

SUMMER/FALL 2021

# EINSTEIN

THE MAGAZINE FOR ALUMNI AND FRIENDS OF ALBERT EINSTEIN COLLEGE OF MEDICINE



THE  
**HOSPITALIST**  
WILL SEE YOU NOW



## A Message From the Dean

After a year and a half of virtual events prompted by the COVID-19 pandemic, we're seeing signs of rebirth on campus. The Class of 2021 celebrated its commencement with an outdoor ceremony in May; Einstein was the only New York City medical college to hold an in-person graduation this year (page 8). And in August, first-year medical students of the Class of 2025 gathered under a tent in the Central Courtyard to receive their white coats.

Other changes are happening, too. In July, the Middle States Commission on Higher Education granted Einstein full accreditation for all its doctoral and master's degrees and certificate programs—completing Einstein's transformation to a fully independent academic entity (page 3). This further solidifies our partnership with Montefiore and helps ensure our future as a top-tier medical school and leading biomedical research institution.

A profound shift now underway in hospitals is the focus of our cover story, "The Hospitalist Will See You Now." It describes a breed of physicians who specialize in caring for hospitalized patients. The article spotlights Einstein-Montefiore's Shitij Arora, M.B.B.S. (pictured on the cover), a hospitalist who pioneered a bold treatment strategy early in the pandemic that has led to dramatic turnarounds for severely ill COVID-19 patients (page 20).

Our second feature article, "From Guppies to X-Rays to T Cells" (page 32), details the journey of Steve Almo, Ph.D., Einstein's chair of biochemistry. Nearly 20 years ago, an elevator chat



with a colleague led to a collaboration that lasted more than a decade and the beginning of Dr. Almo's second career, as an immunologist. He conceived the idea of developing novel fusion proteins that can be tailored to fight many types of cancer, autoimmune diseases such as type 1 diabetes, and even HIV/AIDS.

The Greek philosopher Heraclitus said nothing endures but change. Our ability to adapt to a worldwide health crisis has served us well over these past 18 months, and I'm confident we are emerging stronger as a result. Better days are indeed ahead.

GORDON F. TOMASELLI, M.D.  
The Marilyn and Stanley M. Katz Dean  
Albert Einstein College of Medicine  
Executive Vice President, Chief Academic Officer  
Montefiore Medicine

### EINSTEIN

Science at the Heart of Medicine

Summer/Fall 2021

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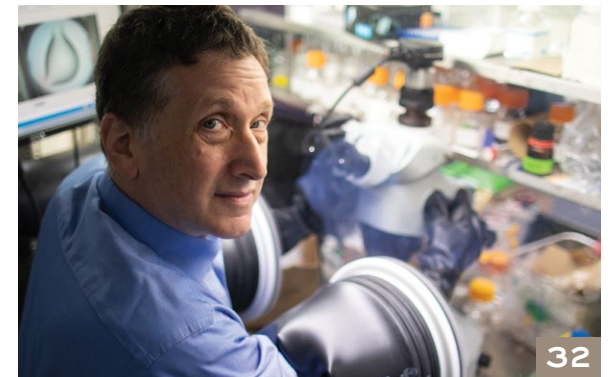
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**ON THE COVER:** Shitij Arora, M.B.B.S., associate professor of medicine at Einstein and a hospitalist at Montefiore, co-authored an August 2020 study that found that a simple and inexpensive blood test could help determine which COVID-19 patients would be most likely to benefit from steroid therapy and which ones would be harmed (see page 20). Cover photo by Jason Torres



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## New Cancer Center Appointments

### Prominent Scientist to Launch New Cancer Research Institute



Top cancer biologist **Julio Aguirre-Ghiso, Ph.D.**, has been chosen as the founding director of the Cancer

Dormancy and Tumor Microenvironment Institute at the Albert Einstein Cancer Center (AECC). Dr. Aguirre-Ghiso also has been named the new director of the Gruss Lipper Biophotonics Center and co-leader of the AECC Tumor Microenvironment and Metastasis Program. An endowed professor of cell biology at Einstein, he assumed his new roles on Oct. 1, 2021.

The new institute will build upon the current strengths in tumor

microenvironment research at Einstein while expanding to include cancer dormancy, which closely aligns with the biology of aging, stem cells, epigenetics, and systems biology. The institute will also focus on developing technologies to better detect dormant cancer and prevent and control recurrent disease.

Dr. Aguirre-Ghiso and colleagues helped lead a major shift in cancer biology by showing that cancer is not perpetually proliferating, as had been thought. They discovered that cross talk between cancer cells and the tumor microenvironment regulates the cells' ability to switch between dormancy and proliferation. His lab has provided key insights into the early spread of breast cancer and how that process contributes to dormancy and to metastatic

progression. His research has also explored how adaptive pathways within cancer cells enable the cells to survive while in a state of dormancy.

Those insights led Dr. Aguirre-Ghiso to develop novel strategies for preventing cancer recurrences by targeting residual cancer cells that have survived initial chemotherapy. He has founded a start-up company, HiberCell, that is conducting clinical trials and drug development.

Dr. Aguirre-Ghiso most recently was an endowed chair, Mount Sinai Professor in Cancer Biology, in the departments of medicine, otolaryngology, and oncological sciences at the Icahn School of Medicine at Mount Sinai. He received his Ph.D. from the University of Buenos Aires, Argentina.

### Deputy Director of Administration to Lead Operations



**Lauren Hackett, M.P.A.**, has been appointed the deputy director of administration of the Albert

Einstein Cancer Center (AECC) and associate vice president of cancer medicine at Montefiore Medicine.

Ms. Hackett, who assumed her new role in August 2021, has oversight and authority over the administrative team and structure, running all aspects of operations at AECC. A key part of her

role is to partner with senior leaders at AECC, Einstein, and Montefiore to align and implement strategic priorities across its cancer enterprise.

Most recently she was chief operating officer at the nonprofit Allen Institute, where she co-developed its comprehensive diversity, equity, and inclusion initiative. She also worked to integrate scientific strategy and planning.

Ms. Hackett has served for more than seven years as the executive director for administration and chief business officer at the Vanderbilt-Ingram Cancer Center in Nashville, Tennessee. She played an integral role in supporting

the translation of discovery research into clinical practice at Vanderbilt. She also served as the executive director for administration at the New York University Cancer Institute and held similar roles with the Yale School of Medicine and the Yale Cancer Center. Additionally, she was the director of sponsored programs at Rockefeller University.

Ms. Hackett continues to serve on numerous National Cancer Institute-designated cancer centers' external advisory boards and is a peer reviewer for site-visit teams and committees for the institute.

### Cancer Center Surgical Director Named



Leading cardiothoracic surgeon and researcher **Brendon Stiles, M.D.**, has been appointed chief of the divisions

of thoracic surgery and surgical oncology in the department of cardiothoracic and vascular surgery at Montefiore and assistant professor of cardiothoracic & vascular surgery at Einstein. He also has been named the associate director of surgical services at the Albert Einstein Cancer Center.

Dr. Stiles' clinical focus is on the treatment of lung and esophageal cancer and unusual thoracic cancers, including metastatic tumors and those invading the heart. He has built a reputation for his "patient-first" approach, which includes his pioneering use of minimally invasive, organ-sparing surgery for early tumors. In his new role, Dr. Stiles says, he plans to address health disparities in lung cancer by increasing screening of vulnerable populations.

Previously Dr. Stiles was on the faculty at NewYork-Presbyterian/Weill Cornell Medical Center, where he and his team discovered the role that a protein, ADP-ribosyltransferase 1, plays in helping lung cancer cells evade the immune system. His current research, which is supported by a Department of Defense grant, is focused on translating this discovery into new therapies.

Dr. Stiles is the chair of the board of directors of the Lung Cancer Research Foundation and serves as the vice chair of its Scientific Advisory Board.



## Einstein Receives Full Independent Accreditation

In July, the Middle States Commission on Higher Education, a regional organization that accredits its universities and colleges, voted to grant Einstein full accreditation for all its doctoral, master's degree, and certificate programs, which completes Einstein's transformation to a fully independent academic entity.

Montefiore's president and chief executive officer, Philip O. Ozuah, M.D., Ph.D., together with Gordon Tomaselli, M.D., the Marilyn and Stanley M. Katz Dean at Einstein and executive vice president and chief academic officer at Montefiore, announced the accreditation, noting that it will allow Einstein and Montefiore to "expand and enhance all of our joint efforts. Further, it will enhance Einstein's already outstanding academic reputation, which has been a hallmark of the institution since it opened its doors more than six decades ago."

As a federally recognized, distinct academic institution, the College of Medicine will now have greater access to student loans, eligibility for federal programs that are restricted to educational institutions, and the ability to

operate using an ".edu" web address.

Drs. Ozuah and Tomaselli called the accreditation "a transformational moment and the culmination of a tremendous amount of work by many people over six years" and noted that "it is a clear endorsement of the quality of our entire academic enterprise and all who work here."

A team of some 150 students, faculty members, and administrators were involved in the two-stage Middle States application process. It was led by Edward Burns, M.D., executive dean at Einstein, along with Penny Steiner-Grossman, Ed.D., associate professor of family and social medicine and former assistant dean of medical education at Einstein, and Ariel Fishman, Ph.D., senior director of institutional research, assessment, and reporting at Einstein.

In March 2021, seven peer evaluators from the Middle States Commission made a final Einstein site visit, which included meetings with students, faculty, and professional staff. The commission voted in July to grant Einstein full accreditation.



## New Translational Research Leader Named



Physician-researcher **Marla J. Keller, M.D.**, has been named the director of the Harold and Muriel Block

Institute for Clinical and Translational Research at Einstein and Montefiore, funded by the Clinical and Translational Science Awards (CTSA) Program of the National Institutes of Health (NIH).

Dr. Keller will also become the principal investigator (PI) on Einstein's CTSA grant. She has served as the associate director of the institute since 2016 and as co-PI of the CTSA since 2015.

A professor of medicine and of obstetrics & gynecology and women's health at Einstein, Dr. Keller is also the vice chair for research in the department of medicine at Einstein and Montefiore, and an infectious-disease specialist at Montefiore.

Dr. Keller's research interests include the prevention and treatment of HIV and herpes in adult and adolescent women. She also conducts studies to examine the effects of bacterial vaginosis, herpes, and HIV on female genital tract immunity and the vaginal microbiome.

Since the spring of 2020, Dr. Keller has been leading the COVID-19 Treatment Task Force for the

department of medicine to provide guidance on therapeutic management of patients with COVID-19.

Dr. Keller holds numerous local and national leadership positions. She is a member and a fellow of the Infectious Diseases Society of America, a member of the HIV Medicine Association, and a scientific member of the U.S. Department of Health and Human Services' Panel on Antiretroviral Guidelines for Adults and Adolescents Living with HIV.

She also serves as a scientific member of the NIH's COVID-19 Treatment Guidelines Panel, established by Anthony Fauci, M.D., in the spring of 2020.

## Research Teams Secure Life-Science XSeed Awards



**T**wo teams of scientists at Einstein have received \$100,000 XSeed Awards—part of a new program supporting early stage life-science projects that have startup potential.

The funding comes from the Deerfield Management Company, a healthcare investment firm that is coordinating with local government agencies to promote life sciences in New York City.

Recipients of the \$100,000 XSeed Awards are: Jonathan Lai, Ph.D., professor of biochemistry at Einstein, for his work on alphavirus-associated arthritis, a debilitating musculoskeletal condition that can persist for years after infection; and Andras Fiser, Ph.D., John Blanchard, Ph.D., Simone Sidoli, Ph.D., and Johanna Daily, M.D., M.S., for their work in rapidly identifying drugs that are effective against the disease-causing bacterium *Klebsiella pneumoniae*, which has become increasingly resistant to antibiotics.

At Einstein, Dr. Fiser is a professor of systems & computational biology and of biochemistry; Dr. Blanchard is the Dan Danciger Professor of Biochemistry; Dr. Sidoli is an assistant professor of biochemistry; and Dr. Daily is a professor of medicine and of microbiology & immunology.

## Inaugural Associate Dean for Postdoctoral Affairs



**Anne Bresnick, Ph.D.**, who since 2015 has directed the Belfer Institute for Advanced

Biomedical Studies, the administrative home for postdoctoral trainees at Einstein, has been promoted to the new senior leadership position of associate dean for postdoctoral affairs.

Since Einstein's Belfer Institute was established in 1979, it has served approximately 2,500 postdocs and currently supports 270 young investigators. Its chief goal is to provide the best possible scientific training and social

environment for postdoctoral researchers. In addition, the division has long sponsored the annual Dennis Shields Postdoctoral Research Prizes, which recognize research excellence among the fellows.

Under Dr. Bresnick's leadership, the Belfer Institute has enhanced Einstein's position as a preeminent training ground in biomedical science. Over the past six years, she has developed numerous programs and initiatives designed to enrich the postdoc experience at Einstein. These range from establishing an enhanced career and professional development program with the graduate division to securing more postdoctoral housing on campus and working with human resources to provide additional

health benefits, free gym membership, and an expanded childcare program.

A professor of biochemistry, Dr. Bresnick is a cancer researcher whose work focuses on understanding the mechanisms mediating tumor cell migration, invasion, and metastasis. Her lab seeks to develop novel treatments that improve the cancer survival rate of patients by preventing the disease from spreading throughout the body.

Dr. Bresnick joined Einstein as a graduate student in the department of anatomy and structural biology. She received her Ph.D. from Einstein in 1991 and completed her postdoctoral fellowship at the Johns Hopkins School of Medicine in 1996.

## Marmur Symposium Celebrates 25 Years

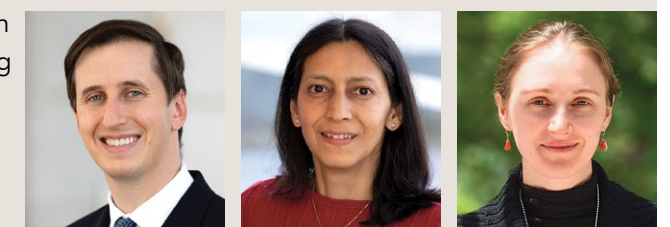
**T**he Einstein research community celebrated the 25th anniversary of the Julius Marmur Awards on March 22 with a virtual symposium in which this year's three winners presented their research, followed by a panel of four previous awardees, who shared their experiences and offered advice.

The award is given each year by Einstein's Graduate Programs in the Biomedical Sciences to three graduate students in recognition of their exceptional contributions to research in their fields.

The prize was established a

quarter century ago in memory of pioneering molecular biologist Julius Marmur, Ph.D., who was a member of Einstein's faculty for 33 years until his death in 1996.

This year's winners, who represent a range of basic-science fields, included Helen M. Belalcazar, Ph.D., whose mentor was Julie Secomb, Ph.D., professor of genetics and in the Dominick P. Purpura Department of Neuroscience; Marta Gronska-Peski, Ph.D., whose mentor was Jean



From left, Marmur Award winners Joshua Weinreb, Helen M. Belalcazar, and Marta Gronska-Peski.

Hébert, Ph.D., professor in the Dominick P. Purpura Department of Neuroscience and of genetics; and Joshua Weinreb, M.D./Ph.D. candidate, whose mentor is Teresa Bowman, Ph.D., associate professor of developmental and molecular biology and of medicine.



## Students Win AOA Grant for Vaccine Education



Einstein third-year medical student Taneisha Sinclair, right, gives a COVID-19 vaccine to first-year med student Samantha Goulding at Weiler Hospital in January 2021.

Einstein's Community Corps, a new student-led service group, has received a three-year, \$9,000 grant to better understand and address vaccine disparities in the Bronx.

The Einstein office of medical education (OME) has matched the award, which was given by the national honor medical society Alpha Omega Alpha (AOA). Einstein is one of only four institutions to receive an AOA Medical Student Service Leadership Project Grant for 2021.

The Community Corps will work closely with Einstein's Community-Based Service Learning Program and OME leadership to:

- Understand vaccine hesitancy and barriers in the Bronx by interviewing

patients who elect not to receive recommended vaccines, including shots to prevent COVID-19, influenza, hepatitis A and B, pneumococcal pneumonia, and other illnesses;

- Enhance our medical student curriculum to further educate students about factors underlying disparities;
- Launch a public-health campaign to engage patients in discussions that address their vaccine concerns; and
- Distribute surveys, analyze results, and identify areas for improvement.

Third- and fourth-year medical students will coordinate the logistics of the project; members of each medical school class year will be included in subcommittees to ensure its continuity.

## Einstein Places 2nd in Global Health Competition

Three Einstein medical students were part of a team that placed second among 52 university and college groups in the Emory Morningside Global Health Case Competition, held virtually this year in March.

The annual event is an academic simulation that challenges students to address a real-world global health issue. The six-member team consisted of Einstein's Andrew Brook, Chetali Jain, and Scott Wilson, as well as two public-health students from the City University of New York and a student from the Cardozo School of Law.

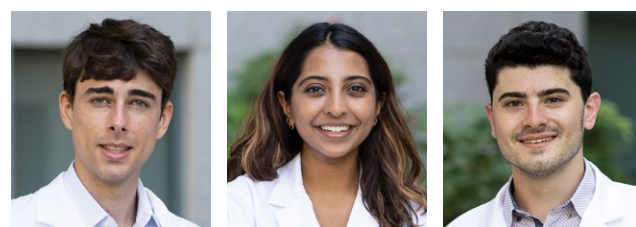
They were given just four days to design a COVID-19 vaccination program and find solutions for challenges

such as vaccine hesitancy and inequitable distribution. The team selected Nigeria from four countries offered in this year's case challenge.

The students focused on reaching Nigerian youth through TV ads, a cell-phone app, and social media. They also recommended mobile vaccine units and meetings with local religious leaders.

Adebola Adedimeji, Ph.D., M.B.A., research associate professor of epidemiology & population health at Einstein, served as an adviser to the students.

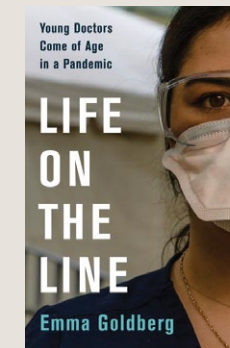
Einstein's teams have placed among the top three for two years in a row in



From left: Einstein medical students Scott Wilson, Chetali Jain, and Andrew Brook, members of the 2021 team.

the competition. "The students tell me it is one of their best learning experiences. And they see how valuable it is to work as part of an interdisciplinary team," says Jill Raufman, M.P.H., M.S., director of Einstein's Medical Student Global Health Programs and associate director of the Global Health Center, which sponsors the teams each year.

## Coming of Age in a Global Pandemic



The stories of three Einstein medical school graduates who signed up to fight COVID-19 during the height of the pandemic in the Bronx in the spring of 2020 are told in a new book written by *New York Times* reporter Emma Goldberg. In *Life on the Line: Young Doctors Come of Age in a Pandemic*, published by HarperCollins, Ms. Goldberg interviews six newly minted New York City doctors, three of whom are members of Einstein's Class of 2020.

The three—Drs. Iris Aimlin, Elana Levy, and Ben Liu—took up Einstein's offer to graduate early and join the front lines at Montefiore hospitals, where they all matched for their residencies. It was not an easy decision to make as New York City hospitals filled with COVID-19 patients. But as Dr. Aimlin says in the book to her friend and classmate Dr. Levy, "What would 50-year-old Elana look back and wish you had done?" The author chronicles how each of the young physicians spent those historic weeks. The story was pieced together from lunch-break phone calls, subway-platform conversations, and late-night interviews.

"They took an oath," Ms. Goldberg writes. "They took deep breaths. And each morning they put on their scrubs and went to work."

## Mentor of the Year Honor

Juan Robles, M.D. '11, has received the National Mentor of the Year Award from the Latino Medical Student Association (LMSA) for his efforts to support Bronx students who are pursuing healthcare careers and to create a more inclusive workforce dedicated to underserved communities.

Dr. Robles is an assistant professor of family and social medicine at Einstein, a primary-care physician at Montefiore, and co-founder of the Bronx Community Health Leaders, a peer-support group



for college and postcollege students who are underrepresented in medicine. The organization facilitates networking, provides guidance and mentoring, engages in community service, and helps develop the leadership skills essential to becoming a healthcare provider.

In choosing Dr. Robles for the award, which was given virtually in March, the LMSA's national board of directors stated that it was "inspired by his outstanding mentorship" and "the impact that he has had on the lives and trajectories of so many trainees."

## Radcliffe Fellow, Tech Innovator

Libusha Kelly, Ph.D., has been selected for a fellowship by the Radcliffe Institute for Advanced Study at Harvard University, one of the world's top centers for interdisciplinary research. She was one of 52 individuals chosen for the honor from nearly 1,400 scientists, artists, scholars, and practitioners.

Dr. Kelly, associate professor of systems & computational biology and of microbiology & immunology, uses experimental and computational technologies to understand the dynamics of the diverse microbial communities that play a role in human health. As a 2021–22 Radcliffe fellow, she will perform research focusing on the vaginal microbiome.

In a separate announcement, she

also has been named to the inaugural class of Google's Research Innovators program, which supports a global community of researchers who use the increased speed and efficiency of cloud computing to make scientific advances. Dr. Kelly is one of 31 innovators spanning 30 institutions and eight countries who come from the physical, social, and biological sciences

across both industry and academia.

"As new discoveries depend on large-scale data analysis, researchers benefit from sharing technology expertise across otherwise unrelated disciplines," Google explained in its program overview.



### WATCH THE VIDEO

Dr. Kelly talks about women in science and what inspires her:

[magazine.einsteinmed.org/Kelly21](https://magazine.einsteinmed.org/Kelly21)



# Einstein Celebrates With Outdoor Commencement

Einstein—the only New York City medical college to hold an in-person graduation this year—celebrated its 63rd commencement on a beautiful spring afternoon. At the outdoor ceremony on May 27, the first held on campus in two decades, Einstein conferred 172 M.D. degrees and 14 Ph.D. degrees. An additional 11 graduates of Einstein’s Medical Scientist Training Program received both an M.D. and a Ph.D. degree.

David Kessler, M.D., chief science officer for the White House COVID-19 Response Team, delivered a virtual commencement address (see page 10).

“This remarkable group of physicians and scientists in Einstein’s Class of 2021 overcame significant challenges caused by the COVID-19 pandemic to complete their studies and earn their

diplomas,” said Gordon F. Tomaselli, M.D., the Marilyn and Stanley M. Katz Dean at Einstein and executive vice president and chief academic officer at Montefiore Medicine. “We salute their resilience and achievements.”

The ceremony was held under a canopy on the lawn of the Michael F. Price Center for Genetic and Translational Medicine/Harold and Muriel Block Research Pavilion. Some graduates chose to participate virtually. Restrictions on gatherings during the COVID-19 pandemic required parents and guests to observe the ceremony in the nearby Central Courtyard via video feed.

 **WATCH THE VIDEO**  
View Einstein’s graduation:  
[magazine.einsteinmed.org/graduation21](https://magazine.einsteinmed.org/graduation21)

THIS PAGE, from left: Yeshiva University’s president, Ari Berman, Ph.D.; Montefiore’s president and chief executive officer, Philip O. Ozuah, M.D., Ph.D.; and Einstein’s dean, Gordon Tomaselli, M.D., together at Einstein’s outdoor commencement. At right are Ruth Gottesman, Ed.D., chair of Einstein’s Board of Trustees, and Edward Burns, M.D., executive dean at Einstein.

OPPOSITE PAGE, clockwise from top: Members of Einstein’s Class of 2021 line up outside before their outdoor commencement ceremony; Kristin Williams, M.D., is hooded by Damien Jackson, M.Ed., Einstein’s assistant dean of student finance; Dr. Tomaselli addresses the graduates on the lawn of the Michael F. Price Center; medical school graduates celebrate after receiving their degrees; and Virginia Folgado Marco, left, and Basia Galinski smile after receiving their Ph.D.s.



