

WINTER/SPRING 2018

EINSTEIN

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



EVERY BREATH THEY TAKE

Research studies, clinical services and community projects at Einstein and Montefiore are helping asthma sufferers breathe easier

Einstein's New Dean
see page 17

A Message from the Dean

Once again, I take pleasure in introducing this latest issue of *Einstein* magazine, with its cover story on the wide-ranging research and community programs at Einstein and Montefiore addressing the devastating impact of asthma in the Bronx. Other highlights are in-depth interviews with one of Einstein's promising junior investigators in the field of aging, Derek Huffman, and an outstanding clinical department chair, ophthalmologist Roy Chuck.

Writing this message is bittersweet, because it will be my last as Einstein's dean. The past 12 years have unequivocally been challenging, but also highly rewarding. The success of our outstanding research faculty, including many I recruited personally, is something we can all take pride in. Seeing junior, tenure-track investigators make remarkable discoveries as they progressed to become world-class, tenured full professors made my efforts to find the resources to recruit and then support them all worthwhile. Our faculty's success is also enabled by the hard work and creativity of our graduate students and postdoctoral fellows. Despite a difficult funding environment and other challenges, many of our grad students and postdocs have been highly successful in their career advancement.

Enhancing our medical students' education has also been a priority for me. Improving the physical resources by establishing our Clinical Skills Center and our Education Center and, equally important, appointing outstanding deans for education and for student affairs have kept Einstein at the forefront of medical education.



Nothing I was able to accomplish as dean over the past 12 years would have been possible without tremendous support from key people: my own leadership team, whose selfless dedication and outstanding performance proved invaluable; Montefiore's leaders, whose vision of a synergistic relationship with Einstein immeasurably improved the strength of both institutions; and members of the Einstein Board, who were steadfast in offering not merely critical financial support but also encouragement and sage advice in difficult times.

Thanks to all of these people, Einstein can truly look forward to future success in its research and educational missions as an integral part of Montefiore Medicine.

ALLEN M. SPIEGEL, M.D.
*The Marilyn and Stanley M. Katz Dean
Albert Einstein College of Medicine
Executive Vice President, Chief Academic Officer
Montefiore Medicine*

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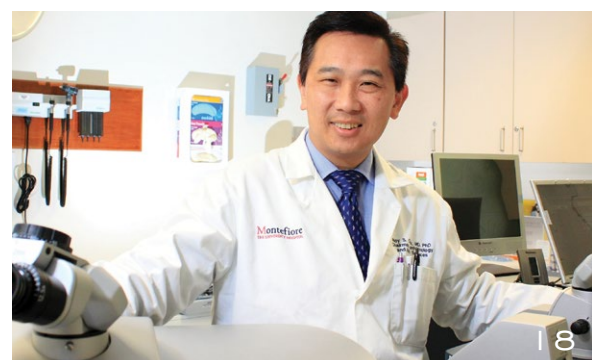
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COLLEGIAL LIFE



Familiarity Breeds Better Care for Patients

A medical student and a nurse practitioner walk into a classroom...

No, it's not the start of a joke, but rather part of a trend in health professional training called interprofessional education (IPE). The goal is to prepare students for the increasingly collaborative healthcare environment that awaits them. In this classroom, 20 third-year Einstein medical students and Columbia University nurse

practitioner (NP) students were split into four teams—each team a mix of both types of students—to discuss such questions as “What is the best indicator of high-quality diabetes care?” The idea is for future doctors and future NPs to learn more about real-life issues they will soon be dealing with, and to get to know one another in the process.



“Medical students should learn early that reaching across professions isn’t just a ‘feel-good’ exercise but actually helps them to learn and to become better doctors.”

Above, third-year medical student Kayla Applebaum, left, confers with Stephanie Chambers, D.N.P.

Left, Oladimeji Oki, M.D., an assistant professor and assistant clerkship director in the department of family and social medicine, facilitates an IPE class.

“Med students and NPs will be working together when they graduate, so each should have a clear idea of the other’s training and better understand each other’s roles,” says Maria Teresa Santos, M.D., the director of Einstein’s family medicine clerkship, an assistant professor of family and social medicine at Einstein and an attending physician at Montefiore. “NPs are trained and licensed to do many of the things doctors can, including prescribe medication.”

