad*—which, he says, “made me public enemy number one with the anti-vaccine movement.”

In June 2019, Hotez's work earned him a profile in the *New York Times*—which noted, among other things, that he and colleagues had accurately predicted some half-dozen locations in the U.S. where measles reemerged the previous year due to lower vaccination rates. “It's interesting that in the National Academy of Medicine, I'm in the public health section—but in the American Academy of Arts and Sciences, I'm in the public policy section,” Hotez observes. “And by training, I'm a laboratory investigator. So it's this parallel path that I love.” ■

—Molly Schulson



Through his legacy plans, it was the late Dr. Thomas King's heartfelt wish to pay forward the support and mentorship he received during his long career at Weill Cornell Medicine.

A beloved physician-scientist at Weill Cornell Medicine for 47 years, Dr. Thomas King, a professor of clinical medicine, was determined to express his gratitude to the institution he had come to call home.

The Thomas K. C. King, M.D. Pulmonary Fellow Research Fund was established with a current multi-year pledge and a future bequest from his wife Amy King, and their family.

Dr. King's legacy will further cutting-edge research in pulmonary medicine and serve as a fitting tribute to a man who exemplified the best of academic medicine.

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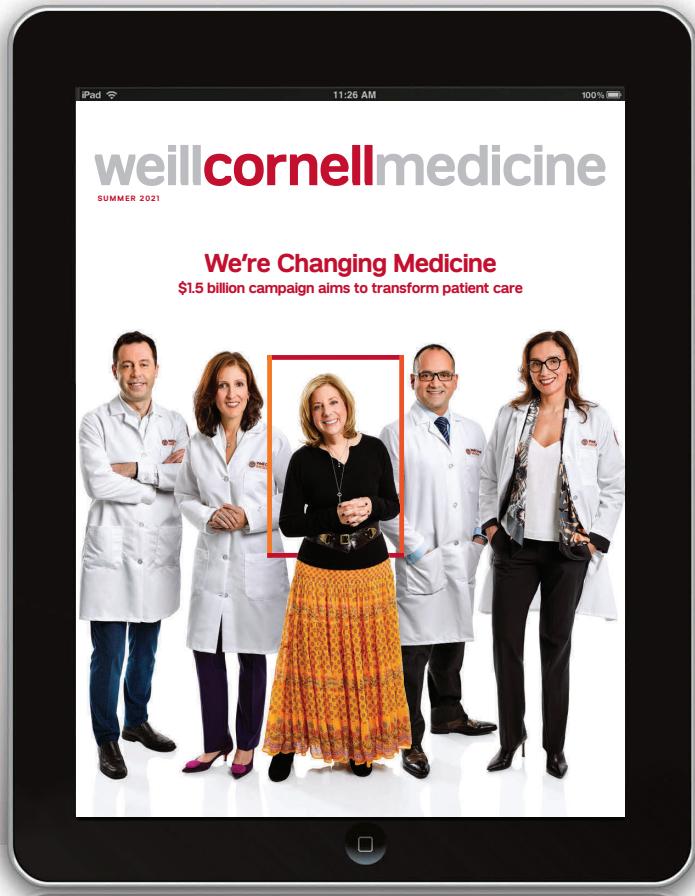
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