Photos by Jason Torres





Q&amp;A With Dr. David Kessler

## White House COVID-19 Response Leader Delivers Einstein Commencement Address

Photo by Hassan Malik Photography



**“Along with the privilege that accompanies a medical or graduate degree comes the responsibility to tackle a whole host of issues. Everybody will find their calling.”**

— DR. DAVID KESSLER

**D**avid A. Kessler, M.D., is the chief science officer for the White House COVID-19 Response Team. He is a former commissioner of the U.S. Food and Drug Administration (FDA) (1990–1997), former medical director of the Jack D. Weiler Hospital, and former dean of the medical schools at the University of California San Francisco (UCSF) and Yale. He is currently on leave as a professor of pediatrics and of epidemiology and biostatistics at UCSF.

On May 27, Dr. Kessler delivered a virtual commencement address to Einstein’s 197 graduates, who watched his talk via big-screen monitors on campus. (For more on Einstein’s in-person graduation, see pages 8 and 9.) Due to the pandemic, he said, the Class of 2021 has “learned more about medicine in the past year than many doctors learn in a lifetime.” Here, he talks with *Einstein* magazine about his time in the Bronx, his public-health accomplishments, and his hopes for the Class of 2021.

### What was your experience like when you were at Einstein and Montefiore in the 1980s?

I decided back in med school that I wanted to learn how to run hospitals, and so I went to Montefiore—in part because of its commitment to the hospital as a social instrument. I was an attending [pediatrics] in the Jacobi emergency room [ER] and the medical director of Weiler. There was no ER at Weiler at that time, so a lot of program building was needed, and the

ER was the first step.

My other major training ground, which led me to work at the FDA, was when we saw some of the first cases of AIDS, at Rikers Island. I remember exactly where I was standing when Bert King, M.D., who was running the Montefiore Rikers Island Health Service, told me about these cases of fever developing among the prisoners.

Working at Einstein and Montefiore during the beginning of the HIV/AIDS epidemic really shaped me as a physician, even to this day. While I was there I worked closely with Anthony Fauci [M.D.], who was then and still is the director of the National Institutes of Health’s National Institute of Allergy and Infectious Diseases. Back then there was one drug for HIV, and it didn’t work very well. By 1990, when I left Einstein for the FDA, there were close to a dozen drugs. And we changed the course of the illness. Certainly that experience with HIV/AIDS, which started in the Bronx, was very good training for what I am doing today.



Associated Press

David Kessler, M.D., testifies on May 11, 2021, on Capitol Hill in Washington, D.C., during a Senate hearing on efforts to combat COVID-19.

### You’re someone who has long held leadership roles in public health. What accomplishments are you most proud of?

While I was FDA commissioner, I accelerated the approval of antiviral drugs used to treat HIV/AIDS. During that time I also helped create the Nutrition Facts food label, which won the Presidential Design Award. Certainly my most memorable accomplishment at the FDA was investigating the tobacco industry and proposing regulation of the marketing and sale of tobacco products to children.

### Where did your passion for regulating tobacco come from?

One day, somebody came up to me and said, “Commissioner, I think you should regulate tobacco. The FDA regulates every other product that comes in contact with the body, nearly everything

we eat, all our drugs, everything on our skin, in our blood, in our medical devices. Why not tobacco?” The last time that was discussed at the FDA was back in the 1970s, but the FDA didn’t have the jurisdiction then. But this person kept on raising the issue. And I said, “OK, we can start looking into it.”

And we put together an investigative team that went inside the tobacco industry and found what the industry had known for 30 years. We found documents going back to the ’60s that said “We are in the business of selling nicotine—an addictive drug.” The industry knew that tobacco was a drug long before the FDA said it was, and [the industry] manipulated the level of nicotine to keep people smoking. It also targeted young people, because it knew that smokers were dying and it had to replenish them. The tobacco industry had convinced everyone that smoking

was a matter of choices made by adults. But an 11- or 12-year-old experiments and becomes addicted by 16 or 17, so nicotine addiction really begins as a pediatric disease. As a pediatrician, I think the most important thing we did was informing the public of that and making the industry’s argument about “choice” really go out the window.

### How do you see the COVID-19 pandemic evolving over the next year?

Not only in the United States, but around the world, we need to be able to protect people who don’t have access to the vaccine or for whom the vaccine does not confer protection. So we are working on antiviral drugs—something we did for HIV back in the 1990s. Considering the variants that have emerged and the pandemic’s global reach, I think the goal is to transition COVID-19 from a deadly disease to something that can be managed. We are also investing in pandemic preparedness—and we need to, since this won’t be the last pandemic we see.

### Do you have a final message for Einstein students?

I would urge them to seek answers to hard, challenging questions. Along with the privilege that accompanies a medical or graduate degree comes the responsibility to tackle a whole host of issues. Everybody will find their calling. And there’s still a lot of training ahead for these students. But they can make a difference in this world. **E**

**WATCH THE VIDEO**  
See Dr. Kessler’s full commencement address:  
[magazine.einsteinmed.org/Kessler21](https://magazine.einsteinmed.org/Kessler21)



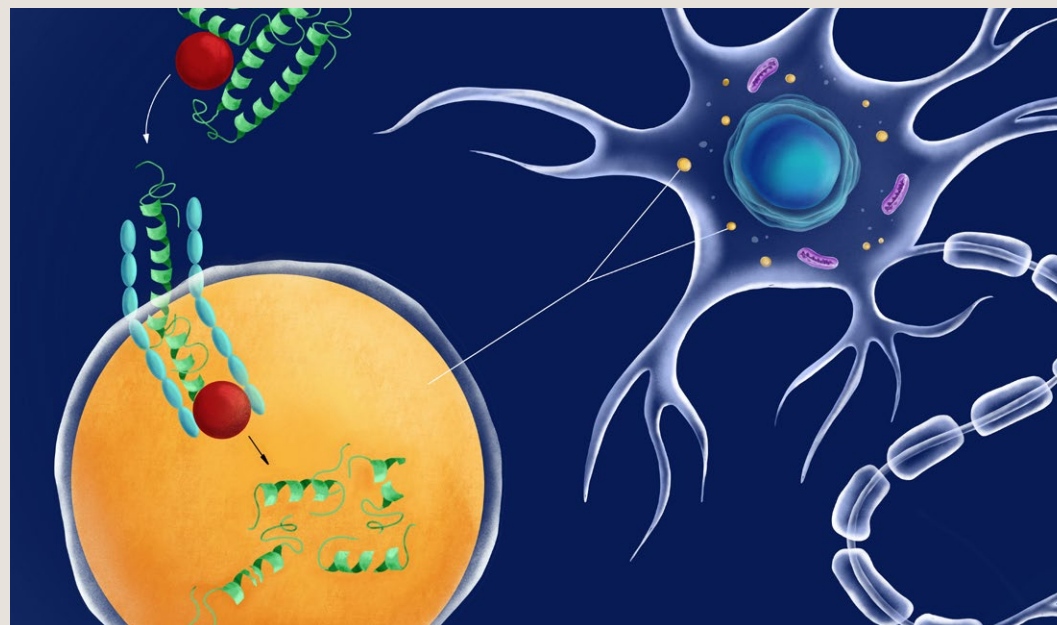
## Experimental Drug May Help Against Alzheimer's

Einstein researchers have designed an experimental drug that has reversed key symptoms of Alzheimer's disease in mice. The drug works by reinvigorating a cellular cleaning mechanism that gets rid of unwanted proteins by digesting and recycling them. The study was published in April 2021 in *Cell*.

"We were encouraged to find in our study that the drop-off in cellular cleaning that we have observed in mouse models of Alzheimer's also occurs in people with the disease, suggesting that our drug may also work in humans," says Ana Maria Cuervo, M.D., Ph.D., the Robert and Renée Belfer Chair for the Study of Neurodegenerative Diseases, professor of developmental and molecular biology, and co-director of the Institute for Aging Research at Einstein. In the 1990s, Dr. Cuervo discovered the existence of this cell-cleaning process, known as chaperone-mediated autophagy (CMA).

CMA becomes less efficient as people age, increasing the risk that unwanted proteins will accumulate, forming insoluble clumps that damage cells. In Alzheimer's, defective copies of the protein tau clump together to form neurofibrillary tangles that contribute to the disease. In fact, Alzheimer's and all other neurodegenerative diseases are characterized by the presence of toxic protein aggregates in patients' brains. The paper's findings suggest that drugs for revving up CMA may offer hope for treating neurodegenerative diseases.

In an encouraging finding, Dr.



Chaperone-mediated autophagy in a neuron: A protein chaperone (red circle) escorting a molecule of damaged tau protein (green) docks with a LAMP2A receptor (blue) on the neuron's lysosome (orange) and pushes the tau protein inside the lysosome, where it is digested. The more LAMP2A receptors on lysosomes, the greater the level of CMA activity possible. The novel drug called CA, developed by Dr. Cuervo and her team, works to rev up CMA by increasing the number of LAMP2A receptors on neurons.

Cuervo and her team developed a novel drug, called CA, that shows potential for treating Alzheimer's. "We know that CMA is capable of digesting defective tau and other proteins," says Dr. Cuervo. "But the sheer amount of defective protein in Alzheimer's and other neurodegenerative diseases overwhelms CMA and essentially cripples it. Our drug revitalizes CMA efficiency by boosting levels of LAMP2A, a key CMA component." (See illustration.)

The researchers tested the CA drug in two different mouse models of Alzheimer's disease. In both models, oral doses of CA administered daily over four to six months led to improvements

in memory and reductions in depression and anxiety that made the treated animals resemble or closely resemble healthy control mice. And in the brains of both animal models of Alzheimer's, the drug significantly reduced levels of tau protein and protein clumps as well as gliosis—the inflammation and scarring of cells surrounding brain neurons. The drug was designed by Evripidis Gavathiotis, Ph.D., professor of biochemistry and of medicine and a co-leader of the study.



**WATCH THE VIDEO**  
See Dr. Cuervo explain how the experimental drug works:  
[magazine.einsteinmed.org/Cuervo2021](https://magazine.einsteinmed.org/Cuervo2021)

## COVID-19 Vaccines Work for Cancer Patients

Einstein and Montefiore researchers have previously shown that most people with cancer successfully produce antibodies following infection with the novel coronavirus. In a study published in June 2021 in *Cancer Cell*, the research team found that cancer patients also exhibit an immune response following COVID-19 vaccination.

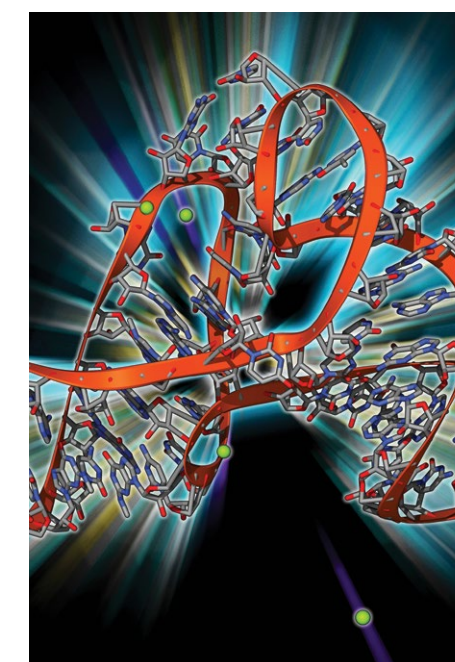
Overall, 94% of 200 fully vaccinated cancer patients seroconverted—that is, they produced antibodies to the SARS-CoV-2 spike protein. The response rate was quite high (98%) among patients with solid tumors and somewhat lower (85%) in people with hematologic (blood) malignancies. The blood-cancer patients who were undergoing

treatments that can kill antibody-making B cells, such as CAR T-cell therapy, had seroconversion rates of 70%; and for blood-cancer patients who had recently received bone marrow or stem-cell transplants, the seroconversion rate was 74%.

The study's co-senior authors were Amit Verma, M.B.B.S., director of the division of hemato-oncology at Montefiore and professor of medicine and of developmental and molecular biology at Einstein, and Balazs Halmos, M.D., M.S., director of the multidisciplinary Thoracic Oncology Program at Montefiore and professor of medicine at Einstein. Drs. Verma and Halmos are both associate directors of the Albert Einstein Cancer Center.



## Understanding Virus-Host Interactions



Some genes code for transfer RNA (tRNA) molecules, which are crucially important in synthesizing proteins based on instructions in the genetic code. Viruses are thought to be under selective pressure to maintain compact genomes, causing them to depend on the host cell's translational machinery to reproduce themselves. However, some viruses encode abundant transfer RNA (tRNA) genes—presumably for a reason.

In a study published in June 2021 in *Cell Systems*, Libusha Kelly, Ph.D., and colleagues examined whether carrying a large number of tRNA genes—18 in total—confers a survival advantage to a virus that infects marine *Vibrio* bacteria.

The researchers found that viral infection causes bacterial DNA and RNA (including tRNA) to degrade and that tRNA levels reach a minimum 15 minutes into infection, while newly synthesized viral particles aren't released until 30 minutes into infection.

In addition, all 18 of the virus's tRNA genes are expressed during infection. The findings suggest that viruses possess so many tRNA genes because they must carry out translation and protein synthesis even as their hosts' DNA and RNA are degraded during infection.

Dr. Kelly is an associate professor of systems & computational biology and of microbiology & immunology.



## RESEARCH NOTES

### Lab Chat

**S**ylvia Suadicani, Ph.D., studies the underlying causes of bladder problems and of chronic pelvic pain. A native of Brazil, Dr. Suadicani came to Einstein in 1997, where she is now an associate professor of urology and of molecular pharmacology and an assistant professor in the Dominick P. Purpura Department of Neuroscience.

#### Was biology your first career choice?

As a kid, I loved animals and was a big fan of the oceanographer Jacques Cousteau, and I eventually decided to study biology. I love discovery—the challenge of coming up with hypotheses and solving problems.

#### You originally came to Einstein to do a postdoc under David Spray [Ph.D.]. What did you learn from this experience?

The importance of collaboration. David introduced me to researchers around Einstein and all over the world. I try to continue that spirit in my own lab. My door is always open.

#### Any advice for young scientists coming from abroad?

Have an open mind. Try everything, like at a buffet. Accept critiques. And don't be afraid that you don't know English very well. Einstein is like the United Nations, with people from all over the world. That's the beauty of the place.

#### How did you get interested in bladder dysfunction?

From working with David on cell signaling, I became intrigued by the bladder's urothelium—its inner lining.

The urothelium's main function was generally thought to be protecting the bladder, but it also functions as a sensor and signals the nervous system when the bladder is full and you need to empty it. Those signals can get disrupted in conditions such as diabetes and spinal cord injury, causing serious quality-of-life problems.

#### One of your National Institutes of Health grants creates a nanotechnology resource center. What's its purpose?

Bladder disease is typically treated with oral drugs, which must enter the bloodstream before getting to the bladder—an inefficient delivery mode that also causes side effects. I'm working with Kelvin Davies [Ph.D.] and Joel Friedman [M.D., Ph.D.] to develop drug-carrying nanoparticles that can be delivered directly into the bladder using a urethral catheter. We've begun tests in rodent models of interstitial cystitis and bladder overactivity related to menopause.

#### What has been your pandemic experience?

It has been stressful, especially having family in Brazil. Fortunately, everyone is safe, but I've been unable to visit. When I've worked from home, I've



tried to keep everyone in my lab motivated and as active as possible, whether analyzing data or participating in journal clubs.

#### What have you missed the most?

Hugging people. I'm Brazilian. We're very social. It has just been me and my rescue bird at home.

#### Rescue bird?

On my way to work a few years ago, I noticed a tiny baby bird that had fallen from its nest onto the ground. I took it to the lab and we figured out what to feed it. It grew up to be a sparrow. It imprinted on me, so it can't be released back to the wild.

#### What hobbies do you have?

Weather permitting, I walk from my apartment near Pelham Bay Park to Einstein. It's great for thinking and overcoming writer's block.

Photo by Jason Torres

## MAJOR NIH RESEARCH AWARDS

### \$14.5 Million NIH Award to Expand HIV Studies in Central Africa

**R**esearchers at Einstein and the City University of New York have been awarded a five-year, \$14.5 million grant from the National Institutes of Health (NIH) to continue their research on HIV treatment and care in five Central African nations.

The new award builds on previous NIH-funded work by the Central Africa International epidemiology Databases to Evaluate AIDS (CA-IeDEA), a large-scale, 21-site study involving more than 40 researchers and thousands of patients living with HIV/AIDS in Burundi, Cameroon, the Democratic Republic of the Congo, the Republic of the Congo, and Rwanda—countries among those with the greatest burden of HIV infection in the world.

The effort began more than a decade ago and has been co-led by Kathryn Anastos, M.D., professor of medicine, of epidemiology & population health, and of obstetrics & gynecology and women's health at Einstein, co-director emerita of the Global Health Center, and an internist at Montefiore Health System.

CA-IeDEA focuses on determining successful strategies that lead to improved outcomes for HIV care. These approaches include timely diagnosis and enrollment into care; keeping patients in care; and initiating antiretroviral therapy (ART) to suppress the viral load, which decreases the chance of infecting others.

The grant will continue support for CA-IeDEA's existing projects and fund three new initiatives: the collection of



Einstein's Marcel Yotebieng, M.D., Ph.D., M.P.H., and Kathryn Anastos, M.D., are co-principal investigators on a new NIH grant to improve HIV treatment and care in five Central African nations.

data on cardiovascular and other non-communicable diseases to understand how they affect older African adults living with HIV; a research program for adolescents living with HIV, including those infected around the time of birth; and studies of people living with HIV and tuberculosis (TB) that will measure lung-function impairment and risk of TB recurrence after successful TB treatment.

"This new award will allow us to expand our clinical reach and research focus, enrolling more children and adults with HIV/AIDS who visit health clinics in urban and rural areas in our five partner countries," Dr. Anastos says. "Our overall goal is to increase access to HIV services and improve outcomes for

patients, including the successful initiation of ART."

In late 2020, Dr. Anastos was part of a scientific team that received a five-year, \$4.9 million NIH grant to establish a research center to investigate HIV- and human papillomavirus (HPV)-related cancers in Africa. The HIV-Associated HPV-Related Malignancies Research Center will build on Einstein-led efforts that have already improved research and clinical and laboratory capacity in Rwanda.

The grant will also enable Einstein researchers and their partners to expand the Rwandan programs and launch similar initiatives in the Democratic Republic of the Congo.





### Furthering Intellectual Disability Research

The Rose F. Kennedy Intellectual and Developmental Disabilities Research Center (RFK IDRC) has received a five-year, \$5 million National Institutes of Health (NIH) grant to continue its research and clinical outreach to improve the lives of children with intellectual and developmental disabilities. Key to this effort are the RFK IDRC's support of collaborations between bench scientists and clinicians at Einstein and Montefiore and its support of research conducted within the center's four scientific cores. The center's signature research project involves studying mutations in the *KDM5C* gene, which plays a critical role in neuronal function. *KDM5C* mutations are an important cause of X-linked intellectual disability in males and are associated with some cases of autism spectrum disorder. Principal investigators on the grant are Steven U. Walkley, D.V.M., Ph.D., professor in the Dominick P. Purpura Department of Neuroscience and co-director of the RFK IDRC, and Sophie Molholm, Ph.D., professor of pediatrics and co-director of the RFK IDRC.



### Addressing Pandemic-Related Stress in the Bronx

The NIH has awarded researchers at Einstein and Montefiore a five-year, \$5 million grant to study interventions for reducing pandemic-related stress among Bronx parents and caregivers and increasing their access to health-care. The study will enroll 360 Bronx parents drawn from three groups who face unique vulnerabilities during COVID-19: parents of children with autoimmune disorders such as lupus and juvenile arthritis; parents of children with psychiatric conditions; and parents who are healthcare workers. Participants will be randomized to receive 12 weeks of a mentalization-based group therapy, 12 sessions of parenting education with a healthcare app that also supports communication with healthcare teams, or group therapy plus parenting education with the app. The study's principal investigator is Vilma Gabbay, M.D., M.S., director of the Psychiatry Research Institute at Montefiore Einstein; the co-principal investigator is Jonathan Alpert, M.D., Ph.D., chair of psychiatry at Montefiore and Einstein.



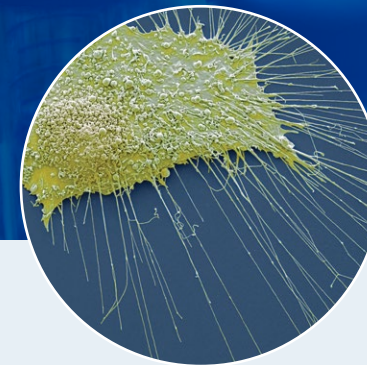
### Helping Infants Born to HIV-Infected Mothers

Although antiretroviral therapy (ART) has revolutionized the care of people living with HIV, infants who are born to women with HIV who are on that therapy still face a greater risk of illness, low birth weight, death, and other negative health outcomes compared with infants born to mothers who are not infected with HIV. Marcel Yotebieng, M.D., Ph.D., M.P.H., has received a five-year, \$3.6 million grant from the Eunice Kennedy Shriver National Institute of Child Health and Human Development to better understand why infants of HIV-positive mothers often don't fare well and to develop strategies for improving their health outcomes. The study will involve a cohort of women in Kinshasa, Democratic Republic of the Congo. Dr. Yotebieng and colleagues will follow 600 women living with HIV on ART treatment, 600 HIV-negative women, and infants born to these women, from delivery through up to 12 months postpartum. Dr. Yotebieng is an associate professor of medicine at Einstein.



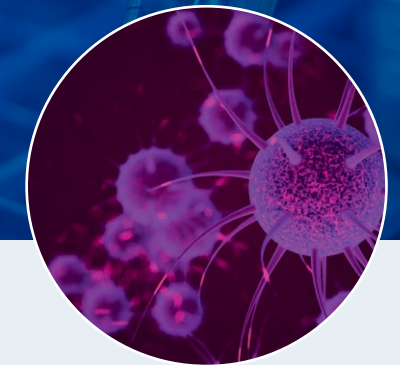
### New Approach Against a Killer Bacterium

Better treatments are needed for the human gut bacterium *Clostridioides difficile* (usually referred to as *C. diff*), which has developed resistance to many antibiotics. *C. diff* releases toxins that cause severe diarrhea and colitis, leading to about 15,000 deaths each year in the United States, mainly among hospitalized patients. Vern L. Schramm, Ph.D., is developing drugs that combat *C. diff* infections by neutralizing the bug's disease-causing toxins. Dr. Schramm has received a five-year, \$3.3 million NIH grant to continue his efforts to develop drugs known as transition-state analogues to combat *C. diff* infections. By eliminating the toxins but not the bacteria producing them, such drugs should prevent toxin-induced tissue damage without pressuring *C. diff* to develop resistance, as all too often occurs with standard antibiotics. In addition, the toxin-targeting drugs should not disrupt other microbes in patients' gut microbiomes. Dr. Schramm is a professor and the Ruth Merns Chair in Biochemistry.



### Pursuing a New Osteosarcoma Therapy

Osteosarcoma is the most common primary bone tumor of adolescents and young adults. Only 20% of patients with metastatic osteosarcoma can now be cured. The Wnt signaling pathway drives normal osteoblast (bone-forming cell) differentiation, so researchers have speculated that aberrant Wnt signaling may cause osteosarcoma. The DKK1 protein inhibits Wnt signaling and occurs at high levels in the blood of newly diagnosed osteosarcoma patients. In research involving a mouse model of human osteosarcoma, David Loeb, M.D., Ph.D., has shown that an antibody that neutralizes DKK1 increases Wnt signaling in the primary tumor and abolishes metastasis. Dr. Loeb has received a five-year, \$3.3 million NIH grant to test whether a small-molecule inhibitor of DKK1 affects Wnt signaling, tumor growth, and osteosarcoma metastasis in a mouse model. Dr. Loeb is a professor of pediatrics and of developmental and molecular biology at Einstein and the chief of pediatric hematology/oncology at Einstein and Montefiore.