NPs are registered nurses whose graduate education allows them to specialize in different areas of medicine, much as doctors do. Thanks to their time spent as registered nurses, second-year NP students arrive in the IPE classroom with extensive clinical knowledge and experience. They usually know more about interacting with patients than do their third-year medical school IPE classmates, who may just be starting their clerkships.

“Medical students should learn early that reaching across professions isn’t just a ‘feel-good’ exercise but actually helps them to learn and to become better doctors,” says Pablo Joo, M.D., associate dean for medical education at Einstein

and an attending physician in family and social medicine at Montefiore. “We hope they’ll realize that some of their greatest allies on the wards and in the clinic are members of other professions.”

Dr. Joo, Dr. Santos and their longtime colleague Marlene McHugh, D.N.P., developed the IPE team-based learning sessions as part of the clerkship. Dr. McHugh, the program coordinator, is an assistant professor of nursing at Columbia University’s School of Nursing and a family nurse practitioner in clinical practice at Montefiore.

The family medicine clerkship’s dual-profession IPE classes debuted in 2014, and consist of three team-based learning sessions. “They read about clinical cases in advance, and then evaluate and discuss in class realistic scenarios involving patients with diabetes, hypertension and elevated cholesterol,” explains Dr. Santos.

The sessions are popular with students. “Once we’re on the wards, we’re expected to work seamlessly with social workers, nurses, therapists and other providers,” says Mollie Nisen, a fourth-year Einstein medical student, who participated in the IPE. “This class gives us some exposure to the realities of how hospitals and clinics actually function and also a better understanding of what other members of the healthcare team are expected to do.”

Meredith Peeke, a doctoral family nurse practitioner student at Columbia, says that participating in the IPE sessions made her feel more confident professionally. “I get a little intimidated working with M.D.s,” she admits, “so it was really nice to work with M.D. students and meet them in a more approachable environment.”

of Students Telling Stories

Gaining Insights and Empathy
through Reflective Writing

Reflective writing is honest writing that puts you in touch with a part of you that doesn't get revealed in conversation," says Paul Gross, M.D., an assistant professor of family and social medicine at Einstein, an attending physician in family medicine at Montefiore and a driving force behind reflective writing at Einstein. "It stimulates you to think about important questions, such as 'How are we treating our patients and each other?' and 'How do we make sure we're doing what we set out to do when we entered the field of medicine?'"

Starting with orientation, medical students do reflective writing throughout their Einstein careers. It's part of the first- and second-year Introduction to Clinical Medicine course and the third-year Patients, Doctors and Communities (PDC) course, and is offered as an elective to fourth-year students.

In addition to leading an orientation workshop in reflective writing, Dr. Gross is a PDC small-group leader at

Einstein and also the editor of *Pulse: Voices from the Heart of Medicine* (pulsevoices.org), an online literary journal that publishes writing by healthcare professionals, students and patients. He also teaches reflective writing to family and social medicine residents at Montefiore. Depending upon the setting, writing topics may be suggested by a curriculum or by Dr. Gross, but students often choose to write about events that particularly moved them. Dr. Gross encourages them to read their stories aloud to one another; their responses are overwhelmingly supportive.

"Reflective writing is not about writing well or creating perfect sentences," he says. "The aim is to get students in touch with their truest feelings and make sense of their experiences by putting them on paper."

The third year may be the most crucial time for reflective writing. "Evidence indicates that as students go through medical school, they become more impatient and less empathetic,

"Writing can serve to inoculate against burnout, cynicism, impatience and arrogance, and help students have compassion for their patients and themselves."

Reflective Writing Essays by Third-Year Med Students

“My first patient was a vibrant man in his forties who loves his job, his wife, and his family. He also has a nonresectable brain tumor, probably a glioblastoma. My attending asked me to join the conversation where we would tell the patient the test results, and I’ll never forget his face when we told him what we now knew. But what really broke my heart was when he cried as he mourned the loss of time to do all that he had planned to do.”

“One night during my surgery rotation, the team was called to the emergency room to examine a patient with an infected, necrotic toe. It was clear that his diabetes was uncontrolled; his left leg and two of his right toes had already

been amputated. But the patient’s perception was very different. He said his case was minor and that his A1C level was tightly controlled. When we asked about his amputations, he said they were the result of malpractice. In response to questions about his necrotic toe he insisted the bone poking through the decaying flesh was just his toenail. I couldn’t understand this mindset. If he believed his toe wasn’t a problem, why did he come to the ER? What could I do to help him realize that he needed to control his diabetes? How could I show him that we were only trying to help? I felt powerless to help someone who clearly needed help, both surgically and psychologically.”

“6:15 A.M. on my last shift on the labor and delivery floor. I’d been at the hospital two weeks, scrubbed into eight C-sections, but still hadn’t delivered a baby. My shift ended in an hour, and I was certain another night would pass without a delivery. But then the fetal monitoring screen showed one mother-to-be contracting strongly and often so we readied her room for delivery. I’d met her the night before—32 years old with a history of substance abuse and 10 to 20 documented suicide attempts. By 7:15 A.M. we’d delivered a healthy baby girl. That moment was beautiful. Two days later, the mother tried to leave the hospital without the baby and was stopped by security. I imagine it was just another sad moment in her life, and I wish her the best trying to overcome her demons.”

and have higher rates of depression,” notes Dr. Gross. “Those problems seem to peak during the third year, when students embark on their clerkships and are exposed to people who are sick and dying. Writing can serve to inoculate against burnout, cynicism, impatience and arrogance, and help students have compassion for their patients and themselves.”

Third-year student Paul Wojack was skeptical at first about the possible benefits. “My perspective changed when I began working with patients daily and often found myself in emotionally charged situations,” he says. “Writing about those experiences and sharing

experiences is cathartic—I get to release emotions and realize I’m not alone, because I know from my classmates’ writing that we’re *all* having difficult patient encounters.”

Over the past decade, reflective writing has become increasingly common in medical education. Studies indicate that it’s more than just a warm and fuzzy addition. A systematic review of reflection as a learning tool published in the *Journal of Graduate Medical Education* found that reflective writing “has a positive impact on empathy, increases comfort with learning in complex situations and enhances engagement in the learning process.”

Sarah Stumbar, M.D., M.P.H., a family physician and 2015 graduate of Montefiore’s residency program in social medicine, studied reflective writing with Dr. Gross and continues to write. “Often, it will take me a few months during which I am thinking about a certain patient interaction,” says Dr. Stumbar, now an assistant professor of family medicine in the department of humanities, health and society at the Herbert Wertheim College of Medicine at Florida International University in Miami. “Writing helps me figure out how my patients’ stories are woven into my own story—of medicine, of humanity, of growing up.”

Welcome!



Chairs

Emad Eskandar, M.D., M.B.A.

*Professor and University Chair of Neurosurgery
Jeffrey P. Bergstein Chair in Neurological Surgery*

Dr. Eskandar is an expert in treating brain tumors, epilepsy, trigeminal neuralgia and Parkinson's disease. He joins Einstein and Montefiore from Harvard Medical School, where he was a professor of neurosurgery and director of both functional neurosurgery and neurosurgery residency. Dr. Eskandar's research specialty is the neural basis for learning, motivation and impulsivity, and he is the principal investigator on several National Institutes of Health-funded grants.



Judy Yee, M.D.

Professor and University Chair of Radiology

Dr. Yee was previously at the University of California, San Francisco, where she directed the 3D Imaging Laboratory and was the vice chair of the neurology department and chief of radiology at the San Francisco VA Health Care System. She is an expert in abdominal radiology, best known for developing a novel technique called virtual colonoscopy, which is used around the world as a tool for detecting colorectal cancer. Dr. Yee received her medical degree at Einstein in 1987.

Division Chiefs



David Loeb, M.D., Ph.D.

Professor and Chief of the Division of Pediatric Hematology, Oncology, Marrow and Blood Cell Transplantation, Department of Pediatrics

Dr. Loeb, an expert in translational sarcoma research, previously worked at the Johns Hopkins University School of Medicine, where he served as the director of the musculoskeletal tumor program and as the co-director of the sarcoma program at the Johns Hopkins Sidney Kimmel Comprehensive Cancer Center.



Michael Ross, M.D.