### Gaining Insights Into Huntington's Disease

Aldrin Molero, M.D., Ph.D., has received a five-year, \$3 million NIH grant to investigate the abnormalities that occur early in neural development in Huntington's disease. This inherited neurodegenerative disorder is caused by a mutation in the huntingtin gene. In a previous study, Dr. Molero found that disrupting huntingtin's function impairs the development of interneurons—an important group of cells that modulate the activity of other neurons throughout life. For his NIH research work, Dr. Molero is studying the underlying mechanisms that alter interneurons during development and how those disrupted interneurons influence the maturation of developing brain circuits that are later affected in Huntington's disease. Findings from this research may result in the engineering of therapies that can be used at an early stage to modify the progression of Huntington's disease. Dr. Molero is an assistant professor in the Saul R. Korey Department of Neurology at Einstein. [E](#)



# MONTEFIORE AND EINSTEIN MAVENS OF MEDICINE



**E**mad Eskandar, M.D., M.B.A., is the chair of neurological surgery at Einstein and Montefiore and a professor in the Leo M. Davidoff Department of Neurological Surgery, the department of psychiatry and behavioral sciences, and the Dominick P. Purpura Department of Neuroscience at Einstein. He also holds the Jeffrey P. Bergstein Chair and the David B. Keidan Chair in Neurological Surgery. Dr. Eskandar was born in Egypt and raised in Omaha, Nebraska; he joined the faculty in 2018.

## A Focus on Brain Circuits

### Q&A with Dr. Emad Eskandar

#### How old were you when you came to the United States?

I was just 9 and felt like a fish out of water—I didn't speak any English and looked different. Adjusting to life here wasn't straightforward, but somehow my parents, my sister, and I figured it out. We didn't have our extended family close by, but that was true for many Americans. That absence can mean that people are isolated and don't always have someone to turn to—a stark social reality highlighted by the pandemic.

#### What has your pandemic experience been like?

It has been hard for our department. One of our most illustrious members, Jim Goodrich—well known for his work separating conjoined twins—contracted the coronavirus and died at the beginning of the pandemic. He was a great man, a great mentor.

#### Has your clinical staff worked on the COVID-19 wards at Montefiore, like many other noninfectious-disease specialists?

Neurosurgical emergencies don't stop because of a pandemic. We've been kept busy taking care of patients with brain tumors, strokes, and other serious issues, but also have been frequently asked to consult on COVID-19 patients with neurological complications. In a study of nearly 5,000 patients hospitalized with the coronavirus, we've found that those with stroke and altered mental status have a higher mortality rate. We also developed a model, based on six risk factors and biomarkers, for predicting which COVID-19 patients face a higher risk for severe illness or death. Both of those findings could help focus treatment on the most-vulnerable patients and potentially save lives.

#### Since becoming department chair, you've established several centers, including the Center for Surgical Optimization within the Spine Center. What does it do?

It's fundamentally a research enterprise for optimizing all the decision-making that goes into complex cases, with the goal of improving efficiency and outcomes. Serious back pain, for example, affects about 90% of people at some point in their lives and is a major cause

of disability and loss of work. Not everyone needs surgery for back pain, but for those who do, we need to offer them the best and most cost-effective care possible.

#### Was the creation of the Spine Center influenced by your training in business administration?

Some people joked that I went over to the "dark side" when I got my M.B.A., but getting that degree wasn't about making money. It's just one more skill for dealing with complex systems and running a large academic and clinical department.

#### What are the latest trends in neurological surgery?

We've seen rapid development of endovascular procedures—threading devices into the brain via arteries lower in the body—as alternatives to major brain surgery. Those devices are used to remove blood clots that can cause strokes or to clip aneurysms [bulges in arteries] to prevent leakage or rupture. It may also be possible to use endovascular procedures to treat severe migraines and subdural hematomas, where blood builds up between the skull and the surface of the brain—a common problem in older people.

#### What are your basic-research priorities?

Our focus on the brain circuits underlying learning could lead to several clinical applications. We've identified a technique for enhancing learning through deep brain electrical stimulation and have successfully tested it in epilepsy patients implanted with brain electrodes to determine where in the brain their seizures were occurring. This technique

could be used to enhance learning and help solve memory issues caused by stroke, traumatic brain injury, or Alzheimer's disease.

In addition, those same brain circuits are involved in addiction. Addictive substances rewire brain circuits, biasing behavior toward pursuing rewarding stimuli to the exclusion of almost everything else. The pandemic has given me time to create an artificial-intelligence model of reinforcement learning, which will help us figure out ways to use deep brain stimulation to blunt or negate these abnormal circuits.

A third focus of my research is developing maser technology for monitoring and modulating brain activity.

#### What does "maser" mean?

Maser stands for microwave amplification by stimulated emission of radiation—nearly the same as "laser" but using focused beams of microwaves instead of light waves.

#### What's the advantage in using masers over lasers?

From a clinical standpoint, masers can pass right through the skull, which lasers cannot do. This potentially means we can use focused maser energy to change ion channels, receptors, and other molecules in the brain and modulate nerve activity as well. It's an exciting prospect, but it's probably going to take decades to develop.

#### You've traveled widely for work. Any favorite places?

Basically, I enjoy any place where I can have a cultural experience. I find beaches boring. I prefer more-extreme places, with mountains and glaciers. I especially loved Iceland. **E**





Shitij Arora, M.B.B.S., left, and internal medicine resident Lindor Qunaj, M.D., attend to a patient at Montefiore's Moses campus.

Photos by Jason Torres

# THE HOSPITALIST WILL SEE YOU NOW

Treatment for hospitalized patients is increasingly managed by a relatively new breed of specialists

BY GARY GOLDENBERG

When William Southern, M.D. '92, M.S., chief of hospital medicine in the department of medicine at Einstein and Montefiore, introduces himself to new patients, the conversation often goes like this:

"Hello, Mr. Brown, I'm Dr. William Southern, your hospitalist."

"Nice to meet you, Dr. Southern. Where's my doctor?"

"I'll be taking care of you while you're in the hospital."

"OK, but where's my doctor?"

Unless you or a loved one has been hospitalized in the last decade or so, you may have missed a profound medical shift: the takeover of inpatient care by hospitalists—physicians who specialize in caring for hospitalized patients.

Several factors have fueled the hospitalist revolution. Hospitalized patients suffer from increasingly complex health problems, and their primary-care physicians are busier than ever in the clinic and don't have time to provide the care that inpatients need. In addition, managed care incentivizes hospitals to discharge patients as quickly as possible, putting a premium on clinicians with inpatient-specific skills and experience. Finally, rules that now limit residents' time on the wards

mean that extra staff members—today's hospitalists—are needed for inpatient care.

## A NEW BREED OF PHYSICIAN

Dr. Southern's own career mirrors this revolution in healthcare. "When I finished my residency in medicine in 1995, I took a job at Mount Sinai Hospital [in Manhattan] taking care of patients who were being admitted to the hospital," he says. "The medicine service—primarily medical school faculty responsible for both clinical care and teaching—couldn't handle the growing caseload, a common story at many teaching hospitals. So they hired physicians exclusively focused on patient care,



**“You build intense relationships with patients and their families, seeing them multiple times a day, every day. It’s incredibly rewarding.”**

— DR. WILLIAM SOUTHERN

and I was one of them.”

He had found his calling. “You’re under pressure to make key decisions when working with such sick patients,” Dr. Southern says. “But you build intense relationships with patients and their families, seeing them multiple times a day, every day. It’s incredibly rewarding.”

Most hospitalists are physicians who have completed a residency in internal medicine, emergency medicine, family medicine, or pediatrics—some of which have special tracks that can lead to careers as hospitalists.

For example, the Einstein and Montefiore internal medicine residency program offers a Hospital Medicine and Health System Pathway, which prepares physicians to become hospital-based clinicians. In addition, the American Board of Internal Medicine, the American Board of Family Medicine, and the American Board of Pediatrics provide certifications to their board-certified physicians who have attained specialized knowledge and skills in hospital medicine, which is not yet a board-certified specialty itself.

Dr. Southern became a hospitalist before the term was coined. That happened with the 1996 publication of “The Emerging Role of ‘Hospitalists’ in the American Health Care System,” in *The New England Journal of Medicine (NEJM)*. Authors Robert M. Wachter, M.D., and Lee Goldman, M.D., M.P.H., of the University of California, San Francisco, the unofficial birthplace of hospital medicine in the United States, predicted “the rapid growth of a new breed of physicians we call ‘hospitalists’ ... who will be responsible for managing the care of hospitalized patients in the same way that primary-care

physicians are responsible for managing the care of outpatients.”

“People like me excitedly forwarded the article to our peers, since this is what we were doing,” Dr. Southern says. “I could see the potential for a career as a hospitalist taking shape.”

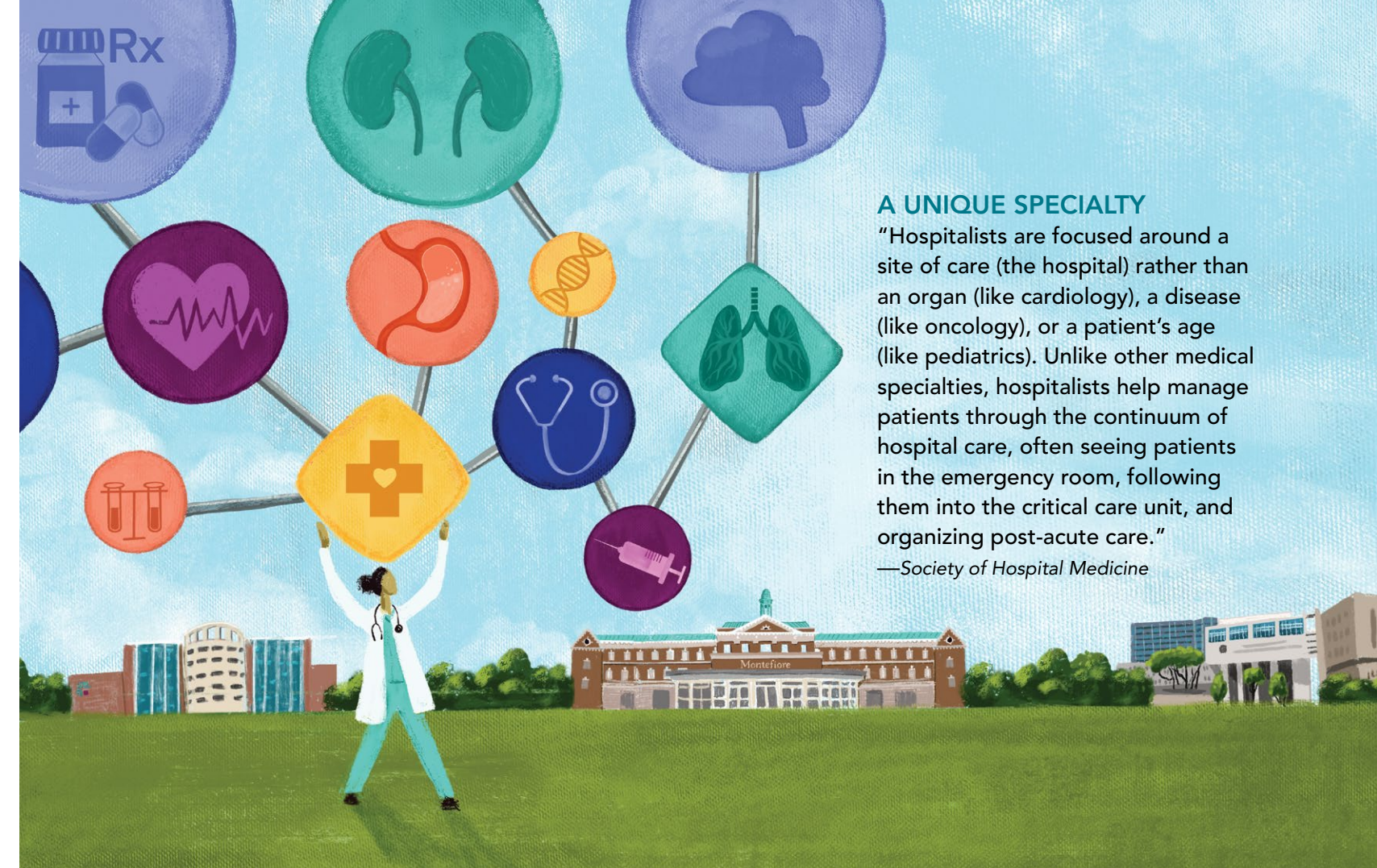
Specialists still see many inpatients in this new paradigm of care. However, hospitalists assume responsibility for developing a comprehensive care plan and ensuring that patients in the hospital receive services in a timely and efficient manner.

Hospital medicine caught on with stunning speed, reshaping inpatient care and medical education. From a few hundred in the 1990s, the number of hospitalists has grown to about 60,000 today, making it the third-largest specialty after general internal medicine and family medicine. A 2015 Association of American Medical Colleges survey found that half of all recent graduates who intended to specialize in internal medicine planned to work as hospitalists. They can now be found in about three-quarters of American hospitals, including all top-tier medical centers.

Montefiore was an early adopter. It began hiring hospitalists at the start of the 2000s and now has 102 on staff. They oversee 175 full- and part-time physician assistants and manage 839 beds across Montefiore Medical Center’s three campuses (Moses, Weiler, and Wakefield).

### THE BENEFITS OF HOSPITAL MEDICINE

Twenty-five years on, Dr. Southern must still explain his role to patients. “It’s jarring for some patients to learn that their primary-care physician isn’t there [in the hospital] for them,” he acknowledges.



### A UNIQUE SPECIALTY

“Hospitalists are focused around a site of care (the hospital) rather than an organ (like cardiology), a disease (like oncology), or a patient’s age (like pediatrics). Unlike other medical specialties, hospitalists help manage patients through the continuum of hospital care, often seeing patients in the emergency room, following them into the critical care unit, and organizing post-acute care.”

—Society of Hospital Medicine

“One of our jobs is managing that concern. I always tell patients how they stand to benefit from my expertise in caring for complex cases and from my ready availability. If they have concerns, I can be at their bedside in minutes, rather than having them wait for their primary-care doctor to call or drop by the next day. I think people totally get that.”

Indeed, numerous studies show that the rise of hospital medicine has not affected patient satisfaction or quality of care, while at the same time it has cut healthcare costs and lengths of stay.

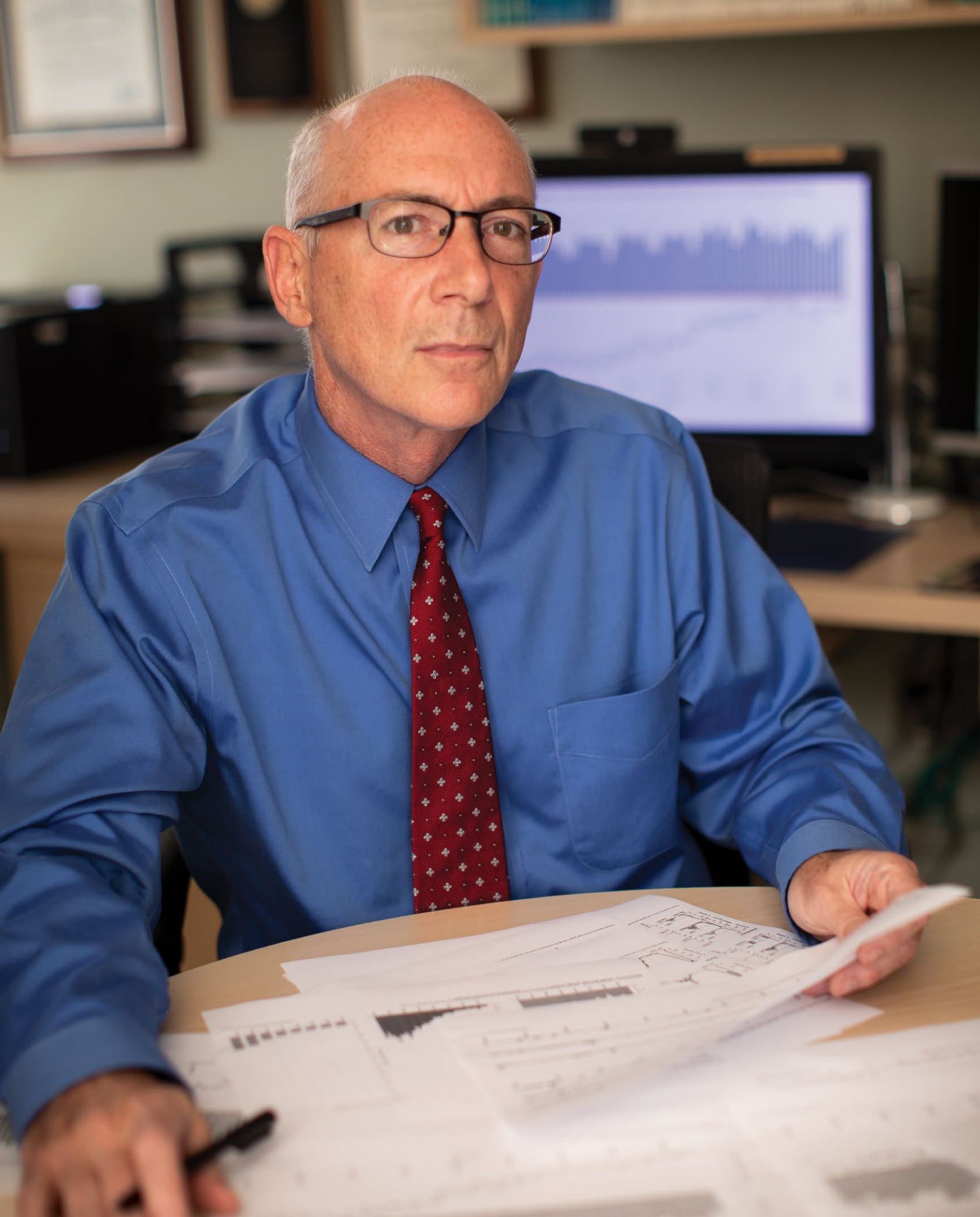
“Let me tell you a story about what happened here at the beginning of the pandemic,” Dr. Southern adds. “Our population of COVID-19 patients was doubling every two days, and many of them were very sick and deteriorating. At the time, there were no proven therapies

for the disease. Fortunately, we had a staff that was able to handle this deluge. One of those people deserves special mention.”

Dr. Southern was referring to Shitij Arora, M.B.B.S., associate professor of medicine at Einstein and a hospitalist at Montefiore, whom he describes as “an extraordinary clinician, the kind of doctor whom other doctors ask for advice.”

Dr. Arora’s tale began early in the pandemic, in March 2020, when a middle-aged Bronx woman was admitted to Montefiore in acute respiratory distress due to COVID-19, and Dr. Arora was her doctor. Since the patient’s oxygen requirements were extremely high, Dr. Arora called for a high-flow oxygen system—but learned that none would be available for several hours. Standard procedure called for putting





her on a mechanical ventilator instead, “but I knew that if we intubated her, her chances of surviving would be very low,” he recalls.

A blood test had shown that the patient’s inflammation level was extremely elevated. So Dr. Arora prescribed a corticosteroid—contradicting the guidelines of two prominent clinical organizations (the Infectious Diseases Society of America and the Society of Critical Care Medicine), which recommended against using steroids on COVID-19 patients.

Those guidelines were based on limited data from treating patients sickened by MERS and SARS, two similar coronavirus-caused respiratory diseases. However, Dr. Arora’s experience and instincts told him that patients like the Bronx woman, whose lungs exhibited signs of over-the-top inflammation (the feared “cytokine storm”), would benefit from an anti-inflammatory drug. “It was an extraordinarily bold step born of necessity,” Dr. Southern says.

Within hours, the woman’s condition improved dramatically, and she was discharged after five days in the hospital. Dr. Arora ordered the same steroid treatment for four other severely ill COVID-19 patients—all with low blood-oxygen readings and high levels of inflammation—and all recovered. It soon became standard protocol for certain patients at Montefiore and other hospitals.

“It’s still the most meaningful treatment we give to COVID-19 patients with high levels of inflammation,” Dr. Southern says.

Dr. William Southern, chief of hospital medicine in the department of medicine at Einstein and Montefiore, became a hospitalist before the term was even coined.

A few months later, Dr. Arora’s approach was vindicated by Britain’s RECOVERY trial, the first large-scale, randomized test of the steroid dexamethasone in patients hospitalized with COVID-19. As described in *NEJM*, the British trial found that steroid use reduced mortality by one-third in those receiving mechanical ventilation and by one-fifth in those receiving oxygen support without ventilation. Around the same time, Dr. Arora and his colleagues came to the same conclusion with a study of their own. (See page 26.)

“This is why you want a hospitalist in charge of your care,” Dr. Southern says.

#### THE ACADEMIC HOSPITALIST: A MODEL BLOOMS

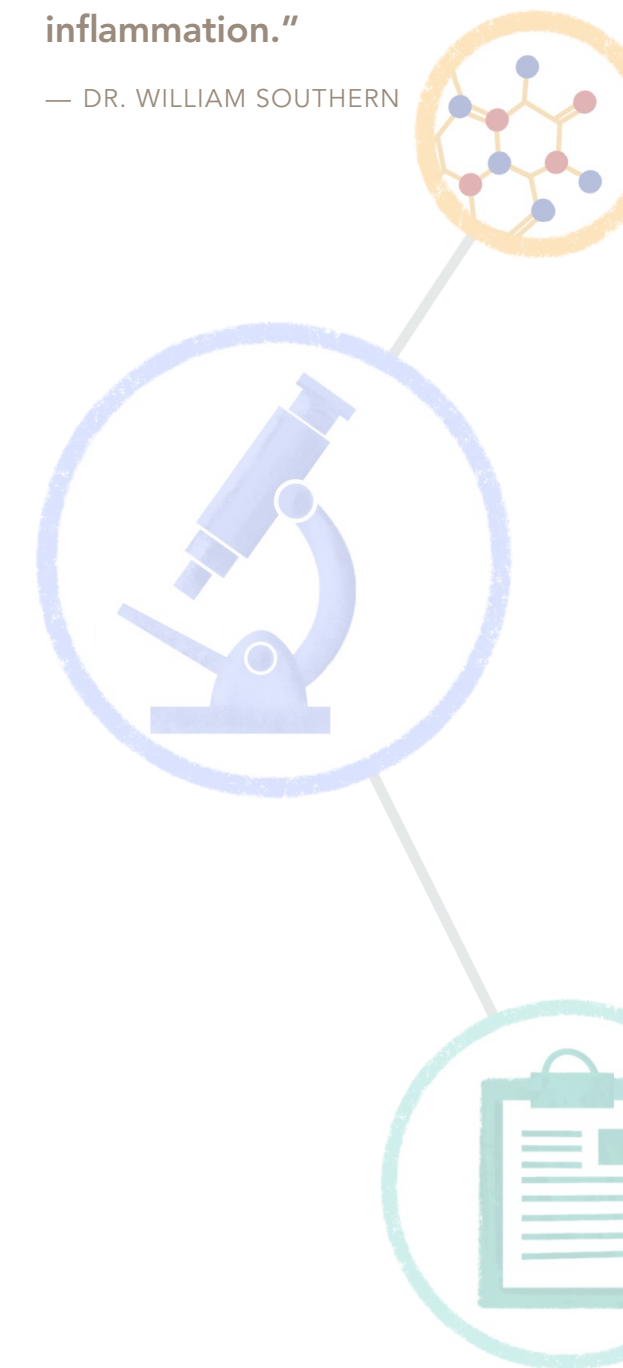
When Dr. Southern began his career, hospitalists were hired almost exclusively to fill gaps in inpatient care. While “direct-care” hospitalists still dominate the field, more and more hospitalists are finding careers in academic medicine—a trend that Drs. Wachter and Goldman envisioned back in 1996.

Hospitalists, they wrote, would fit neatly into the academic enterprise, where “a premium will be placed on clinical quality improvement, the development of practice guidelines, and outcomes research, not only to provide the physician with a creative outlet and a potential source of funding during the nonclinical months but also to give the academic center a practical research-and-development arm.”

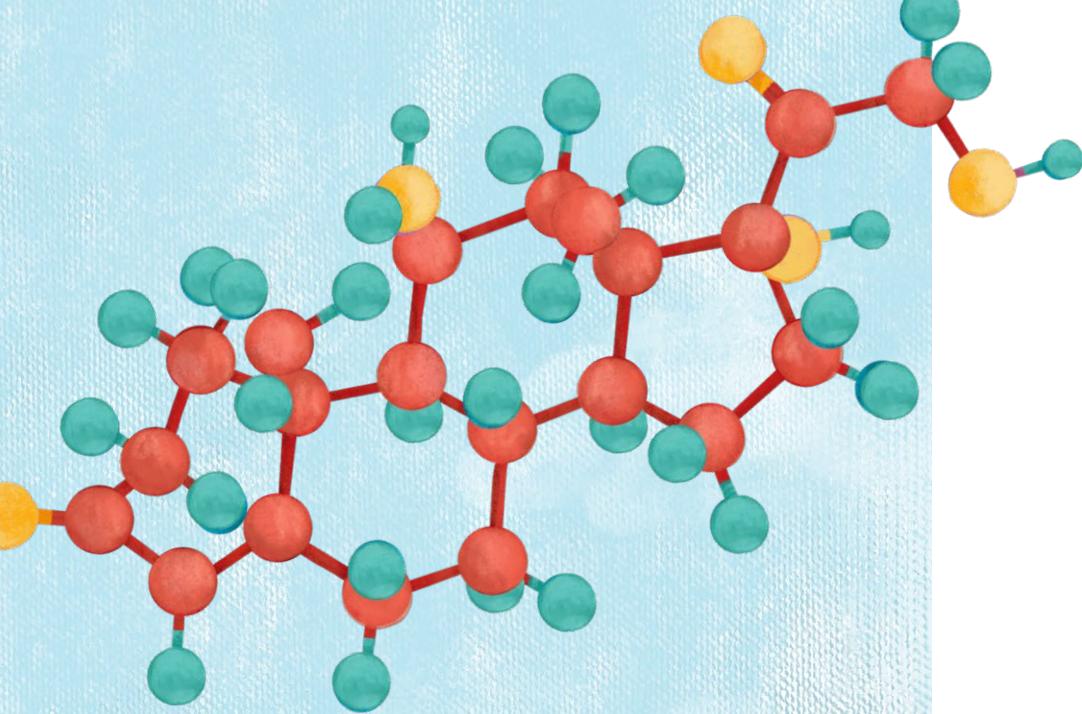
At Einstein and Montefiore, the academic hospitalist model blossomed in 2011, when the department of medicine created a division of hospital medicine, allowing hospitalists to pursue interests such as research and teaching in addition to inpatient care. Dr. Southern,

**“It was an extraordinarily bold step born of necessity. It’s still the most meaningful treatment we give to COVID-19 patients with high levels of inflammation.”**

— DR. WILLIAM SOUTHERN







## WHICH COVID-19 PATIENTS ARE MOST LIKELY TO BENEFIT FROM STEROIDS?

Shitij Arora, M.B.B.S., associate professor of medicine at Einstein and a hospitalist at Montefiore, had shown that steroids could help in treating Montefiore patients who were severely ill with COVID-19—a finding confirmed by Great Britain’s RECOVERY trial. But which patients are most likely to benefit? Could some be harmed by it?

To answer those questions, Marla Keller, M.D., vice chair for research in the department of medicine at Einstein and Montefiore, William Southern, M.D., M.S., chief of hospital medicine in the department of medicine at Einstein and Montefiore, Dr. Arora, and colleagues carried out an observational study of 1,946 COVID-19 patients, 140 of whom had been treated with glucocorticoids (a class of steroid hormone) within 48 hours of hospital admission and a control group of 1,666 similar patients who were not given steroids.

The study found that in patients with a high level of inflammation (indicated by elevated levels of C-reactive protein, which the liver produces in response to inflammation), steroid treatment reduced the risk of mortality or the need for mechanical ventilation by 75%. However, in COVID-19 patients with low levels of inflammation, steroid treatment more than doubled the risk of mortality and need for ventilatory support, the researchers reported in August 2020 in the *Journal of Hospital Medicine*.

“Steroids are very powerful drugs and not appropriate for all COVID-19 patients,” Dr. Arora says. “It’s just as important to avoid giving steroids to patients who may be harmed as it is to give steroids to those who may benefit. Our study suggests that the simple and inexpensive blood test for C-reactive protein can help determine which patients will benefit from these drugs.”

the division’s founding chief, notes that hospital administrators elsewhere haven’t always immediately seen the value of academic hospitalists.

“Many hospital administrators want clinicians who will see patients and focus mainly on quality of care and efficiency—the business model that underpins hospital medicine,” he says. “My view is that we can’t have 15% turnover per year, with our best hospitalists leaving for fellowships or other opportunities for career advancement. To reap the benefits of having these expert clinicians and to retain them requires engaging them in the academic enterprise. In fact, when I’m recruiting hospitalists, one of our greatest selling points is offering them the chance to teach, do research, and find leadership positions in the hospital along with taking care of patients.”

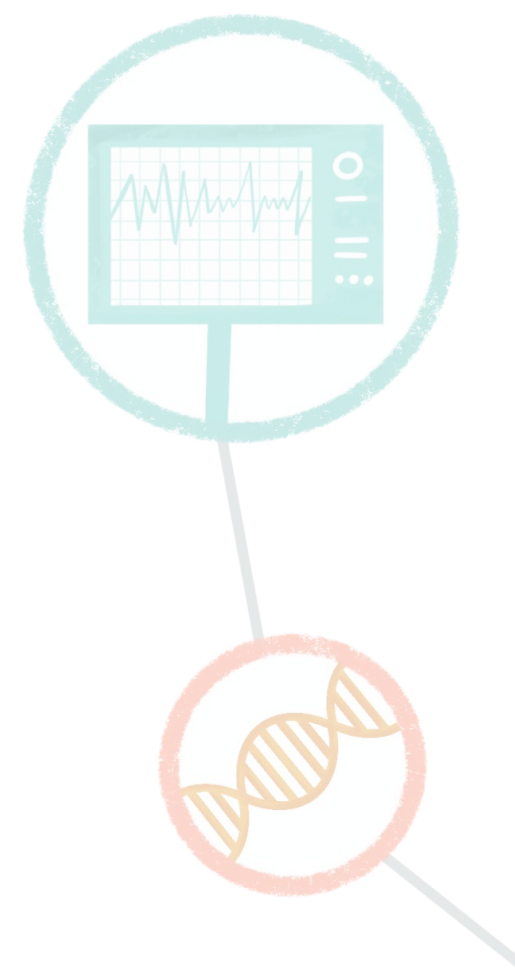
## Teaching Opportunities

Many hospitalists double as teachers—a dual role that has changed undergraduate and graduate medical education. “In the past, teaching was primarily conducted by specialists or subspecialists, who would spend a month or two each year attending on the wards,” says Todd Cassese, M.D., professor of medicine and associate dean for medical education at Einstein and a hospitalist at Montefiore. “They were good at teaching and caring for patients affected by diseases in their areas of expertise but weren’t necessarily equipped with the breadth of expertise to manage the increasing number of seriously ill patients with multiple health problems.”

In their 1996 *NEJM* article, Drs. Wachter and Goldman predicted that the rise of hospital medicine would make it more likely for residents to be “supervised by attending physicians who are

**“I interviewed at many places in New York City and chose Montefiore because of the teaching opportunities.”**

— DR. ALLISON LUDWIG



Todd Cassese, M.D., professor of medicine and associate dean for medical education at Einstein and a hospitalist at Montefiore, instructs a class at Einstein.

highly skilled and experienced in providing inpatient care ... [and] answer public calls for closer and more effective faculty oversight of house staff and students.” That has certainly proved to be the case at Einstein and Montefiore, where the opportunity to teach as well as care for patients has helped lure hospitalists.

“I interviewed at many places in New York City and chose Montefiore because of the teaching opportunities,” says Allison Ludwig, M.D. ’04, associate professor of medicine and associate dean for student affairs at Einstein and now a hospitalist at Jacobi Medical Center.

Dr. Southern began nurturing a select group of teaching hospitalists in 2011. With their patient load slightly reduced, they devote most of their time to leading

teaching teams and mentoring medical students and residents—a staffing pattern seen at fewer than one-third of teaching hospitals. “For these clinicians, teaching is not just part of the job,” he says. “It’s the core of their job, and the expectation is that they do it well. Clinically, it’s the happiest I’ve ever been,” adds Dr. Southern, a teaching hospitalist himself. “It’s amazing to be able to give so much time to patients and to learners.”

Einstein’s medical students get their first exposure to hospital medicine during years one and two, in the Introduction to Clinical Medicine course, where the preceptor is likely to be a hospitalist. Their next and most intense hospital medicine experience comes in year three, during the six-week internal







Trina Dhar, M.D., internal medicine clerkship site director at Weiler Hospital, goes over patient care with her team, from left: Einstein third-year medical student Faraz Sewani, Einstein fourth-year medical student Christopher Itua, and first-year resident Adam Haines, M.D.

medicine clerkship, in which hospitalists lead most of the teaching teams at the hospital sites. In their fourth year students may take a one-month internship where they serve on direct-care teams and work directly with hospitalists, without interns and residents.

“I didn’t know much about hospital medicine until my internal medicine clerkship,” says Brett Fischer, M.D., who graduated from Einstein in 2015 and is now a hospitalist at Weill Cornell Medicine in Manhattan. Like many of his peers, Dr. Fischer considered training for a subspecialty.

As medical school went on, however, he found himself drawn to the breadth and depth of hospital medicine. “The nature of medical education is to focus on organ systems and the underlying physiology,” he says. “While I loved

learning all of that, I preferred to concentrate on the big picture—on taking care of the whole patient.”

Dr. Fischer also developed a liking for evidence-based medicine, which he first encountered at Einstein in the required preclinical Epidemiology, Population Health, and Evidence-Based Medicine course, led by Robert Goodman, M.D., associate professor of medicine at Einstein and a hospitalist at Montefiore. “In my clerkships and subinternships, in which I worked right alongside hospitalists, I loved seeing how evidence-based medicine was practiced in the real world, and I wanted to emulate that,” Dr. Fischer says. He now teaches the subject to medical students at Weill Cornell.

Hospital medicine also figures prominently in Einstein and Montefiore’s

internal-medicine residency. During the third year, residents can select a hospital-medicine pathway. Immersed in the role of direct-care hospitalist, they participate in hospital-wide committees, work with leaders in the field, and conduct scholarly projects, preferably in quality improvement.

One concern about hospitalists as teachers is that students “may not connect with specialists doing cutting-edge basic-science research and thus be less likely to become physician-scientists,” Dr. Cassese says. “As part of the latest curriculum renewal, we’re integrating basic-science learning experiences into the clinical years, to expose students to the science and the scientists who might spark career interests.”

### Clinical Research Opportunities

Hospitalists spend more time at the bedside than most physicians do, so conducting clinical research makes a lot of sense. “We’re ideally positioned to ask how care can be improved,” Dr. Southern says. “Our COVID-19 steroid study is a perfect example of that.” He started conducting research himself about a decade ago after completing Einstein’s Clinical Research Training Program, which gives practicing physicians all the tools they need to engage in rigorous scientific inquiry.

In one of his first projects, Dr. Southern investigated wrong-patient orders in electronic health record (EHR) systems and how to prevent them. His research showed that such errors are much more common than previously thought (occurring thousands of times a year even at the best institutions). Requiring providers to reenter patient identifiers into a health record when placing an order reduced wrong-patient

### MASTERING THE PATIENT HANDOFF

One challenge in hospital medicine is making sure that the transition in care from the community-based physician to the hospitalist goes smoothly.

“In the traditional model, the same doctors who’d cared for patients over months or years would be caring for them in the hospital—which no longer happens with hospital medicine,” says William Southern, M.D., M.S., chief of hospital medicine in the department of medicine at Einstein and Montefiore. “Some would say that’s bad for patients. At perhaps the most critical moment in their lives, when most in need of a trusted physician, they get someone they’ve never met before.”

Todd Cassese, M.D., professor of medicine and associate dean for medical education at Einstein and a hospitalist at Montefiore, agrees. “When the patient enters the hospital, the hospitalist doesn’t know what the primary-care doctor knows—which can be dangerous if communication is lacking,” Dr. Cassese says. “But many healthcare systems are finding solutions with better use of electronic health record systems and other tech-

nological and procedural fixes.”

Matthew Shaines, M.D., associate professor of medicine and a Montefiore hospitalist for 15 years, has this to say about patient handoffs: “Transitions in care can be significant sources of medical errors. So as patients get closer to discharge, we as hospitalists need to make sure that their personal physicians—who care for these patients both before and after our involvement—are well briefed on their condition and the care they might require going forward.”

An even greater challenge for the hospitalist arises when there’s no handoff on either side of the hospital stay—a common scenario at urban hospitals, where many patients have no personal physicians.

“There’s a sizable group of patients here who use the emergency department for regular care,” says Tulay Aksoy, M.D., assistant professor of medicine at Einstein and medical director of the Wakefield campus. “We try to care for them as if we’re their primary-care providers and direct them to the appropriate care upon discharge.”





orders by 41%, he reported in 2010 in the *Journal of the American Medical Informatics Association*.

More recently, Dr. Southern led a study asking if patient safety is compromised when physicians are allowed to open EHRs for several patients at once—a practice that hospitals typically bar, to reduce the chance of mix-ups. Many clinicians, however, believe the practice improves productivity without compromising safety. Dr. Southern's study, published in 2019 in the *Journal of the American Medical Association*, found that wrong-patient orders did not increase even when physicians were allowed to open up to four EHRs simultaneously.

Another hospitalist-researcher is Cristina Gonzalez, M.D. '04, professor of medicine, who studies whether implicit, or unconscious, bias influences physician behaviors when they communicate with patients or make medical decisions. (See page 40 for more on Dr. Gonzalez's work.)

### Administrative Opportunities

Jessica Dekhtyar, M.D. '09, assistant professor of medicine at Einstein and a hospitalist at Montefiore, didn't intend to become a leader in the hospital, or even a hospitalist. But during her residency in medicine at Montefiore, she found that she liked the intensity and complexity involved in caring for inpatients, as well as the social and collaborative environment that hospital medicine offered.

After joining the Montefiore staff in 2012, she involved herself in quality-improvement projects, working with nursing, patient logistics, and environmental services. She was soon appointed unit medical director of Northwest 8

(one of 10 medicine units at the Moses campus), a role requiring even wider collaboration. In 2014, she was tapped to become director of medical services on the Moses campus, where she oversees 40 hospitalists, quality and safety activities, hospitalist recruitment and retention, and the teaching service.

While still seeing patients, Dr. Dekhtyar is now medical director of Montefiore's Transfer Center, which involves coordinating the transfer of acutely ill patients from smaller satellite hospitals to the Moses campus, the network's hub for advanced medical care.

"My various roles in hospital medicine have given me a good perspective on how the whole hospital works and how we can help people across the Montefiore Health System," she says.

### WORKING WITH OTHER SPECIALISTS

A growing trend among hospitalists is to work with specialists in co-managing particular types of patients. For example, the Children's Hospital at Montefiore started a pediatric hospital medicine service in 2007 and is now home to the largest group of child-focused hospitalists in the tristate area. And in 2018, Weiler Hospital launched an emergency department (ED) hospitalist program, conceived by Dr. Southern, in which ED-based hospitalists care for patients who are waiting to be admitted to a medicine unit.

"This frees up ED physicians to focus on treating patients truly in need of emergency care," says Tulay Aksoy, M.D., assistant professor of medicine at Einstein and a hospitalist at Montefiore, who led the program at its inception.

"By the time patients are moved to the ward, we've already prepped them

**"My various roles in hospital medicine have given me a good perspective on how the whole hospital works and how we can help people across the Montefiore Health System."**

— DR. JESSICA DEKHTYAR



Jessica Dekhtyar, M.D., right, and patient-care coordinator Renee Wehner-Dryden, R.N., discuss the transfer of acutely ill patients from satellite hospitals to Montefiore's Moses campus.

for admission," she says. She notes that the program has also helped expand the ED's capacity and reduced the length of inpatient hospital stays.

### GOING THE EXTRA MILE

Dr. Southern likes to tell a story about what hospitalists offer their patients. In early 2018, a 76-year-old man was admitted to Montefiore in the last throes of lung cancer. His daughter planned to get married at the end of the year and was concerned that he probably wouldn't live long enough to walk her down the aisle.

When the man's hospitalist, Zsuzsanna Sidlo, M.D., assistant professor of medicine at Einstein, learned of

his daughter's worry, she arranged to have a mini-wedding ceremony that very day in the patient's room, and she gathered her unit's staff to bear witness.

"Needless to say, there were a lot of tears in the room," Dr. Southern says. "A few days later, the patient was transferred to Calvary Hospital, where he passed away peacefully within a week." **E**

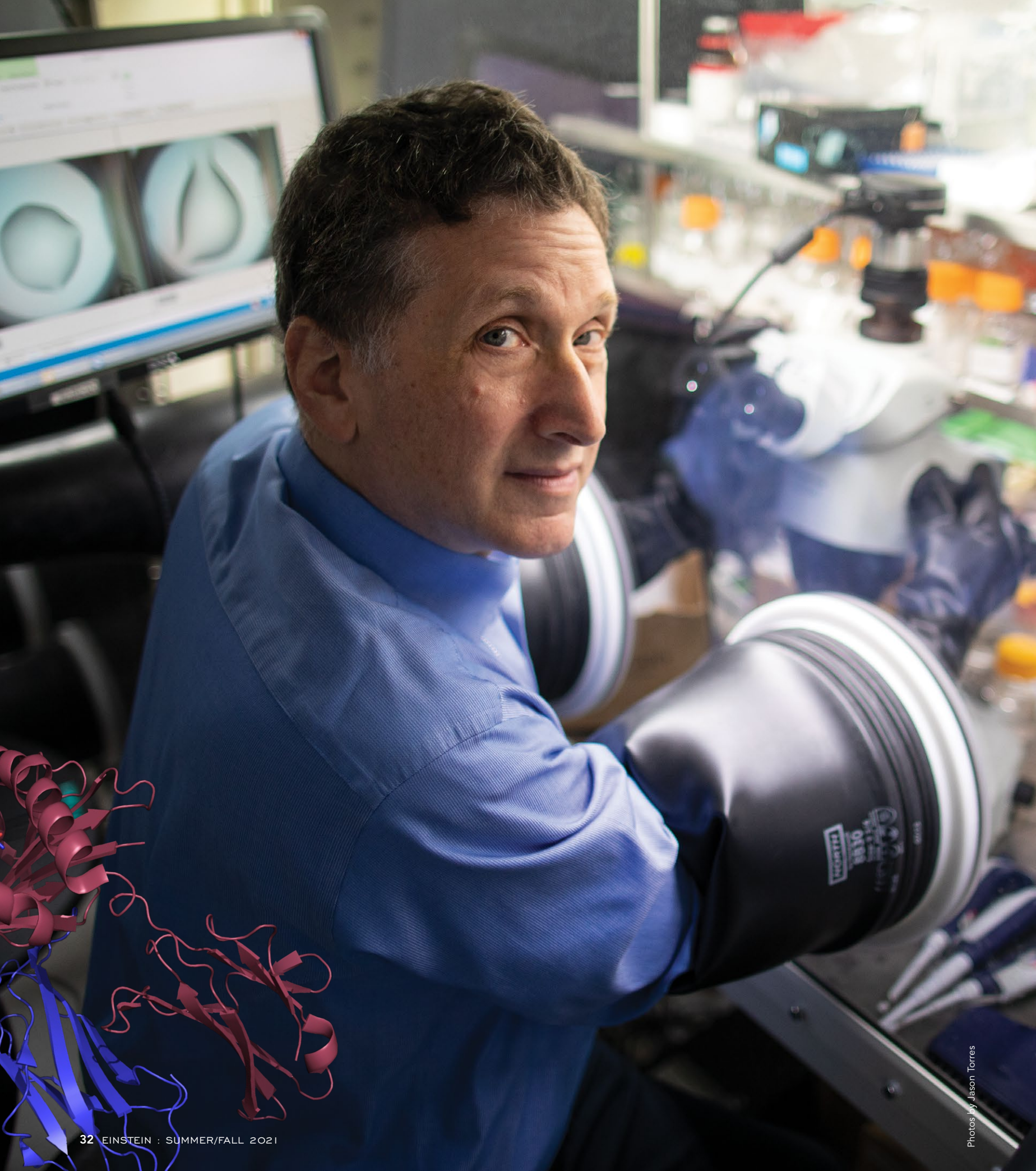


### WATCH THE VIDEO

Three Einstein and Montefiore physicians describe what led them to try steroid treatment to save COVID-19 patients: [magazine.einsteinmed.org/steroid21](https://magazine.einsteinmed.org/steroid21)







# FROM GUPPIES TO X-RAYS TO T CELLS

## Steve Almo's journey of discovery

Steve Almo is a professor of biochemistry and of physiology & biophysics at Einstein and also the chair of biochemistry, the Wollowick Family Foundation Chair in Multiple Sclerosis and Immunology, and the director of the Einstein Macromolecular Therapeutics Developmental Facility.

BY GARY GOLDENBERG

“**T**here is always one moment in childhood when the door opens and lets the future in,” the author Graham Greene wrote. For Steve Almo, Ph.D., that moment occurred when he was a toddler. “I was sick in bed and my dad brought me a guppy to take my mind off how I was feeling,” he recalls. “I was totally fascinated and obsessed with that little fish.” He started collecting aquatic animals the way other boys collected baseball cards. By sixth grade he was delving into chemistry and physics through Isaac Asimov’s nonfiction science books. “I knew by then I wanted to be a scientist,” he says.



As luck would have it, young Steve's North Miami Beach high school had a program that offered budding scientists the chance to do real science. He wound up in a lab at the University of Miami School of Medicine that was studying enzymes. The work included looking at X-ray crystal structures of enzymes, as determined by other laboratories, to understand how those enzymes influence human health and disease.

X-ray crystallography involves the painstaking art of purifying and crystallizing biologic materials and then bombarding them with X-rays to reveal their three-dimensional molecular architecture. "But I didn't just want to look at the images," he says. "I wanted to make them."

Even then, it was clear that the images were more than pretty pictures.

As Dr. Almo explained decades later in an Einstein-produced video:

"The shape of a protein provides a huge blueprint as to its function. Once you know the function of the protein, you understand how it operates under normal conditions ... but [knowing their shape] also gives you the opportunity to modify the activity of these proteins for therapeutic purposes."

It's safe to say that Dr. Almo was the only kid in his high school class who dreamed of becoming a crystallographer. He would dedicate the next two decades of his life to realizing that dream. He studied biology as an undergrad at the Massachusetts Institute of Technology and earned a Ph.D. in biophysics at Harvard University, where he mastered crystallography techniques, with a focus on enzymes.

**"I didn't just want to look at the images. I wanted to make them."**

— DR. STEVE ALMO



Second-year Einstein graduate student Lanette Lancomb at work in a biochemistry lab.

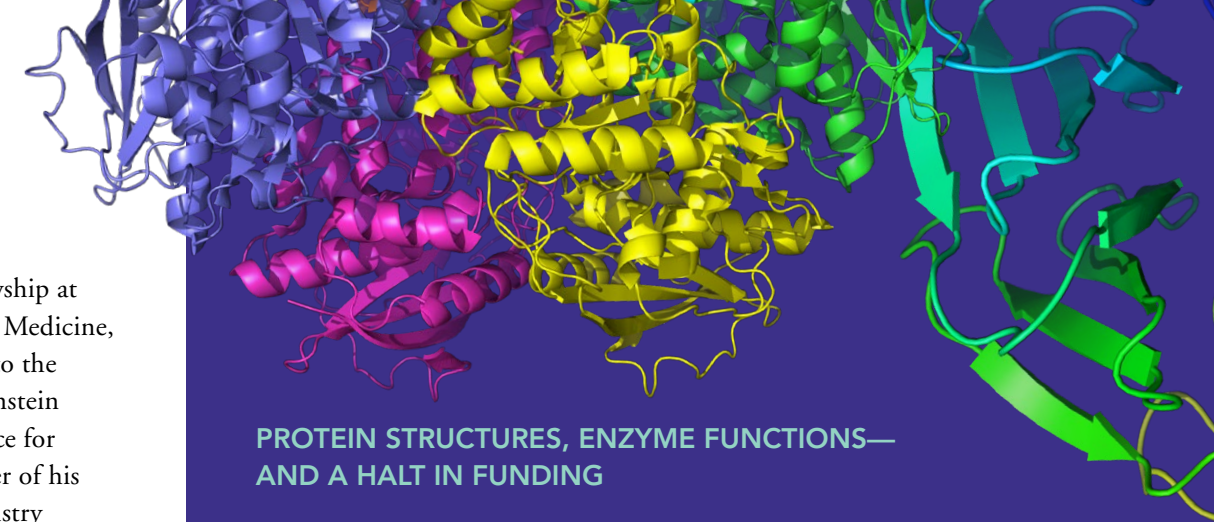
After a postdoctoral fellowship at the Johns Hopkins School of Medicine, he ventured from Baltimore to the Bronx in 1992 to join the Einstein faculty—despite his preference for the T-shirt-and-shorts weather of his Miami home. "The biochemistry department at Einstein was—and still is—spectacular, with people like Vern Schramm [Ph.D.] and John Blanchard [Ph.D.], who are focused on the basic mechanisms and underlying chemistry of biology," he says.

#### A FATEFUL ELEVATOR SPEECH

His first years at Einstein saw Dr. Almo applying his skills to the study of the actin cytoskeleton—the diaphanous protein filaments that give cells their shape and control how they divide. He also oversaw the automation of protein production, supplying scientists at Einstein and the broader research community with high-quality materials for investigations.

Supported by consistent and generous grants from the National Institutes of Health (NIH) (see story at right), Dr. Almo might well have continued solely as a crystallographer if not for a serendipitous early-2000s meeting with Einstein colleague Stanley Nathenson, M.D., an eminent immunologist. Dr. Nathenson had helped discover the molecular and cellular mechanisms that initiate the immune response to pathogens and malignancies.

"I got on the elevator on the ground floor of the Forchheimer Building, and there was Stan," Dr. Almo recalls. "We had a brief chat as we rode up, and when he got out on the fourth floor, I said, 'I think we could work together on some things.' Our collaboration lasted more than a decade and was the beginning of



#### PROTEIN STRUCTURES, ENZYME FUNCTIONS—AND A HALT IN FUNDING

In 2010, Dr. Almo was awarded two separate five-year National Institutes of Health (NIH) grants totaling some \$40 million, which kept him busy on several fronts.

For the first of those grants, he co-led a new enzyme-function initiative that brought together a diverse group of scientists nationwide to better understand the breadth of enzymatic and metabolic activities that exist in nature.

Under the second and larger of the grants, he directed a multicenter study of the structure and function of thousands of biomedically important proteins—part of the NIH's Protein Structure Initiative (PSI), a federal, university, and industry effort to reduce the costs and time needed to determine a protein's three-dimensional structure from its DNA sequence. "Using this knowledge, we can begin to learn how proteins can be modified to create new, highly targeted therapies for disease," Dr. Almo said then.

At about that same time, Dr. Almo was also partnering with another PSI group, the Immune Function Network, led by Dr. Stanley Nathenson. This consortium of immunologists, geneticists, computational biochemists, and high-throughput structural biologists was studying cell-surface molecules that control the immune response, as well as substances that major pathogens secrete to evade the immune system or interfere with host signaling pathways.

In 2013, just three years after creating the PSI, the NIH abruptly announced that it would stop funding the initiative. Some people in the structural-biology community applauded the move, contending that smaller, investigator-initiated studies were more cost-effective and productive. But Dr. Almo and others questioned the NIH decision, arguing that PSI was just starting to pay off. "We're now at the point where we can apply this protein-production infrastructure to improving human health," an online article on Labmanager.com quoted him as saying. "You couldn't ask for a better set of projects with genuine relevance to human disease. But such projects can't be performed by a single investigator—they absolutely require different institutions working collaboratively."

By this time, Einstein had invested millions in automated tissue-culture robotics to make large quantities of essential proteins involved in immunity. Fortunately, that effort didn't go to waste. Although PSI funding wasn't renewed, Dr. Almo managed to continue much of the work he had started under the grant—some of which led directly to the creation of Cue Biopharma.



“Thanks to his amazing intellectual leaps, Steve went from the role of a structural biologist to a leader in understanding the regulation of immune function.”

— DR. VERN SCHRAMM

my second career, as an immunologist.” The pair would go on to co-author more than three dozen peer-reviewed papers.

“Thanks to his amazing intellectual leaps, Steve went from the role of a structural biologist to a leader in understanding the regulation of immune function,” says Dr. Schramm, professor of biochemistry and the Ruth Merns Chair in Biochemistry and a pioneer in enzymology and drug design.

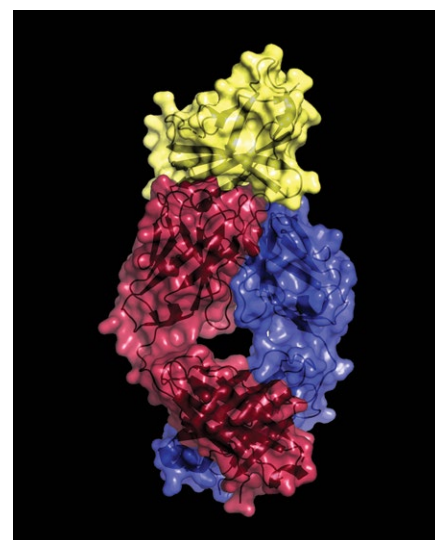
### IMPROVING ON CANCER IMMUNOTHERAPY

In one of those intellectual leaps, Dr. Almo capitalized on his unusual mix of expertise—in structural biology, protein science, and immunology—to improve cancer immunotherapy.

Immunotherapy for cancer debuted in 2011, when the U.S. Food and Drug Administration approved ipilimumab (Yervoy) to treat metastatic melanoma. Ipilimumab is a monoclonal antibody that stimulates the immune system’s T cells to attack tumors. The drug was a genuine breakthrough against a cancer that had almost always proved fatal.

Unfortunately, not all melanoma patients responded to the drug. Only a minority were cured, and many patients suffered serious, even fatal, side effects. A major problem with Yervoy—and other first-generation immunotherapies such as Keytruda and Opdivo—was their unfocused approach: by stimulating all T cells rather than just those that potentially could mobilize against a tumor, the drugs unleashed uncontrolled and overzealous immune responses.

Dr. Almo, who is also co-leader of the cancer therapeutics program at the Albert Einstein Cancer Center, envisioned an entirely new type of immunotherapy, one that targeted cancer by



This X-ray crystallography image, made by Dr. Almo and colleagues, reveals the molecular basis for the therapeutic action of Yervoy, the monoclonal antibody and pioneering immunotherapy drug for treating metastatic melanoma and other cancers. The image shows how Yervoy’s two protein chains (magenta and blue) interact with CTLA-4 (yellow), a receptor on the surface of T cells. Cancer-cell proteins thwart immune-system attack by stimulating CTLA-4, causing T cells to become inactive. By overlapping a portion of CTLA-4’s surface, Yervoy preserves T-cell activity by blocking cancer-cell proteins from binding to CTLA-4. The findings were reported in 2017 in *PNAS*.

activating a select group of T cells rather than all of them—a strategy that should greatly reduce the devastating side effects that can accompany the use of standard cancer immunotherapies.

The first step would be to identify, by their unique cell-surface proteins, those T cells relevant to a particular type of cancer. Next, researchers would synthesize molecules consisting of two fused protein “arms”: one arm specially designed to “dock” the fusion protein onto the desired T cells, and the other arm tailor-made to activate the T cells by stimulating particular receptors.

### FROM THE LAB TO THE PRIVATE SECTOR

Dr. Almo dubbed this novel class of synthetic fusion proteins “synTac,” short for “synapse for T-cell activation.” “It’s like mailing a letter,” he explains, “with an address that delivers it to receptors on T cells relevant to our disease, plus a message telling those T cells what to do.” (See comic strip at right.)

A key asset of the synTac platform is how easily it can target any of the many diseases—including autoimmune diseases—in which T cells play a role. For a particular disease, researchers can engage the relevant T cells simply by tweaking the synTac mailing address (the first arm of the fusion protein). This flexibility allows scientists to use synTac proteins against autoimmune diseases by programming the fusion proteins’ second arms to suppress, rather than stimulate, T-cell activity that injures the body.

By 2016, synTac had matured from a far-out idea to a potential therapy for human diseases. Dr. Almo and his colleagues had synthesized a number of different synTac proteins and had shown that they worked in cells and, potentially, in animal models of human disease. The researchers also had evidence that synTac activation of cancer-relevant T cells greatly increased the cells’ number and potency. But the path ahead for the novel synTac platform was highly uncertain.

“We were standing on the precipice of the ‘Valley of Death,’” says Dr. Almo, using drug-development lingo for the gap between invention and commercial application, where many advances perish for lack of funding. “We received vital NIH support for our initial lab work on synTac, but more funding is always needed to take promising drug



Here, synTac carries out a superhero task: first finding and then mobilizing anticancer T cells.

candidates to the next level.”

Fortunately, help would come from Einstein’s office of biotechnology and business development, which interested a group of venture capitalists in the synTac technology. In 2017, Dr. Almo teamed with those investors to form Cambridge, Massachusetts-based Cue Biopharma, Inc., which licensed the synTac technology from Einstein and assumed the daunting tasks of developing synTac compounds into experimental drugs,

evaluating those drugs in clinical trials, and gaining marketing approval for them.

In 2019, Cue Biopharma launched phase 1 trials of a synTac fusion protein called CUE-101, aimed at treating head and neck cancers caused by human papillomavirus. Several other Cue Biopharma synTac compounds are in various stages of preclinical development for treating cancers, autoimmune diseases, and infectious diseases.



## SYNTAC COLLABORATIONS AT EINSTEIN

Dr. Almo is also partnering with Einstein colleagues to pursue synTac's potential against other important diseases:

- **Melanoma and pancreatic cancer.** In 2016, the NIH awarded Dr. Almo and Chandan Guha, M.B.B.S., Ph.D., a five-year, \$2.6 million grant to develop synTac fusion proteins and evaluate their effectiveness in mouse models of melanoma and pancreatic cancer.
- **HIV and other viruses.** Dr. Almo and Harris Goldstein, M.D., are developing synTac proteins that are programmed to stimulate the immune system's CD8+ ("killer") T cells to attack HIV-infected T cells. The research is supported by a five-year, \$4.2 million grant awarded by the NIH in 2019. (The proteins are being tested in mice that have "humanized" immune systems and can therefore be infected with HIV.)

The scientists have also designed synTacs to stimulate killer T cells known to attack cells infected with cytomegalovirus, a common type of herpes virus that can infect and kill immunosuppressed patients. They have similar plans to use synTacs to bolster T cells that attack cells infected with Epstein-Barr virus, which causes mononucleosis and can also kill immunosuppressed patients.

- **Type 1 diabetes (T1D).** This autoimmune disease occurs when T cells—normally defenders against cancers and disease-causing microbes—instead attack insulin-producing beta cells of the pancreas, leaving the body unable to control blood-glucose levels. Among the T cells implicated in T1D are CD8+ T cells.

Dr. Almo and Teresa DiLorenzo, Ph.D., are studying whether synTac proteins can intercept aberrant CD8+ T cells before they can reach and damage



Dr. Almo and Teresa DiLorenzo, Ph.D., study whether synTac proteins can intercept certain T cells before they can reach and damage the pancreas.

the pancreas. Their collaboration is funded by a four-year, \$3.5 million NIH grant awarded in 2018. Dr. DiLorenzo is a professor of microbiology & immunology and of medicine and the Diane Belfer, Cypres and Endelson Families Faculty Scholar in Diabetes Research. She has devoted her career to T1D research.

"Steve is one of Einstein's most creative scientists and is known for being a generous collaborator," says Dr. DiLorenzo. "So I was thrilled by the NIH grant enabling us to study his synTac platform for treating or perhaps even preventing T1D. Our laboratory research shows that the synTac proteins Steve has designed can specifically inhibit T cells that attack beta cells, while leaving other T cells largely unaffected. We'll soon

**"Steve is one of Einstein's most creative scientists. ... So I was thrilled by the NIH grant enabling us to study his synTac platform for treating or perhaps even preventing type 1 diabetes."**

— DR. TERESA DILORENZO

begin in vivo studies of those synTac proteins using a mouse model of T1D."

## WAITING FOR THE NEXT RIDE

Adding to his responsibilities, in 2015 Dr. Almo assumed the chair of the department of biochemistry. "Steve is steering one of Einstein's founding academic and research departments to new heights of excellence and innovation," says Dr. Schramm, his immediate predecessor as department chair. "He has an uncanny ability to see the future of research programs and to make the science happen."

Even after his promising foray into immunotherapy, Dr. Almo still defines himself as a structural biologist. "Everything we do starts with basic mechanisms, with understanding how things work at a detailed atomic and

molecular level," he says. "I try to foster this approach in the department of biochemistry, which I like to call the department of mechanism." (See box below.)

Dr. Almo advocates "science for science's sake," a throwback to the time when researchers had more leeway to follow their intuition. "It's great to have a focus on clinical applications," he says. "But more often than not, the novel approaches come from unexpected places. Give creative, driven people the resources to follow their imagination, and something good will happen."

Dr. Almo managed to keep his lab going during the pandemic, working remotely from his Westchester County home along with his wife, Anne Bresnick, Ph.D. (also a professor of biochemistry, and the associate dean for postdoctoral

affairs at Einstein, see page 5), and their twin, college-bound daughters. Neither daughter has yet expressed interest in a science career. "Listening to Mom and Dad talk science at the dinner table all the time might have driven them away," he says with a laugh.

While waiting for the pandemic to subside, Dr. Almo was able to indulge his passions for cooking and listening to jazz. "If I had my wish," he says, "I would have been a jazz guitarist as opposed to a crystallographer, but I just had no talent." Most would agree that music's loss is science's gain.

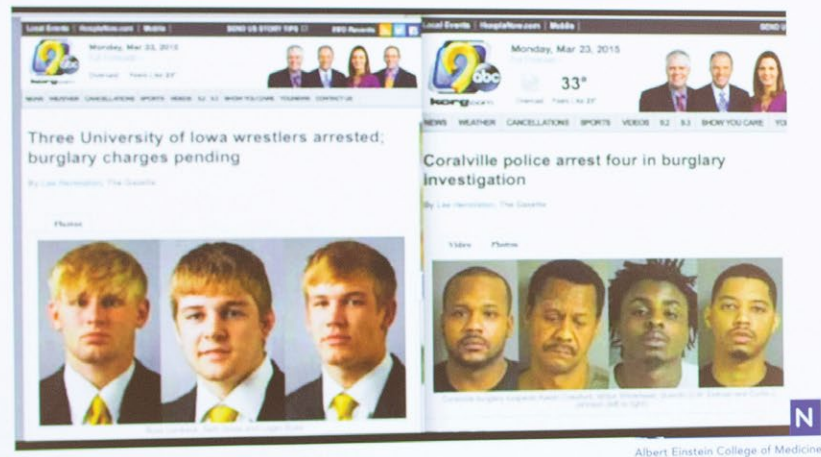
What's next for Dr. Almo is hard to predict. "We've got so many things going on," he says. "I'm really just trying to keep all of them afloat. But I'm always waiting for the next elevator ride." **E**

## AN EVER-EXPANDING PORTFOLIO

SynTac fusion proteins are just one part of Dr. Almo's research, which has led to some 300 publications. Among his recent important findings:

- As described in a 2017 *PNAS* paper, he used X-ray crystallography to reveal the structural basis for the binding of Yervoy, the first marketed cancer immunotherapy, to T cells. (See image on page 36.)
- In a 2018 *Nature* paper, he described how a natural human antiviral gene called *RSAD2*, which codes for the enzyme viperin, prevents a wide range of viruses from multiplying—a discovery that could lead to a new way of attacking many disease-causing viruses.
- In 2020 in *ACS Omega*, he characterized the structure of the SARS-CoV-2 spike protein, a key step in understanding how the virus that causes COVID-19 affects the immune response and in developing new treatments.
- As reported in *EBioMedicine* in 2017, he found that immunotherapy synergizes with radiation therapy to shrink local and metastatic lung cancer in mice.
- In a paper published in 2020 in *Clinical Cancer Research*, he demonstrated that a synTac protein showed effectiveness in mice with head and neck and other cancers caused by human papillomavirus 16.
- In *Nature Methods* in 2020, he described using a modification of the synTac technology to image, for the first time, antigen-specific T cells in a live animal.





# Prevailing Over PREJUDICE

Einstein's medical students learn how to manage biases in first-of-its-kind training in the U.S.

BY ELAINE IANDOLI



A young Black man with an elbow injury sits on an examination table in his doctor's office. She asks him questions before looking at his arm.

"Do you smoke?" the doctor asks.

The patient bristles. Why did she ask him about smoking? he wonders. What does that have to do with a swollen elbow? Is she judging him or making a negative assumption about his personal habits because she thinks all young men who look like him smoke?

As he leaves the doctor's office, he crumples up her instructions for caring for his elbow and never returns for a follow-up visit.

## UNCONSCIOUS ASSUMPTIONS

Cristina Gonzalez, M.D. '04, M.Ed., uses that young man's example when talking to Einstein medical students about implicit biases—those unintentional assumptions all of us make about others without even realizing we are doing it. The implicit biases of physicians and other healthcare professionals—about race, age, sexual orientation, weight, or gender, for example—may affect the quality of healthcare that their patients receive, says Dr. Gonzalez, professor of medicine at Einstein and a

hospitalist at Montefiore.

In the case of the young man with the injured elbow, Dr. Gonzalez says, it's not only the unconscious bias of the physician that's relevant in the interaction, but also the perception of bias by the patient.

The past year and a half has drawn attention to terms such as "bias," "systemic racism," and "health disparities" as a result of a deadly pandemic that has disproportionately killed people of color, along with nationwide protests after the brutal and shocking murder of George Floyd.

Despite the recent rise in people's awareness, the underlying issues are nothing new. It is in this context that doctors must negotiate intimate and sensitive interactions with patients, many of whom they meet for the first time when the patients are stressed because of injury or illness.

In the example of the man with the injured elbow, the physician may not have realized that her patient would interpret her routine question as being biased. If she had, she might have established a better rapport by first telling him that she was going to ask a question that might seem off the topic but was something she asked all of her patients.

"We enter the field of medicine with the intention to help others," Dr. Gonzalez says. "But our upbringing, socialization, and culture influence our views and lead us to have implicit

**"These biases can affect communication with patients and the medical decisions that physicians make, thereby contributing to healthcare disparities."**

— DR. CRISTINA GONZALEZ

or unconscious biases. This is true for everyone—you cannot go through life without developing some biases. The issue is that in medicine, these biases can affect communication with patients and the medical decisions that physicians make, thereby contributing to healthcare disparities."

One of the most widely cited examples of how implicit bias can harm patients is a 2007 study in the *Journal of General Internal Medicine*. It set out to test whether physicians showed implicit bias when they were treating Black and white patients with acute heart conditions.

Nearly 300 internal-medicine and emergency-medicine residents at four academic medical centers in Atlanta and Boston were surveyed. The physicians reported no explicit preference for Black or white patients, but the Implicit Association Test they took told





Dr. Gonzalez has expanded the existing research on implicit bias and developed ways to address it in order to improve patient outcomes. It has become what she calls her “singular professional passion.”

### The Implicit ASSOCIATION TEST

A somewhat controversial tool from Harvard University, the Implicit Association Test (IAT) is an online measure of reaction time to images and value-laden words designed to measure a person’s unconscious biases.

A growing body of research has shown that the IAT cannot accurately measure bias nor predict biased behavior based on taking it a single time. Rather, the test must be taken many times before any conclusions can be drawn about bias and how it guides a person’s behavior.

a different story about their preferences. (Learn more about the test on page 42.) As their scores favoring white patients increased, so did the likelihood that they would treat white patients—but not Black patients—with clot-busting drugs for heart attacks.

Dr. Gonzalez remembers when Paul Marantz, M.D., M.P.H., now associate dean for clinical research education and professor of epidemiology & population health at Einstein, showed her the study when they were on Einstein’s Clinical Prevention and Population Health Task Force in 2009. “I can work on that!” she recalls thinking. It was a turning point. Since then she has expanded the existing research on implicit bias and developed ways to address it in order to improve patient outcomes. It has become what she calls her “singular professional passion.”

### FIRST-IN-THE-NATION CURRICULUM

Over the past several years, Dr. Gonzalez has published 16 papers on the topic of implicit bias. Most recently, her 2020 *Academic Medicine* paper outlined the curriculum she and her team designed and piloted as an elective for first-year medical students. It is the first published curriculum that provides students with opportunities to practice and develop skills that help them address biases in their encounters with patients and in the learning environment.

The training at Einstein starts as medical school begins, when first-year medical students are introduced to the concept of implicit bias during orientation week.

They learn that type 1 or “fast, automatic” thinking helps brains develop shortcuts for processing the enormous

amount of information that people encounter daily—shortcuts that enable them to act almost without thinking, but that are shaped by how people are raised and by biases absorbed over the years from the media and other influences.

Fast thinking can produce an unconscious preference for certain people, such as those who look like ourselves, and a bias against others. In contrast, more purposeful and reflective type 2 or “slow” thinking can help a person avoid making incorrect assumptions.

Faculty members and senior students lead the first-years in small-group discussions where they have in-depth and sometimes emotionally charged conversations about their own experiences and thoughts on bias and how it may affect their interactions with others.

A central teaching tool now being used during orientation is an animated short film narrated by actor Whoopi Goldberg about implicit bias and empathy that made its world debut at Einstein in August. It is a product of Dr. Gonzalez’s collaboration with the Empathy Project and faculty at New York University’s Grossman School of Medicine, and is being shown to medical students outside of Einstein as well. The film focuses on a Black female patient’s interaction with her doctor during an appointment for stomach pain. Dr. Gonzalez helped develop an accompanying video to aid students in recognizing and managing their implicit biases.

Einstein group workshop leader and fourth-year medical student Marla Renee Fisher says her perspective on bias has evolved significantly since she arrived at Einstein. “Physicians have a lot of power. We have the power to help our patients heal, but with that power



Fourth-year medical student Marla Renee Fisher, a mentee of Dr. Gonzalez, leads an implicit-bias workshop during Einstein student orientation in August.



**“We’re testing measurements of bias and collecting hard data. Then we can plan the next step: designing interventions that improve a doctor’s ability to provide appropriate care.”**

— DR. CRISTINA GONZALEZ

also comes the potential to cause harm, even though we don’t intend to,” she says. “Learning how to pay attention to our assumptions, whether they’re about race, class, body size, disability, gender, sexuality, or immigration status, is a critical skill for future physicians.”

**THE PATIENT RELATIONSHIP**

In the first-year students’ Introduction to Clinical Medicine course, the implicit-bias curriculum focuses on relationships with patients. “If patients feel dismissed or belittled by doctors, nurses, or support staff, they may avoid or delay medical care,” Dr. Gonzalez says, noting the findings of a study she led that were published in 2018 in *Patient Education and Counseling*. “Physicians can salvage the relationship by recognizing and managing their biases or having empathy and understanding for the patients’ perceived biases—or both. That’s the ‘aha’ moment—we realize that we can take steps to get the patient encounter back on track.”

The third-year Patients, Doctors,

and Communities course asks medical students to write about instances of bias they have seen on the wards and to focus on strategies for dealing with difficult situations. Accepting that implicit bias exists in everyone, says Dr. Gonzalez, helps remove its stigma and lets people more readily address their own—or others’—behaviors.

**AIMING FOR EQUITY**

Dr. Gonzalez received an Association of American Medical Colleges New Investigator Award for her 2018 *Academic Medicine* paper, which contained interviews with 21 Einstein and Montefiore faculty members on the challenges of teaching about implicit bias, where they revealed their discomfort and hesitancy. One participant said, “As the speaker, you’re so anxious that you’re going to say something wrong that you may not want to talk about it at all.”

In a 2019 study in the *Journal of General Internal Medicine*, she asked 56 medical students their opinions of implicit-bias instruction; she found a range of attitudes. Some students resisted the idea of implicit bias, while others felt shame about their own biases. Some said they had witnessed bias but felt powerless to address it.

The National Institutes of Health (NIH) in 2019 awarded Dr. Gonzalez a five-year, \$850,000 grant to continue building a road map for addressing and managing physician bias in clinical encounters.

“We are looking at patients who have pain and cardiovascular disease and how they are treated,” she says. “We want to know whether implicit bias influences doctors’ decisions. We’re testing measurements of bias and collecting hard data. Then we can plan the

**Moving the Dial ON RACISM AND BIAS IN EDUCATION**

**“Righteously raging to achieve equity through education.”**

That’s the Twitter bio for Rhonda Acholonu, M.D., assistant professor of pediatrics at Einstein and pediatric hospitalist and vice chair of education at the Children’s Hospital at Montefiore. Her passion, she says, lies in integrating diversity, equity, and inclusion (DEI) with medical education. To that end, Dr. Acholonu leads several initiatives aimed at ensuring that DEI moves from buzzword status to central pillar in academic medicine.

As faculty facilitator for a residents’ curriculum called PARADE (Pediatric Advocacy, Rights, and Diversity Education), she oversees efforts to incorporate diversity topics into residents’ daily noon lectures.

“It’s an empathy-based curriculum that really looks at how we teach the social determinants of health and how that correlates to how we take care of our patients,” she says. “The residency program directors agree that this is important, and the residents take the lead in educating their peers.”

Dr. Acholonu also co-directs LEAD (Leadership, Engagement, Advocacy, Diversity), a faculty-development program that offers twice-monthly talks for the pediatrics department at Montefiore. In December 2020, she launched a monthly gathering of faculty members to focus on education while infusing diversity, equity, and inclusion into teaching moments.



Rhonda Acholonu, M.D.

“For example, in note-writing,” says Dr. Acholonu, “we can ask: ‘When do we document race and ethnicity, and how do we do it? What makes a structurally competent note? How do we incorporate things like social determinants of health?’”

Also in 2020, she and Suzette Oyeku, M.D., M.P.H., chief of academic general pediatrics at Einstein and Montefiore, published a *JAMA Network Open* commentary on addressing microaggressions in the healthcare workplace.

And at this year’s Davidoff Education Day, held in February, Dr. Acholonu was among the presenters during a faculty-development program on the impact of racism and bias on the learning environment—and how educators could “move the dial.”

Dr. Acholonu notes that students are a major impetus for developing these training programs. “We say it all the time: This generation is really driving us to make change,” she says. “It’s kind of flipped the hierarchy a little bit, which is hard in academic medicine.”

The work continues, she adds, with constant vigilance, persistence, scholarship, and action. “There’s so much evidence that implicit bias, racism, and structural racism have an impact on outcomes,” says Dr. Acholonu. “Those are the data we need to continue to elevate, in addition to all of the conversations about recruitment and retention and how diversity truly can be seen as a driver for excellence.”

**Type 1 and 2 THINKING**

The diagram shows a human brain split vertically. The left half is colored red and labeled 'FAST' with a white rabbit icon above it. The right half is colored blue and labeled 'SLOW' with a white turtle icon above it. Below each half is a list of characteristics.

|  |   |
|--|---|
| <ul style="list-style-type: none"><li>• Unconscious</li><li>• Automatic</li><li>• Everyday decisions</li><li>• Prone to errors</li></ul> | <ul style="list-style-type: none"><li>• Conscious</li><li>• Effort required</li><li>• Complex decisions</li><li>• More reliable</li></ul> |
|--|---|





Dr. Gonzalez, center, instructs Einstein medical students Devin Videlefsky, left, and Sophey Ho as they visit a patient during rounds at Weiler Hospital.

next step: designing interventions that improve a doctor's ability to provide appropriate care."

Dr. Gonzalez and her Einstein colleagues are now developing simulations involving Black and white standardized patients (the actors who portray patients in training exercises for medical students). She and her colleagues are analyzing the behavior of physician volunteers to determine whether there is an association between their implicit biases and the medical decisions they make, particularly under stressful conditions.

"She's developing scenarios where people have to make decisions, and their behaviors are measured in a very rigorous, scientific way," says Dr. Marantz. "It's really breaking some new ground."

One Einstein graduate, who met Dr. Gonzalez in a health-disparities course several years ago, was inspired by Dr. Gonzalez to fight actively against bias

and racism. "She's such a fierce advocate, and she has been a constant presence in the work that I've done," says Elise Mike, M.D., Ph.D. '21, who started Einstein's chapter of White Coats for Black Lives. "I'm really excited to see what comes next as a result of her work."

Dr. Gonzalez believes that her NIH-funded study, which runs through 2024, is the logical next step in addressing "a critical gap in knowledge" about implicit bias and will lead her and others to discover rigorous methods aimed at giving physicians additional clinical skills to mitigate bias and improve patient care.

"If we can help physicians gain skills to recognize when bias is influencing their encounters with patients, and to make clinical decisions in line with what they would have made if bias weren't an influence, then we can make important strides toward achieving health equity," Dr. Gonzalez says. **E**

**"She's developing scenarios where people have to make decisions, and their behaviors are measured in a very rigorous, scientific way. It's really breaking some new ground."**

— DR. PAUL MARANTZ



## A Champion OF UNITY AND EQUITY

Cristina Gonzalez, M.D., M.Ed., grew up on a farm in Pennsylvania surrounded by horses, chickens, and sheep. She knew from an early age that she wanted to become a physician like her father, Miguel A. Gonzalez, M.D., a family-medicine doctor and 1976 Einstein graduate.

As a child, she was aware of not-so-subtle negative and biased remarks about her and her family. Once, a school secretary referred to

her by an incorrect surname, confusing it with another Latino name. "Same difference," the woman said and shrugged when Dr. Gonzalez's mother corrected her.

Other times, people said she and her brothers were "the exception" when they did well in school. During her undergraduate years at Pennsylvania State University, she heard sarcastic remarks about affirmative action that were purposely made within her earshot, saw racist graffiti, and was aware that flags on campus from other nations were sometimes ripped down.

One year, as president of the Caribbean Student Association, she spoke to hundreds of students on Unity Day. She recalls taking the microphone and reminding her classmates—linked arm-in-arm in solidarity against bias—why they were gathered. "A lot of good people can make a lot more noise ... right?" she remembers shouting as the students cheered. That transformative moment confirmed her nascent desire to champion unity and equity.

Dr. Gonzalez had long wanted to

attend medical school in the Bronx, where her grandparents and other family members lived. After graduating from Einstein, she completed an internal-medicine residency at NewYork-Presbyterian Weill Cornell Medical Center. She returned to Einstein and Montefiore in 2007 as a junior faculty member and later earned a master's degree in medical education from the University of Cincinnati.

In 2016, Dr. Gonzalez was one of five people in the nation selected to be Macy Faculty Scholars, receiving a \$250,000 grant from the Josiah Macy Jr. Foundation to pursue medical-education research and curriculum development. That grant and another award, from the Robert Wood Johnson Foundation, enabled her to design an implicit-bias curriculum for medical students and, later, to implement the curriculum and evaluate its impact.



At top, Dr. Gonzalez with her father, Miguel A. Gonzalez, M.D. '76, who hooded her at her 2004 graduation from Einstein. At far left, Dr. Gonzalez cares for two of her favorite horses as a young girl on her family farm in rural Pennsylvania. At left she stands with her mother, Mary Gonzalez, a schoolteacher who inspired Dr. Gonzalez to pursue medical education.

Photos courtesy of Dr. Cristina Gonzalez



# PASSIONATE PURSUITS

## Painting During a Pandemic

BY GINGER SKINNER

For Jessica Zhang, being in medical school during the COVID-19 pandemic has meant adapting to remote learning and spending less time with classmates. But she has also gained something in short supply during a student's first two years—the chance to indulge her passion for painting.

"This has been a time of creative expression for so many people," says the New Jersey native and member of the Class of 2023. "It has been one of the positive sides of the pandemic."

For Ms. Zhang, creating art has always been a source of comfort and connection. "Painting helps clear my head," she says. "I stop doing everything else and just paint for a while. In that sense, I find it very grounding."

Creating art during lockdown and closures has come with its own set of unique challenges. And her first painting during this time almost didn't come together. "I had run out of supplies," she says. "I was down to just four paint colors. Surprisingly, those four colors ended up working well together." (See "Blues," opposite page.)

### INSPIRED BY ACTIVISM

Ms. Zhang has loved drawing ever since she could hold a crayon. "My parents saw my little doodles and signed me up



for art class," she says. By first grade, she was taking weekly instruction alongside 17- and 18-year-olds.

"I was never very good at soccer," she jokes. "Throughout the years, painting was the one thing for me that stuck." These days, Ms. Zhang says, she has been inspired by the activism she has seen on social media platforms. "I've been drawn to the art I've seen on Instagram related to the Black Lives Matter movement—paintings, murals, and even poetry."

Ms. Zhang likes impressionism and the works of French painter Jerome Lagarrigue and American painter Michael Carson. She has dabbled in various mediums—watercolor, pencil, graphite, oil, and pastels—but favors acrylics and a technique she describes as free and relaxed. "I prefer art that's not perfectly blended and realistic," she says. "That may be why I tend to paint with messy and wide brushstrokes and a lot of color."

### CULTURAL COMPETENCE

During high school, Ms. Zhang thought about going to art school and even won acceptance to the prestigious Rhode Island School of Design. But she chose a career in medicine because of a desire to help others and her growing interest in health policy.

While researching medical schools, Ms. Zhang says, she looked for a curriculum that addressed cultural competence—being willing to recognize, accept, and interact with people whose cultures and belief systems differ from your own. Einstein offered what she was looking for.

"One of the things that matters most to me is not only training to become a physician, but also being part of the broader discussion of how we can



"Camellia," opposite page, appears in the Spring 2021 issue of *Ad Libitum*, Einstein's art and literary magazine. Above are some of third-year medical student Jessica Zhang's other acrylic paintings, clockwise from top: "Blues," "Kate," and "Front Stoop."

address equity issues within healthcare," says Ms. Zhang, who has been researching this issue for the past couple of years. As a health fellow at the New York Academy of Medicine in 2020, she worked on a study looking at the differences in how patients and physicians perceive one another. "At Einstein, it's becoming the norm for students to learn about health equity, implicit bias [see page 40], and microaggressions," she says.

She also credits geography with



Jessica Zhang

bringing those issues front and center: "Einstein is located in the Bronx, so students are surrounded by very diverse communities here," she says.

Now immersed in her third-year rotations, she tries to fit in time for painting, if only for a stress-relieving break. "If you don't make time for things you enjoy doing, it can be easy to not do them," she says. "More than ever, and partly thanks to the last year, painting feels essential to my well-being, and I'm grateful for it." **E**



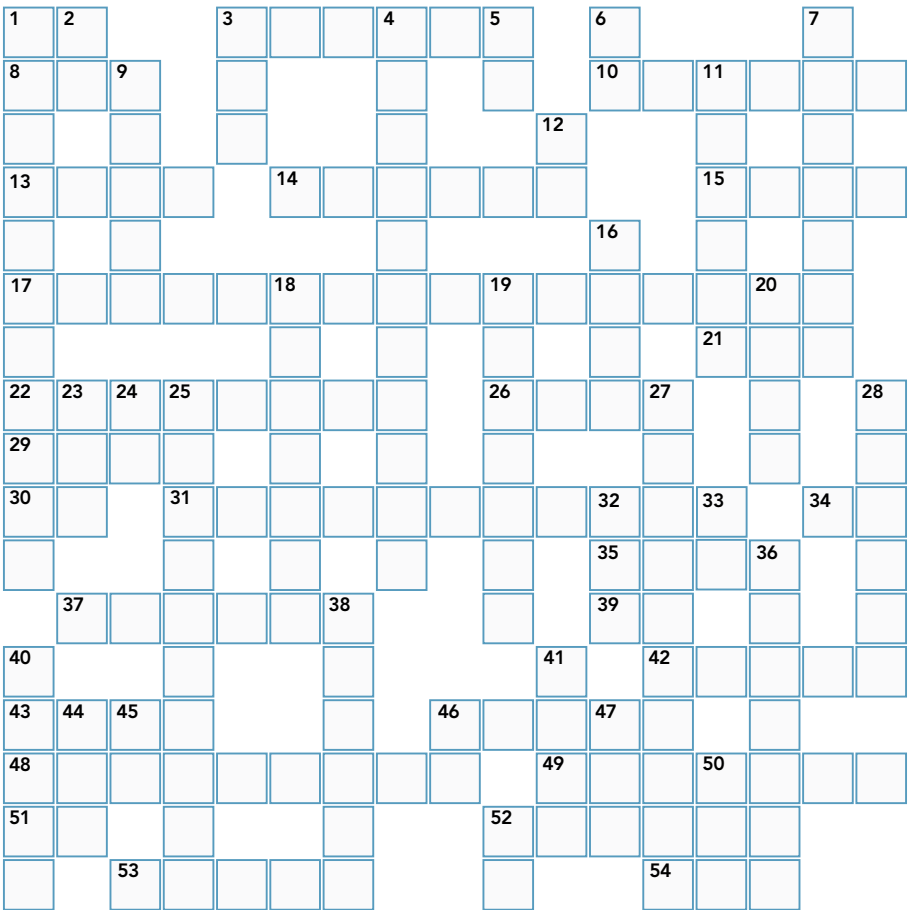
ALBERT'S  
PUZZLER

BY DEIRDRE BRANLEY

Campus Quiz

Across

- 1 3.14...
- 3 The parkway to our north
- 8 Cellular messenger and coding molecule, briefly
- 10 Namesake of our postdoc institute, and administrative building
- 13 It consists of cytoplasm and a nucleus
- 14 Neighboring city-run medical center
- 15 Financially support
- 17 Interior campus green space where latest White Coat ceremony took place
- 21 Map legend
- 22 Antibiotic used to prevent or treat skin infections
- 26 Where benches are
- 29 Here's oen
- 30 Brit mobile company or shoe width
- 31 Postdoc housing street
- 34 Registered nurse, for short
- 35 Gelatinous substance used in culture media
- 37 Montefiore's campus hospital
- 39 Colloquial "Hi"
- 42 Former cafeteria
- 43 New name for "food stamps," or a quick kind of judgment
- 46 Dr. Fauci's home turf
- 48 Our dean
- 49 More spiney
- 51 Emergency departments run it, for short
- 52 Campus cancer center home
- 53 Outer layer of humans
- 54 Form O<sub>2</sub> takes at room temp



Down

- 1 Our latest commencement took place on its lawn
- 2 Indium on the periodic table
- 3 Scan using positron emission tomography
- 4 Montefiore offices across the tracks, for short
- 5 A Dr. has this degree
- 6 Rare blood type
- 7 Our presidential building
- 9 Brain institute in Seattle, named for Microsoft founder
- 11 Price's auditorium
- 12 Lithium on the periodic table
- 16 Accidentally hit your toe
- 18 Place or store
- 19 Dodecagon on campus
- 20 Relax
- 23 Orb in the head
- 24 Short for outpatient
- 25 Name of our neighborhood and street
- 27 Namesake of our graduate division
- 28 Big-toe complaint, often from wearing high heels
- 32 With No. 1 across, when we celebrate Einstein's birth in March
- 33 Abbreviation for rheumatoid arthritis
- 36 Large auditorium in Forchheimer
- 38 Belfer's auditorium
- 40 Prefix for bone
- 41 Area of redness on skin
- 44 Neither's partner
- 45 I think, therefore I \_\_\_\_
- 46 Nickel, abbreviated
- 47 A hipster brew
- 50 They support aging research, briefly
- 52 Computed tomography scan



See how well you did at: [magazine.einsteinmed.org/puzzler21](https://magazine.einsteinmed.org/puzzler21)

MOTIVATIONS

The Front Line of Philanthropy at Einstein and Montefiore

Photo by Jason Torres

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For web-exclusive content, visit: [magazine.einsteinmed.org/motivations21](https://magazine.einsteinmed.org/motivations21)



MOTIVATIONS

A Message from Suzanne M. Murphy, Ed.D.  
VICE PRESIDENT OF DEVELOPMENT, EINSTEIN



Suzanne M. Murphy, Ed.D.

Welcome to the new issue of *Motivations*.

When I joined Einstein this fall, my motivation for taking on the new vice president of development position was the opportunity to enhance and support those who make this school one of the nation's top educational and research-intensive institutions. My introduction to the community was the Class of 2025's White Coat ceremony, where alumni, family, and friends gathered to welcome the next generation of committed physicians and hear them passionately recite an oath that commits them to compassionate and equitable care.

I visited our labs and met many of our esteemed scientists, students in our Medical Scientist Training Program, postdocs, and others who make up this community. I also felt your presence—our extended Einstein family—and the contributions that you have made to the Einstein story. And I was inspired by Einstein's powerful affiliation with Montefiore, and the extraordinary collaboration among all who make this institution stand out among its peers in education, biomedical research, and patient care.

It is in that spirit that I introduce this issue of *Motivations*, in which you will learn about people at Einstein and Montefiore who illustrate our culture in action. They include Stanley Wainapel, M.D., a blind rehabilitation medicine physician (page 53); members of our Montefiore Einstein Center for Transplantation (page 60); and our neonatology teams (page 56), who all play a role in supplying bench-to-bedside innovation as they, together with you, forge a healthier future.

As you read these inspiring stories, I ask you to join with me in thinking about how all of us can be partners in this work—and how we can accelerate it to expand the institution's impact and influence. If we're successful, we will help prepare the next generation of diverse, compassionate physicians and drive biomedical research that will improve patient care. And that is the very best motivation of all.

Sincerely,

Suzanne M. Murphy, Ed.D.  
Vice President of Development

MOTIVATIONS | CONTINUED CONNECTION

STANLEY WAINAPEL, M.D., M.P.H.

A physician and researcher turns his blindness into an opportunity to help patients

BY GINGER SKINNER

When Stanley Wainapel, M.D., M.P.H., gets an email, he “reads” it by listening to the synthesized voice of famed theoretical physicist Stephen Hawking, Ph.D. “I would be absolutely sunk without this,” Dr. Wainapel says of the text-to-speech software that also helps him draft emails and use the Internet and—for more than two decades—has aided him in caring for his patients. “This technology is a substitute for my vision.”

Dr. Wainapel learned at age 8 that he had retinitis pigmentosa, a rare retinal disorder that causes blindness over time. While attending the Boston University School of Medicine, he learned that he had a rarer condition than originally diagnosed called choroideremia, which affects an estimated 1 out of 100,000 people, mostly males. After graduating and completing his residency at Montefiore in 1974, he worked at hospitals in Boston and in New York City, including Beth Israel Medical Center and what is now Mount Sinai West, for 20 years before he began to lose his vision in his mid-40s. Today, at age 74, he can “see almost nothing.”

For the past 25 years he has been a professor in the Arthur S. Abramson Department of Rehabilitation Medicine at Einstein and clinical director of rehabilitation medicine at Montefiore, and



Stanley Wainapel, M.D., M.P.H., uses his other fine-tuned senses, such as touch and hearing, to help him make a diagnosis as he examines a patient in his Montefiore office.

Photos by Jason Torres





Dr. Wainapel uses a technique called palpation to examine a patient's neck to determine whether she has an enlarged thyroid.

**"I find that, having been a patient myself, I can relate to my patients' experiences and share my vulnerabilities. I think my patients are, in turn, more willing to show me their own."**

— DR. STANLEY WAINAPEL

he credits sensory substitution—along with a good memory and his own experience with physical disability—with helping him gain deeper insights into his patients' health.

Throughout his medical career, Dr. Wainapel has advocated for disability rights and has published dozens of journal articles on the topic, ranging from the physiological effects of acupuncture and yoga to the portrayals of disability in Charles Dickens's novels. Dr. Wainapel also served as president of the American Society of Handicapped Physicians in the early 1980s and as president of the New York Society of Physical Medicine and Rehabilitation in 1991.

In a recent conversation with *Einstein* magazine, Dr. Wainapel discussed how his loss of sight continues to shape how he approaches life and medicine.

## How would you describe your field of medicine to someone who's not familiar with it?

When a person has an impairment, there's an organ system or body malfunction. You're left with a certain physical functional challenge, and that's called a physical disability. In rehabilitation medicine, we work to improve function by utilizing medical treatments, physical or occupational therapy, and acupuncture. Our goal is always to maximize a person's function—not just their physical function, but also their vocational capacities and emotional quality of life.

## Given your vision loss, how do you conduct a typical physical examination?

Technology is an invaluable tool for me. I have a patient's demographic information, medical record, background

on when I last saw them, and all of my notes; my screen-reading software dictates that back to me.

I also rely on sound and touch. If I'm doing a physical diagnosis, there's palpation; auscultation, which is listening with a stethoscope; and percussion, which is using a finger to tap for different kinds of sounds. If I have a patient who has an underactive thyroid gland, I can still feel if the thyroid is enlarged (that's palpation) or hear if the person has a very hoarse voice or a low voice. I can ask them if they're losing hair or have an intolerance to cold. With other fine-tuned senses, I leverage these substitute ways of making a diagnosis.

## Are there ways in which having a physical disability has changed how you approach your relationship with patients?

Early on, I didn't realize that patients

within my field of physical medicine and rehabilitation could, in a way, see themselves in me. I find that, having been a patient myself, I can relate to my patients' experiences and share my vulnerabilities. I think my patients are, in turn, more willing to show me their own.

## Your presence in the field has helped break down barriers for people with disabilities who wish to enter the medical field. Do you have any advice for medical students with disabilities?

There will be barriers; some of them are physical and more are attitudinal. Many people don't think about what a person with a disability can do but instead focus on what the person can't do. For instance, when people see someone with a severe hearing impairment, it may not occur to them that the person might be able to lip-read. A person's limitations are not flaws of character; they're aspects of character.

## You've worked in Boston and other places. What drew you back to the Bronx?

In the early 1990s, my visual acuity had begun decreasing quickly and exponentially. Within a couple of years, it was less than half the level it was before, and I began needing my cane more. I had lost a lot of self-confidence in being able to continue on my professional path. Through the National Federation of the Blind—and on the advice of a friend who has been blind since birth—I began using a computer with screen-reading software and started to gradually gain back my confidence.

At that point, a former resident of mine and long-standing friend, Dr.

Avital Fast [M.D.], had just taken a leadership role in Montefiore and Einstein's combined clinical and academic program in physical medicine and rehabilitation, and he asked me to join him. Since I've been back in the Bronx, my colleagues have been supportive by providing me with the equipment, software, and tools I need—and have continuously trusted that I could be productive in a high-powered clinical and academic atmosphere. Here I am, more than a quarter century later, still working full time in clinical care (I have 70 or more patients every week), writing articles and book chapters, and teaching.

## Outside of medicine, you are a classical pianist. Do you still play?

It's one of the great joys of my life. I play complex pieces, and my virtual piano teacher has to teach them to me gradually. I know the sounds, but I can't read the page. He'll say, "Here's this chord. Here's what you're doing in your right hand. Here's what you're doing in your left."

I think of it as brain work. I find that there is a lot that I can do in my head—whether it's traveling by daydream, listening to music, or taking piano lessons. I smile from the fact that I am still growing through the wonderful challenges of life. **E**



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Text-to-speech computer software enables Dr. Wainapel to draft emails and use the Internet in his Montefiore office.



# GIVING BRONX BABIES THE BEST START

Montefiore's neonatology intensive care units are committed to the most vulnerable infants

BY GARY GOLDENBERG



**"B**ronx born and bred" is a badge of honor for countless Americans. Unfortunately, all too many of the borough's babies get off to a rocky start in life; one in 10 Bronx newborns is premature, with an even higher rate of prematurity among Black infants.

Ethan Santana is a case in point. Ethan was born 10 weeks premature in August 2018. "The next 107 days would be the longest 107 days of our lives," says Albania, his mom. As with many "preemies," Ethan's lungs were severely underdeveloped—just one of his many life-threatening health issues. Meanwhile, Albania was, in her own words, "hysterical on a daily basis," unable to cope with this terrifying ordeal.

Albania and her husband were lucky that their baby was delivered at Montefiore's Jack D. Weiler Hospital, home to the Bronx's most-advanced neonatal intensive care unit (NICU).

"Una, the first night nurse, made sure I was comfortable with my baby," she recalls. "There wasn't a day that Mary, one of the NICU nurses, didn't open her arms to me and wipe my tears as soon as I walked into the unit. Michelle and the whole respiratory therapy team made sure I understood the purpose of every machine Ethan was on. And Deborah Campbell [M.D.], one of the neonatologists, sat with me for hours, sharing advice on everything from breastfeeding to the importance of reading aloud to my baby. How lucky was I that this woman, as busy as she was, took time to sit with me and talk about my son. She made my family feel like he was the only baby in the NICU."

The doctors aren't sure why Ethan arrived in such a hurry. Premature births usually stem from genetic anomalies, infections, or underlying maternal

conditions such as diabetes, obesity, or lack of prenatal care. Such risk factors were absent in Ethan's case but abound in the Bronx, and they help explain why New York City's infant mortality rates are highest in this borough.

Nearly 10 percent of Bronx women—double the nationwide rate—do not get any prenatal care until their third trimester. Over the past decade, the maternal mortality rate from complications of pregnancy or delivery has increased 12 percent in the Bronx while decreasing 31 percent in the rest of the city.

Those statistics would probably be far worse if not for the neonatology division of the Children's Hospital at Montefiore (CHAM), which *U.S. News & World Report* consistently ranks among the top 20 such divisions nationwide.

"Our neonatologists are highly regarded for their care and their outcomes, even under the very trying conditions in which they work," says Michael deCastro Cabana, M.D., M.P.H., physician in chief at CHAM, professor of pediatrics at Einstein, and the Michael I. Cohen, M.D., University Chair of Pediatrics at Montefiore and Einstein. "Imagine what we could do if we had more resources."

## GREAT OUTCOMES FOR TINY PATIENTS

Dr. Campbell has wondered about the same thing for decades. The Bronx native started practicing at Montefiore in the early 1980s, watching—and contributing to—the neonatology division's rise to prominence.

"Like the Bronx itself, we've learned how to do more with less," says Dr. Campbell, who is now chief of neonatology at Montefiore and a professor of

**"While we equip our NICUs with the latest technologies and exceptional staff, we could certainly use more resources to meet the rising demand for neonatal intensive care."**

— DR. DEBORAH CAMPBELL



Deborah Campbell, M.D., cares for a premature newborn at Weiler Hospital.





**“Montefiore has had to deal with so much over its history. ... But with every hardship, the medical center has found ways to innovate.”**

— DR. MICHAEL deCASTRO CABANA

pediatrics and an associate professor of obstetrics & gynecology and women’s health at Einstein. “It always impresses me how we can accomplish so much with so little. While it’s true that we equip our NICUs with the latest technologies and exceptional staff to provide state-of-the-art care, we could certainly use more resources to meet the rising demand for neonatal intensive care.”

Montefiore currently has two NICUs—the 35-bed unit on the Weiler campus and a 15-bed unit on the Wakefield Hospital campus—which together serve about 1,000 critically ill newborns a year. Both NICUs often operate at full capacity, which means that Bronx newborns must sometimes be taken out of the county for the highest level of neonatal intensive care. “We should be keeping families and infants together and close to home,” says Dr. Campbell.

Another issue, says Dr. Cabana, is that neonatal care has changed dramatically since Weiler’s NICU was last modernized. “It was once standard practice to separate babies from their mothers at birth and put as many as 16 preemies in a single, open-bay treatment room,” he notes. “Now we know it’s better to have single-family rooms, or smaller pods housing four to six babies, where mothers can stay near their newborns. That promotes breastfeeding and other mother-infant interactions that have a profound effect on newborn development.”

A third difficulty with the current NICU system: Both NICUs are physically separated from CHAM and its pediatric subspecialists, which means that babies who need highly specialized care must be transported several miles to CHAM. Since 2012, requests for

pediatric transports to CHAM have increased by more than 50 percent, causing delays in care when every second counts.

“Our long-term dream to improve things is to build a NICU at CHAM, ideally as part of a single large perinatal center combining obstetrics and neonatal medicine,” says Dr. Campbell. “For all sorts of reasons, we’ve never had an opportunity to establish a NICU at CHAM with centralized care for our most-at-risk babies and mothers.”

#### RISING DEMAND FOR NEONATAL CARE

The Bronx birthrate dropped during the pandemic, in part due to economic uncertainty and fears of exposing newborns to the coronavirus. But as COVID-19 recedes, demand for neonatal care is expected to rise, putting even more pressure on the NICUs.

“This virus has devastated the economic status and health of Bronx residents,” Dr. Cabana says. “We’ve already begun to see the pandemic’s harmful effects on expectant mothers.”

With more families battling even deeper poverty and food insecurity because of unprecedented job loss (during the pandemic’s 2020 peak, one in every four Bronx residents experienced unemployment), many parents lack adequate access to nutritious meals, prenatal vitamins, and other critical resources needed to raise healthy children.

The pandemic has only reinforced Dr. Cabana’s desire to expand CHAM’s outreach efforts so that fewer infants need neonatal intensive care in the first place. “Our goal is to provide the best-possible care following birth—but that’s not enough. There are so many factors that affect how a child fares,

beginning with proper prenatal care, good housing, and safe neighborhoods,” says Dr. Cabana, whose own studies of asthma, sickle-cell disease, and other pediatric diseases show that early intervention can make a world of difference in a child’s development.

These challenges confronting Bronx babies convinced Dr. Cabana to join the Einstein and Montefiore faculty in 2019. “I first learned about Montefiore’s social pediatrics residency program and its commitment to social justice back when I was a medical student,” he says.

“And when I started working here I got my first glimpse of the institution’s resilience. Montefiore has had to deal with so much over its history, from poverty to the HIV crisis to rampant chronic illness. But with every hardship, the medical center has found ways to innovate,” he adds. “We started a children’s hospital from scratch, we developed new school-health programs, and we created a base of local primary-care providers.”

Today, Dr. Cabana and his colleagues make a point of collaborating with other departments at Montefiore to reach out to parents and infants. One such effort is the Maternal Fetal Infant Network, a program in which the departments of pediatrics and of obstetrics and gynecology collaborate to optimize care before, during, and after delivery.

Clinicians such as Kevin Fiori, M.D., M.P.H., M.S., assistant professor of pediatrics and of family and social medicine at Einstein and an attending physician at Montefiore, are leveraging new technology to improve care.

Dr. Fiori is developing a smartphone app that will enable community health workers to connect parents with local health resources. Reaching farther afield,

Montefiore’s neonatologists partner with the city’s Department of Health and Mental Hygiene and the New York State Perinatal Quality Collaborative to bolster maternal-infant health.

Meanwhile, Einstein and Montefiore researchers are working to prevent neonatal complications. Praveen Ballabh, M.D., professor of pediatrics and in the Dominick P. Purpura Department of Neuroscience at Einstein and a neonatologist at Montefiore, for example, is studying how to reduce the number of crippling and often deadly brain hemorrhages that affect a quarter of all preemies. Mamta Fuloria, M.B.B.S., associate professor of pediatrics at Einstein and a neonatologist at Montefiore, is examining how nutrition and various environmental factors influence fetal growth.

“These are just a few examples of our singular focus on quality of care—on assuring the best practices and the best outcomes for our tiniest patients,” Dr. Campbell says.

Albania, for one, appreciates these efforts. “Our NICU experience was not one that we wanted to have, but we are grateful it was at Montefiore,” she says. “To all of the nurses and doctors who touched our son and our hearts: my family thanks you.”



At top, Albania and Edgar Santana with their newborn son, Ethan, at Weiler Hospital in 2018. Above and below, they celebrate Ethan’s third birthday.



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# INNOVATION IN TRANSPLANTATION

**Top-ranked Montefiore Einstein center brings lifesaving options to every patient in need**

BY EMILY WEISGRAU

It's not easy for a doctor to take on the role of a patient, but it happened seven years ago when Hanan Rotem, M.D., received a liver cancer diagnosis.

After attending medical school in his native Israel, Dr. Rotem became a resident at Montefiore Medical Center in 1975 and stayed on for 21 years to build a practice in obstetrics and gynecology. Transplantation was completely unfamiliar to him—until he suddenly found himself needing it.

"I had a scan done, and there was a suspicious mass," he says, so he took the results to Daniel Berkowitz, M.D., a trusted friend and Montefiore gastroenterologist. Dr. Berkowitz told Dr. Rotem that he would need a liver transplant, and he recommended the Montefiore Einstein Center for Transplantation as the preferred choice.

## SUCCESS BUILT OVER THE DECADES

The Montefiore Einstein Center for Transplantation is one of the longest-running transplant centers in the world, having carried out its first transplant—involving a kidney—in 1967. It now performs as many as 400 adult and pediatric transplants each year, including combined kidney-pancreas and heart-lung transplants, and boasts an enviable survival record.

The center consistently ranks as the country's best center for liver transplant survival. It also has the best heart, liver, and pancreas transplant survival rates in New York State, including a 100% survival rate for live-donor liver transplants and a 100% one-year survival rate for pediatric kidney and heart transplants.

Today, the center has become "one of the most comprehensive multiorgan transplant centers in the region," says Milan Kinkhabwala, M.D., F.A.C.S., chief of transplantation surgery and director of abdominal transplantation at Montefiore and professor of surgery and of medicine at Einstein. In most cases, Montefiore's transplant outcomes are superior to regional and national outcomes because, according to Dr. Kinkhabwala, "We have an extremely patient-centric approach. We have a view that these patients are our patients for life, so we remain deeply committed to their overall well-being and recovery."

The center has established impressive social supports that increase patients' odds of a healthier life pre- and post-transplant. With approximately 85% of patients across Montefiore relying on Medicare, Medicaid, or both, the hospital welcomes many individuals who lack financial resources, are facing immigration challenges, or do not have

familial donors, among other complications to treatment. Through an integrated infrastructure of psychosocial, clinical, and social-service team members, the transplant center is breaking down barriers and building the support structure these patients need.

"We do everything we can—from providing housing to transportation to family counseling—to stand with our patients," Dr. Kinkhabwala says. "It's a point of pride to work in a center that brings both compassion and action to a community in need. We are the only transplant center that guarantees free transplant medication in the first year post-treatment, for example. We want our patients to focus on getting healthy, and we're here to help support that journey."

Donor organs are critical to transplantation success, and New York has a particularly long waiting period; at any one time, Montefiore has approximately 1,500 patients across the region seeking a healthy kidney or liver. To increase organ availability, Montefiore has instituted a robust living-donor program for kidney and liver transplants, and it also offers innovative "bloodless" lung and

**"It's a point of pride to work in a center that brings both compassion and action to a community in need. We are the only transplant center that guarantees free transplant medication in the first year post-treatment."**

— DR. MILAN KINKHABWALA

Opposite page: A Montefiore transplant team at work. Below, husband-and-wife surgical duo Milan Kinkhabwala, M.D., and Sarah Bellemare, M.D.





## MOTIVATIONS | YOUR IMPACT



**"People told me that many places rejected them for organ donation because they were considered at high risk for failure. But Dr. Kinkhabwala's team accepted them."**

— DR. HANAN ROTEM

heart-lung transplant surgical approaches to avoid blood transfusions (opening opportunities for patients with religious or medical restrictions), as well as other, more-traditional kidney and liver transplants. "Many people don't make it because there aren't available organs. That's a huge problem," Dr. Kinkhabwala says. "We're developing novel solutions so we can offer more options and opportunities for a healthy life."

### INNOVATIVE, LIFESAVING OPTIONS

After his diagnosis, Dr. Rotem began seeing Montefiore and Einstein's Juan Rocca, M.D., surgical director for kidney transplantation, and Sarah Bellemare, M.D., an assistant professor of surgery at Einstein who specializes in gastrointestinal (liver and pancreas) cancer, liver transplants, and hepatobiliary surgery. Dr. Bellemare leads the adult liver transplant team along with Dr. Kinkhabwala, her husband.

Dr. Bellemare began working in transplant medicine, with a focus on liver transplantation, late in her residency at the University of Montreal after discovering the dramatic results

that a transplant can achieve. "You take people with yellow complexions, with a lot of fluid in the abdomen, and then see them after a transplant and they look healthy again," she says. "They are able to enjoy life."

Dr. Bellemare knew that a new liver would allow Dr. Rotem to enjoy many more years of life. Dr. Rotem was hopeful—and that hope turned to reality. "My surgery went smoothly," he remembers. "After a few days I was back home. And after a few weeks I was back on the tennis court."

The transplant center team prides itself on bringing cutting-edge, lifesaving options to every patient in need. The team's living-donor program for kidneys and livers "offers a way for people to get transplants more quickly, before they get too sick," Dr. Kinkhabwala says.

Fueled by family and friends of patients as well as by anonymous living donors, the living-donor program reduces the gap between the hundreds of thousands of patients in the United States waiting for a kidney or liver and the number of organs available. While saving patients' lives, donors don't endanger their own; people can live



Dr. Bellemare, center, and Dr. Kinkhabwala discuss upcoming surgeries with members of the Montefiore Einstein Center for Transplantation.

perfectly functional lives with just one kidney, and the liver is the body's only organ that can regrow when a section of it is removed.

Montefiore is also among the first health centers to demonstrate that surgeons can safely transplant livers infected with hepatitis C into "naive" (uninfected) patients. Performing such a transplant first on a critically ill 21-year-old, the transplant team replaced the patient's organ with an infected liver and then gave the liver recipient the hepatitis C drugs ledipasvir and sofosbuvir. This innovation saved the young patient's life—and thousands more since then. The approach is now becoming standard practice around the country, increasing the pool of donor organs available at any given time.

Dr. Kinkhabwala says he hopes that organ transplants will one day be obsolete. Instead, scientists will be able to "grow" new tissues and organs for patients using stem-cell therapy, which Einstein and other research center teams are now studying.

### REACHING THE NEXT LEVEL

In the days immediately following his successful surgery, Dr. Rotem walked through the ward and talked with other hospitalized transplant patients. "Again and again, people told me that many

places had rejected them for organ donation because they were considered at high risk for failure. But Dr. Kinkhabwala's team accepted them."

His admiration and gratitude motivated Dr. Rotem to donate to the transplant center, beginning in 2016. "The decision was a simple one for me," he says. "They are providing excellent surgical and medical care."

Dr. Rotem especially hopes his philanthropy will make more organs available to people who need them. "I compare it to a factory that's not operating at full capacity," he says. "Here and at transplant centers everywhere, more people are on waiting lists than should be."

Donations like Dr. Rotem's will also help fund patients' care during hospitalization and after treatment, and underwrite research on alternatives to transplants. "Charitable giving provides us with the tools to reach the next level in terms of innovation and academic promise," Dr. Kinkhabwala says. "Only by working together can we hope to bring lifesaving therapy to every patient in need." **E**



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## Help for Kidney Recipients With COVID-19

In the spring of 2020, Montefiore's hospital beds were full of COVID-19 patients. The transplant team found that kidney transplant recipients had a mortality rate of 20 percent, while the general population's death rate from COVID-19 was about 1 percent.

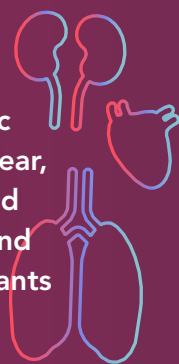
The center's doctors attributed the alarming difference to transplant recipients having to take immunosuppressive drugs to prevent their bodies from rejecting their organs, and many also having coexisting health problems. So the team tried a different treatment approach for kidney recipients with COVID-19, which included withholding certain medications while administering others.

Their findings, described in a letter published in *The New England Journal of Medicine*, revealed promising results: "Kidney-transplant recipients with COVID-19 [now] had less fever as an initial symptom ... and more rapid clinical progression than persons with COVID-19 in the general population."

## Key Facts About the Montefiore Einstein Center for Transplantation

400

adult and pediatric transplants each year, including combined kidney-pancreas and heart-lung transplants



100%

survival rate for live-donor liver transplants and a 100% one-year survival rate for pediatric kidney and heart transplants



85%

of patients across Montefiore Health System rely on Medicare, Medicaid, or both





# CLASS NOTES

## 1960s

**Fredric E. Levison, M.D. '60**, retired since 2000, lives in Washington, D.C.; he is well, and happily married.

**Melvin Schapiro, M.D. '60**, is nearly 91. He has great memories of his class and notes that everyone has accomplished a lot.

**Robert Chalfin, M.D. '61**, and his wife, Leita, have been married nearly 63 years. He works as a psychiatrist part time and teaches at Zucker Hillside Hospital, the NYU Grossman School of Medicine, and the Psychoanalytic Association of New York. He has three daughters and eight grandkids.

**Zalman R. Schrader, M.D. '61**, recently retired as senior partner in a 12-person gastrointestinal group after nearly 50 years of clinical practice. His daughter, **Elana Schrader, M.D. '87**, is chief medical officer of GuideWell Health/Florida Blue.

**Evelyn Wolf-Rokito, M.D. '61**, is doing disability physicals for Nassau County and New York State. She has two sons, both orthopedic surgeons, one daughter, who is an attorney, and seven grandchildren.

**Jacob Joseph Barie, M.D. '65**, retired from radiology in 2014. He is involved in transgender issues. His granddaughter is Jazz Jennings, who stars in the reality TV series *I Am Jazz* on the Learning Channel. Dr. Barie, his wife, Jacky, and his family appear on the show.

**Michael Gochfeld, M.D. '65**, is an occupational physician. He lectures medical students on evidence-based medicine, viruses, toxicology, and refugee health.

**Susan Rako, M.D. '66**, made the shift to online psychotherapy during the pandemic. Granddaughter Alexandra is a

recent graduate of Connecticut College, where she was elected to Phi Beta Kappa. Dr. Rako's books include *The Hormone of Desire* and *That's How the Light Gets In*.

**Sally E. Shaywitz, M.D. '66**, is the Audrey G. Ratner Professor, co-founder, and co-director of the Yale Center for Dyslexia & Creativity, and an elected member of the National Academy of Medicine. This year she published, along with her son, Jonathan Shaywitz, M.D., the second edition of *Overcoming Dyslexia*. Her study "The Yale Outcome Study: Outcomes for Graduates With and Without Dyslexia" was published in 2020 by the *Journal of Pediatric Neuropsychology*. The American Association for the Advancement of Science honored her as a fellow, and she received the Liberty Science Center Genius Award.

**Stephen Baker, M.D. '68**, retired four years ago as chair of radiology at New Jersey Medical School after 25 years. After a lifelong fascination with geography, he is pursuing his other career as a professional geographer. He lectures at City University of New York and recently had two books published, *The Encyclopedia of Quizzes, Volume 1* and *Volume 2*.

**Gary A. Rosenberg, M.D. '68**, was awarded a grant from the National Institute on Aging to establish an Alzheimer's research center, where he will work with American Indians in New Mexico. His son is an associate professor of medicine at the University of California, San Francisco, and his daughter covers immigration for Reuters. His grandson is almost 3. His wife, Evelyn, has over 40 public sculptures in the United States and one in Tanzania.

## 1970s

**Ira Asher, M.D. '71**, is a retired ophthalmologist, age 75, married to his wife,

Karen, for almost 50 years. They have two children and two grandchildren. He was on staff at Rhode Island Hospital and was chief of surgery at South County Hospital.

**Norman Hartstein, M.D. '71**, trained at UCLA-NPI for both adult and child psychiatry. Before retiring, he worked for 32 years at Kaiser West LA. He lives in West Hollywood with his husband, Robert, a retired lawyer. They have been together for more than 40 years.

**Nathan Litman, M.D. '71**, works half time after a career as the chief of pediatric infectious diseases and vice chair at Montefiore. He initiated the pediatric hospitalist service and received awards for excellence in teaching. He and his wife, Norma, live in Westchester County, New York, and have three children and four grandchildren living nearby.

**Romana Primus, M.D. '71**, retired in 1996 as a clinical immunologist and allergist. She then volunteered at a community clinic for over 20 years. Simultaneously, with her husband, Chuck, she ran her father's auto dealership. Dr. Primus has been president of the Jewish Federation of Eastern Connecticut for the past 10 years. She and Chuck have four children and eight grandchildren.

**Howard Wiener, M.D. '71**, retired from a group pediatric practice in 2013 and enjoys working in stained glass, researching Jewish history, and spending time with his family, including his wife, Judy, three children, and four grandchildren.

**Eric Heyer, M.D., Ph.D. '75**, has been in academic medicine throughout his career. Before retiring in 2016, he headed the division of neurosurgical anesthesiology at Columbia University Irving Medical Center, where he performed a

National Institutes of Health—supported study measuring cognitive changes associated with patients having carotid endarterectomy.

**Robert Katz, M.D. '75**, retired from pathology but continues an association with medicine as president of the Morris Township (New Jersey) Board of Health. He has edited five books about Sherlock Holmes, with a sixth on the way.

**Peter Rotwein, M.D. '75**, retired in March 2020 after 40 years of biomedical research at medical schools in St. Louis; Portland, Oregon; and El Paso, Texas. He and his wife, Bonnie, spent the past year shuttling, mostly by car, among San Antonio, Chicago, and Portland to see their children and two grandchildren.

**Jonathan Rosen, M.D. '76**, recently retired after a 40-year career as a family physician in Connecticut. He helped found ProHealth Physicians—the largest primary-care practice in the state. He and his wife, Linda, celebrated their 47th anniversary with their two sons and two grandsons. He recently published a sixth novel, *The Museum of an Extinct Race*.

**Harvey Stern, M.D. '78**, retired from Bronx Care (Bronx Lebanon) this year after 32 years as chair and vice chair of radiology. Dr. Stern is proud of the residency program, which has produced more than 60 radiologists. Dr. Stern served in the army reserve for 25 years and retired as a lieutenant colonel. He has two sons, both lawyers, and three grandchildren.

## 1980s

**Kevin Davis, M.D. '80**, found after four months at home that he was not ready for retirement. He is now working in the Edison, New Jersey, office of Plainfield Pediatrics, still doing what he loves. His grandson is almost 2.

**Fred Barken, M.D. '81**, is enjoying retirement from medicine and is working with his youngest son in real estate

in Ithaca, New York. He and his wife are expecting their fourth grandchild shortly.

**Barbara Bartlik, M.D. '81**, was rated one of *New York Magazine's* "Best Doctors in Psychiatry." She is a co-editor of *Integrative Sexual Health* (2018). A distinguished life fellow of the American Psychiatric Association, she is affiliated with NewYork-Presbyterian/Weill Cornell and Lenox Hill Hospitals. She and her husband, David Carroll, an attorney, have two children: Thomas, who works in online marketing, and Beatrix, a software engineer.

**Daniel Behar, M.D. '81**, is head of the interventional radiology unit at the E. Wolfson Medical Center, a government hospital in Tel Aviv. A fellow in the Society of Interventional Radiology, he also teaches medical students. He lives with Esther, his wife of over 40 years, in Hashmonaim, Israel. They enjoy time with their children and grandchildren.

**Stephanie Green, M.D. '81**, who is retired from pediatrics, is happy to report the birth in July 2020 of grandson Maddox Green, who joined his dad, Andrew (Dr. Green's son), mom, Brittany, and brother, Beckham, age 4, at home in New York City. Her son Christopher graduated from Cornell's psychiatry residency program in June 2020. Dr. Green and her husband, Stephen, who is retired from interventional cardiology, live in Dix Hills, New York.

**Michael Kram, M.D. '81**, now happily retired, served as the medical director of a gastroenterology group in Rockland County, New York. He married **Elyse Teicher, M.D. '82**, and has four children and eight grandchildren. In 2014, he came down with an illness that baffled experts in New York City. Dr. Kram had to figure it out himself, and he fought for his life. He published his own case report on his illness (baroreflex failure) in the *Journal of Clinical Hypertension* in 2016. He detailed his experiences in the book *Zebra: It's Not All Black and White*. Dr. Kram says there are many vignettes from Einstein in the book.

**Iris Lesser, M.D. '81**, retired from her position at Einstein's Children's Evaluation and Rehabilitation Center in mid-2017, shortly after her husband, Bruce, retired. In the fall of 2019 they hosted a wedding for their daughter.

**Abraham Port, M.D. '81**, is practicing complete women's imaging in Garden City, New York. He previously held positions as director of breast imaging at the South Nassau Communities Hospital; director of breast imaging at Mount Sinai Medical Center; and director in the department of radiology at Mount Kisco Medical Group.

**Deborah Rubin, M.D. '81**, is the William B. Kountz Professor of Medicine and Developmental Biology in the division of gastroenterology at the Washington University School of Medicine in St. Louis. She and her spouse, Marc Levin, M.D., have had a longstanding collaborative research program that focuses on gastrointestinal stem-cell dynamics in gut injury and carcinogenesis. Dr. Rubin also heads an intestinal rehabilitation/short-bowel clinic and is associate director for faculty affairs for the division of gastroenterology and a fellow of the American Association for the Advancement of Science. The couple have two sons: Robert Levin, who is a news editor at *Newsday*, and Ben Levin, a musician and composer in Boston.

**David Sherr, M.D. '81**, worked for close to 15 years at North Shore University Hospital, followed by almost 10 years at Weill Cornell Medical Center, where he received an M.S. in clinical epidemiology. David is now chief of radiation oncology at the Brooklyn Hospital Center.

**Lee Simerman, M.D. '81**, is retired after 30 years in a Philadelphia hospital-based radiology practice, first at Graduate Hospital for over 13 years and then at the nation's oldest hospital, Pennsylvania Hospital, for more than 16 years. He now spends winters in Fort Lauderdale.



## STAY IN TOUCH

Keep your classmates up to date by submitting your news to *Einstein* magazine. We look forward to including you. Email us at [einsteinalumni@einsteinmed.org](mailto:einsteinalumni@einsteinmed.org).

**Stuart Kaplan, M.D. '85**, is a partner in Rheumatology Consultants in Hewlett, New York, and serves as chief of rheumatology at Mount Sinai South Nassau Hospital. He and his wife, Dalia, have six children and five granddaughters. Their oldest daughter, Atira Kaplan, M.D., who completed her residency and fellowship in psychiatry and women's rehab at Montefiore, is married to **Jerry Karp, M.D. '18**, son of Dr. Kaplan's roommate at Einstein, **Adam Karp, M.D. '87**.

**Peter Sherman, M.D., M.P.H. '86**, received a grant from the World Childhood Foundation to start the Bronx Human Trafficking Task Force, a multidisciplinary group.

**Lewis Stein, M.D. '86**, became an ambulatory anesthesia specialist over the past 10 years and moved away from obstetric anesthesia. His group practice covers many sites throughout metropolitan New York City and Long Island. He lives in Lawrence, New York, and enjoys spending time with his wife, children, and grandchildren. He is considering a run for the U.S. Senate in 2022.

**Eryn Oberlander, M.D. '88**, is thankful to be able to practice psychiatry via video sessions. Her eldest daughter got married in Colorado this summer and works in healthcare investing; her youngest daughter graduated summa cum laude from Wharton amidst COVID-19; and her middle daughter received a master's degree in education from Boston University.

## 1990s

**Victoria Shulman, M.D. '90**, and **Elliot Shulman, M.D. '90**, announce the birth of two grandchildren: Caleb, born Oct. 18, 2020, and James, born Dec. 4, 2020. Dr. Victoria Shulman is a pediatric emergency attending at Children's Hospital at Montefiore. Dr. Elliot Shulman is a urologist in New Jersey.

**Jane Gold, M.D. '92**, is pleased to welcome her daughter, Samantha Gold, to the Einstein Class of 2024. Dr. Gold works for Premise Health as the medical director for the WarnerMedia Health Hub in New York City's Hudson Yards.

**Laurie Marzullo, M.D. '92**, and **Nathaniel Robin, M.D. '89**, have been at Children's of Alabama since 2003. Dr. Marzullo divides her time between clinical work and medical education. Dr. Robin is clinical director and residency director of clinical genetics. Their three sons live in Manhattan. Their "Einstein baby," Joseph, is an intern in orthopedics at NYU, son Timothy works for a financial tech company, and Alex is a recent Columbia graduate.

**Jeff Gindi, M.D. '97**, is pleased to announce the upcoming bat mitzvah of his daughter, Sarah, age 12. Dr. Gindi has been an associate medical director for a hospitalist medicine practice and an instructor in medicine with New York Medical College in Westchester County. He founded the New York City/Westchester chapter of the Society of Hospital Medicine and is its president.

**David Holbrook, M.D. '97**, completed his residency and fellowship in child and adolescent psychiatry in 2002. He has a private practice in Lebanon, New Jersey, with a special interest in the mind-body relationship as well as the importance of the autonomic nervous system. He tends to specialize in working with difficult patients and severe psychiatric pathology.

**Reena Karani, M.D. '97**, was elected

treasurer of the National Board of Medical Examiners. She is director of the Institute for Medical Education and a professor of medical education, medicine, and geriatrics and palliative medicine at the Icahn School of Medicine at Mount Sinai.

**Sarah Klagsbrun, M.D. '98**, is now class ambassador and will email members to submit Class Notes. Dr. Klagsbrun is a child and adolescent and adult psychiatrist, and the medical director of Four Winds Hospital in Westchester County, New York.

**George Ruiz, M.D. '98**, has joined Geisinger Health System in Pennsylvania as chair of cardiology and vice chair of the Geisinger Heart Institute. He specializes in clinical cardiology with a subspecialty in adult congenital heart disease and pulmonary hypertension.

## 2000s

**Victoria Chernyak, M.D. '01**, has completed her tenure at Montefiore Medical Center after nearly 19 years.

**Joshua Rocker, M.D. '01**, became chief of the pediatric emergency department at Cohen Children's Medical Center two years ago. The flu season of 2019–2020 was intense, and then COVID-19 occurred. Dr. Rocker has been running a pediatric emergency medicine conference for the last nine years. This year, the theme was "Lessons Learned from 2020" ([ccevent.site/2021-05-26-pem/](http://ccevent.site/2021-05-26-pem/)).

**Adam J. Friedman, M.D. '06**, was appointed chair of dermatology at the George Washington University School of Medicine & Health Sciences in Washington, D.C. He also received the inaugural advocacy leadership award from the Derma Care Access Network.

**Gary S. Schwartz, M.D. '06**, was named the director of the extracorporeal membrane oxygenation (ECMO) program at Baylor University Medical Center in Dallas, and is a member of the Extracorporeal Life

Support Organization committee for use of ECMO for COVID-19.

**Lee Schalop, M.D. '08**, announces that Oncoceutics, the biotech company that he co-founded shortly after graduating from Einstein, merged into a larger drug company called Chimex in January.

## 2010s

**Chris R. Hawk, M.D. '11**, lives in the Pacific Northwest with his wife, **Carolyn Saylor Hawk, M.D., Ph.D. '11**, and their two girls—almost 4 and 6. Dr. Carolyn Hawk is a primary-care pediatrician, and Dr. Chris Hawk developed a home-visit/palliative-care program for the Lummi, a local Native American Salish coast tribe.

**Amanda Guardado, M.D. '15**, moved back to New York City in 2019 after completing her residency in obstetrics & gynecology at the University of Maryland in Baltimore. She now works for Columbia University as a general ob-gyn with NewYork-Presbyterian Allen Hospital and is site director for obstetrics & gynecology at the Washington Heights Family Center.

**Jonathan Sterman, M.D. '15**, is finishing his fellowship in muscular skeletal radiology at Montefiore and will take a position at Hudson Valley Radiology. He and his wife, **Shira Wieder, M.D. '15**, have a daughter. Dr. Wieder is a dermatologist in Riverdale, New York.

**Adam Berman, M.D. '16**, finished his internal medicine residency and a fellowship at Brigham and Women's Hospital and began his cardiology fellowship at Brigham in July 2020. Dr. Berman's wife, Tova, is a clinical pharmacist. They have two children—Noam, 5, and Lior, 2.

**Ethan B. Fram, M.D. '16**, and his wife, Laurie, had a baby boy, Julian, in November 2020 at White Plains Hospital.

**Miles Gordon, M.D. '16**, is at NYP-Columbia as faculty for emergency

medicine and emergency ultrasound. He and his wife have a 2-year-old son. He says he is happy to be near Einstein alumni, such as gastroenterologist to the stars **Andrew Joelson, M.D. '16**!

**Yair Saperstein, M.D. '16**, married Miriam Friedman on March 14, 2021. Dr. Saperstein is the chief executive officer of avoMD, a health tech startup that digitizes clinical algorithms for internal medicine and pediatric physicians. Miriam is a business strategy consultant at Accenture.

**James M. Semple, M.D. '16**, married **Elizabeth Chernyak, M.D. '16**, on New Year's Eve in 2019 and welcomed a baby girl, Katerina, on Aug. 9, 2020. Dr. Semple is an emergency medicine attending in New Jersey, and Dr. Chernyak is a neurology attending in Brooklyn.

**Elizabeth Goldberger, M.D. '17**, is an emergency medicine physician at NYU Langone. She married Zachary Mostel, a fellow physician, in June 2020.

## IN MEMORIAM

**Robin Briehl, M.D.**, age 92, professor emeritus of physiology & biophysics at Einstein who focused on sickle-cell research, Dec. 31, 2020, Waccabuc, New York.

**Arpan De, Ph.D.**, age 34, a recent postdoctoral fellow in medicine and in molecular pharmacology at Einstein, June 7, 2021, India.

**Joel. S. Feiner, M.D. '64**, age 82, former professor of psychiatry and director of social and community psychiatry at Einstein and director of psychiatry residency training at Montefiore; later a professor of psychiatry at University of Texas Southwestern Medical School, Sept. 8, 2020, Ashland, Oregon.

**Robert Finberg, M.D. '74**, age 71, professor of medicine and chair emeritus of the department of medicine at UMass Medical School, an infectious-disease expert, and a COVID-19 vaccine researcher who was the 2018 recipient of the Dominick P. Purpura Distinguished Alumnus Award, Aug. 30, 2021, Worcester, Massachusetts.

**Christine Lawrence, M.D.**, age 90, distinguished university professor of medicine emerita at Einstein and a hematologist at Jacobi Medical Center, July 31, 2021, New York City.

**Philip Lief, M.D.**, age 81, retired professor of medicine at Einstein, former program

director in internal medicine at Einstein and Montefiore, and retired vice chair of medicine at Einstein and Montefiore, Aug. 23, 2021, White Plains, New York.

**Irving Listowsky, Ph.D.**, age 85, professor emeritus of biochemistry at Einstein and member of the Albert Einstein Cancer Center and of the Marion Bessin Liver Research Center from its 1974 inception, April 28, 2021, Flushing, New York.

**Stephen W. Mackey, M.D. '87**, age 60, July 23, 2021, infectious-disease specialist who also taught science at the University of Arkansas at Little Rock, Pulaski Technical College, and Baptist Health College, July 23, 2021, Little Rock, Arkansas.

**Jack Peisach, Ph.D.**, age 88, professor emeritus of biophysics and physiology at Einstein, a pioneer in the field of electron paramagnetic resonance spectroscopy, and internationally renowned for research on metals in biochemistry, March 4, 2021, New York City.

**Murray Wittmer, M.D., Ph.D.**, age 93, professor emeritus of pathology at Einstein, renowned in the field of parasitology, March 18, 2021, Larchmont, New York.



## IN MEMORIAM

### Director of Stem Cell Research Institute Paul Frenette, M.D.



**Paul S. Frenette, M.D.**, age 56, professor of medicine and of cell biology and the founding director and chair of the Ruth L. and David S. Gottesman

Institute for Stem Cell Biology and Regenerative Medicine at Einstein, died on July 26, 2021, of angiosarcoma, a rare type of cancer, in New York City.

A pioneer in hematopoietic stem-cell research, Dr. Frenette made breakthrough observations that helped advance the understanding of vascular biology, sickle-cell disease, cancer, and stem-cell biology. He was able to make a series of discoveries relating to the production and release of hematopoietic stem cells from their “niche” in the bone marrow; the mechanisms by which the abnormal red cells in sickle-cell anemia clump within

blood vessels, leading to sickle-cell crises; and the role of the autonomic nervous system in regulating the growth of prostate-cancer and leukemia cells.

An effective, engaging, and supportive leader, Dr. Frenette hired and mentored eight successful junior faculty members to grow the Gottesman Stem Cell Institute into a major research establishment.

“Paul Frenette’s untimely passing is a great loss to the Einstein community, not only because of his brilliant scientific research but also because of his exemplary human qualities of kindness, thoughtfulness, and respect for others,” said Dr. Gottesman, chair of Einstein’s Board of Trustees. “My husband and I were strong supporters of Paul’s work, not only because of the quality of his research, but also because of his outstanding qualities as a person. We will miss him tremendously.”

Gordon F. Tomaselli, M.D., the Marilyn and Stanley M. Katz Dean at Einstein and

vice president and chief academic officer at Montefiore, echoed that sentiment: “Paul was a gifted scientist, wise mentor, exceptional leader, and an even better human being.”

A native of Canada, Dr. Frenette received his medical degree from Université Laval in Quebec City, followed by residency training at McGill University in Montreal; he completed a clinical fellowship in hematology-oncology at Tufts–New England Medical Center in Boston. After a faculty appointment at Harvard Medical School, Dr. Frenette joined the faculty of the Mount Sinai School of Medicine in 1998 and was recruited to Einstein in 2010.

Dr. Frenette is survived by his wife, Nadine, and children, Clara and Alberic.



**READ MORE**

Learn more about Dr. Frenette: [magazine.einsteinmed.org/Frenette21](https://magazine.einsteinmed.org/Frenette21)

### Montefiore Trustee Oded Aboodi



**Oded Aboodi**, committed Montefiore Medicine Board of Trustees vice-chair as well as Montefiore Medicine and Montefiore Health System treasurer, died August 15, 2021, at age 79 in Greenwich, Connecticut.

Mr. Aboodi brought immense expertise to his volunteer leadership positions, including serving as chair of the finance committee

and member of the executive and compensation committees. A certified public accountant, he acted as chairman and chief executive officer of Alpine Resources LLC, and organizer and chairman of Alpine Capital Bank.

His dedication to Montefiore spanned both his thought leadership and philanthropy. Mr. Aboodi was a generous supporter of Montefiore and Einstein’s cardiothoracic surgery and cancer programs.

He is survived by his children, Henry and Monica, David and Meredith, and Abigail and Steven; his longtime partner, Judy Lewis; and his grandchildren, Gabrielle, Michelle, Jacob, Lauren, Rachel, Avery, Nicole, Talia, Aaron, Eric, and Phoebe.

### Einstein Trustee Jay Goldberg



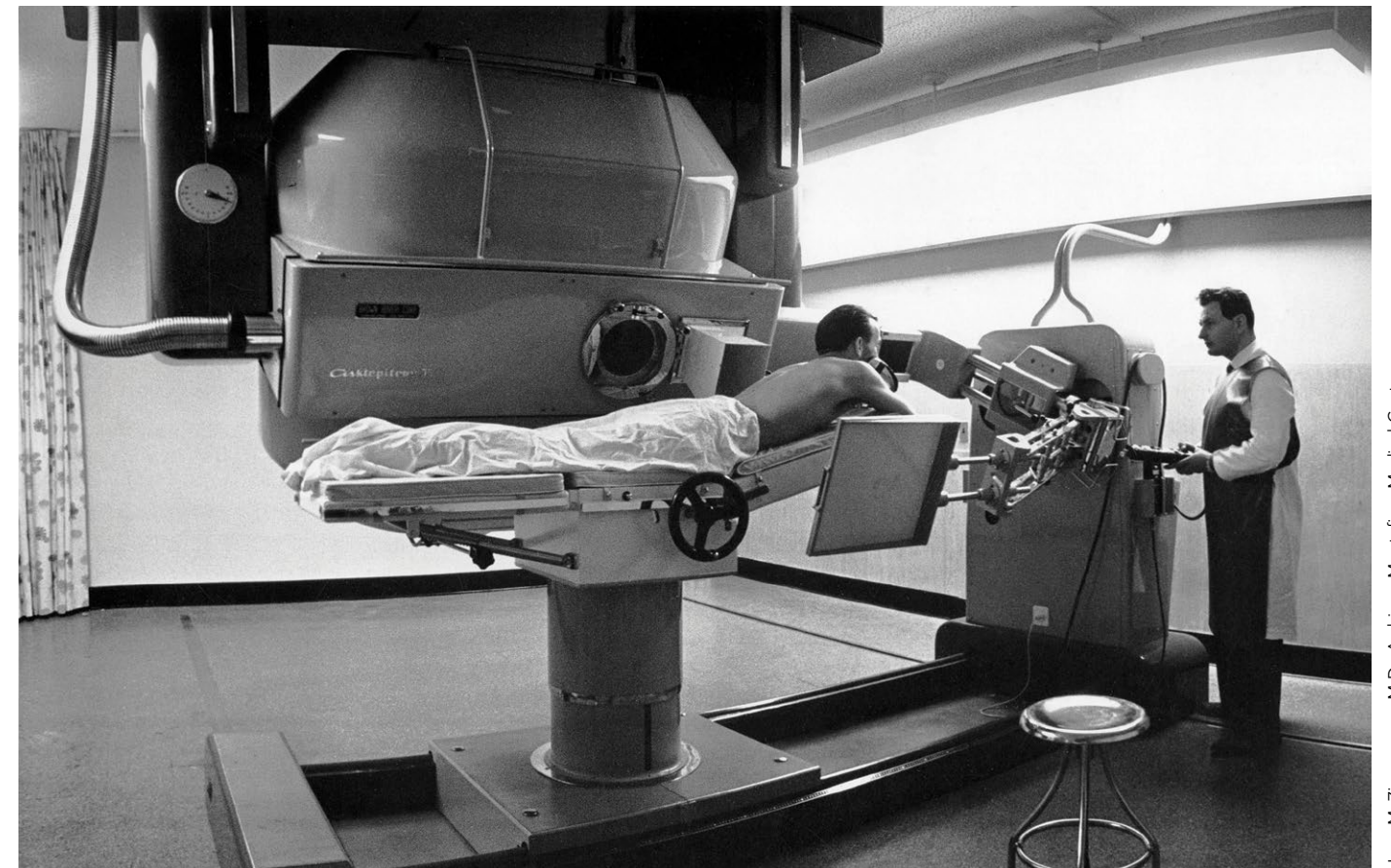
**Jay Neil Goldberg**, longtime Einstein Board of Trustees member and steadfast supporter of the College of Medicine and the Albert Einstein Cancer Center, died June 17, 2021, at age 80 in New York City.

Mr. Goldberg was a member of the legal, compliance, finance, and investment committees of the Board of Trustees, serving for more than 20 years. He was also a member of the Albert Einstein Cancer Center Research Advisory Board and former chairman of the Einstein Men’s Division, which honored him with the Albert Einstein Humanitarian Award.

Mr. Goldberg was a pioneer in the field of computer data processing, building and selling three companies in the field before becoming co-founder of Hudson Ventures, LP, a venture capital firm that invests in early stage technology.

He is survived by his wife, Mary Cirillo-Goldberg; daughters Susanne Currivan, Melissa Haddad, Laura Ortiz (Angel), and Julie Goldberg Mangini (Justin); six grandchildren; and sister Karen Ostroff.

## A LOOK BACK



Harry M. Zimmerman, M.D., Archives, Montefiore Medical Center

## The Betatron Swings Into Action

Sixty years ago, in August 1961, a 30-ton betatron—at the time the world’s most advanced radiation device for treating cancer, and the first of its kind in a major U.S. hospital—went into service at Montefiore after a year’s installation effort. The giant Swiss-made device cost \$150,000 and was donated to Montefiore by Henry L. Moses, for whom the Moses campus is named, and operated under the tutelage of Charles Botstein, M.D., the founder of the department of radiation oncology. The betatron created electric and magnetic fields to accelerate electrons (beta particles) and focused them into beams. An elevator mechanism lowered the giant device close to a patient positioned on a movable table. Both the patient and the betatron were kept in pre-programmed motion during treatment.

Fifteen years later, the Montefiore betatron was replaced by a simpler-to-use linear accelerator. Today, Montefiore’s Center for Radiation Therapy uses linear accelerators that provide image-guided intensity-modulated radiation therapy, stereotactic radiosurgery for brain and body tumors, and image-guided brachytherapy.





Albert Einstein College of Medicine

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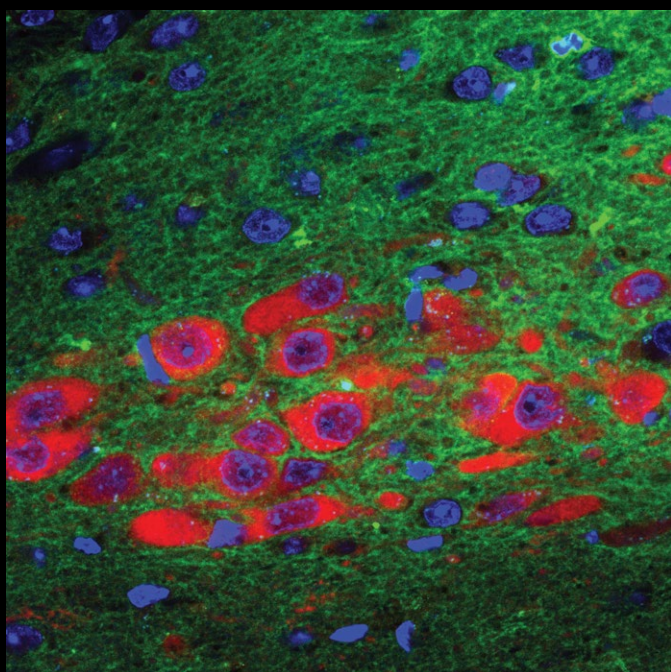
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## EINSTEIN IMAGE

The liver produces glucose and plays a key role in maintaining optimal blood-glucose levels. Researchers had assumed that sympathetic nerves triggered the liver to produce glucose, and that parasympathetic nerves suppressed the liver's glucose production. But in a study published in *Nature Communications* in December 2020, Young-Hwan Jo, Ph.D., and colleagues identified a novel parasympathetic circuit that can boost the liver's glucose output. As shown in this fluorescence-microscopy image of a mouse brain stem, the circuit involves axon terminals (stained green) of so-called POMC neurons that extend from the hypothalamus (known to be important in glucose regulation) and interact with acetylcholine-producing neurons (stained red) of the dorsal motor nucleus of the vagus (the main component of the parasympathetic nervous system). The Einstein researchers found that stimulating this previously unknown circuit increased blood-glucose levels—suggesting a possible strategy for responding to and counteracting hypoglycemia when it affects people with diabetes. Dr. Jo is an associate professor of medicine and of molecular pharmacology at Einstein.