Professor and Chief of the Division of Nephrology, Department of Medicine

Before this appointment, Dr. Ross served as the chief of the renal division at the James J. Peters VA Medical Center and was an associate professor of medicine at the Icahn School of Medicine at Mount Sinai. A major focus of the Ross laboratory at Einstein and Montefiore is to identify novel mechanisms of kidney injury that affect people who are HIV-positive.

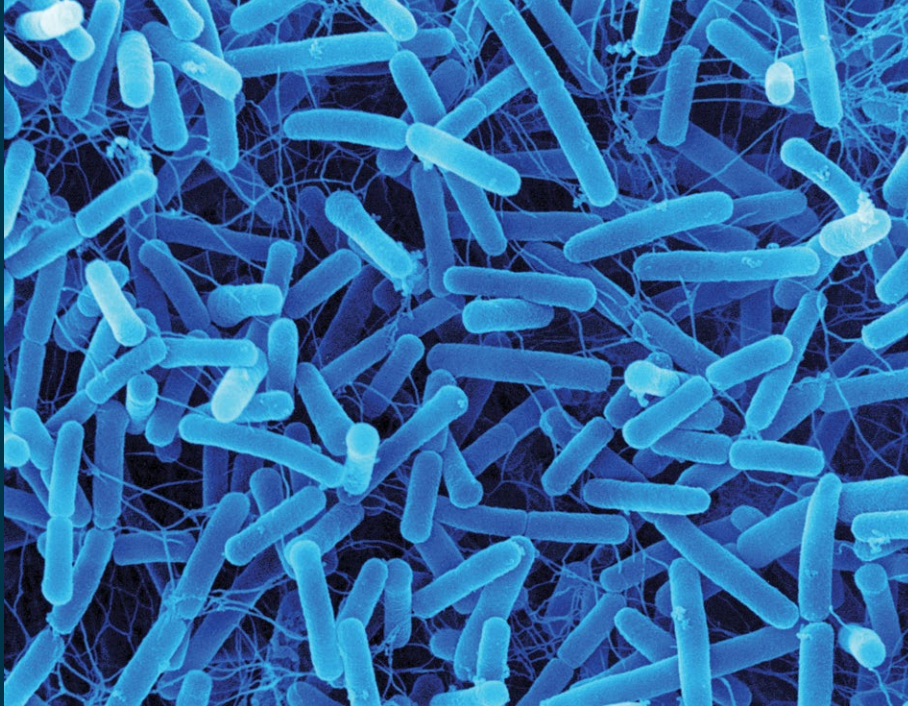


Thomas Ullman, M.D.

Professor and Chief of the Division of Gastroenterology, Department of Medicine

Dr. Ullman was previously the senior associate dean for clinical affairs and a professor of medicine in the Dr. Henry D. Janowitz Division of Gastroenterology at the Icahn School of Medicine at Mount Sinai. He is an expert on inflammatory bowel disease (IBD) and has focused on the relationship between IBD and colorectal cancer.

RESEARCH NOTES



Scanning electron micrograph of *Proteus*, rod-shaped bacteria commonly found in the intestine.

Gut Microbiome May Turn Chemo Drug Against Patients

Einstein researchers report that the composition of people's gut bacteria may explain why some of them suffer life-threatening reactions after taking a drug for treating colorectal cancer. The findings, described last November in *npj Biofilms and Microbiomes*, a *Nature* research journal, could help predict which patients will suffer side effects—and may prevent complications in susceptible patients.

"We've known that people's genetic makeup can affect how they respond to a drug," says study leader Libusha Kelly, Ph.D., assistant professor of systems & computational biology and of microbiology & immunology at Einstein. "Now it's becoming clear that variations in

one's gut microbiome—the population of bacteria and other microbes that live in the digestive tract—can also influence the effects of treatment."

Irinotecan is one of three first-line chemotherapy drugs used to treat colorectal cancer that has spread, or metastasized, to other parts of the body. However, up to 40 percent of patients who receive irinotecan experience severe diarrhea that can lead to death.

Irinotecan is administered intravenously in an inactive form. Liver enzymes metabolize the drug into an active, toxic form that kills cancer cells. Later, other liver enzymes convert the drug back into its inactive form, which enters the intestine via bile for

elimination. But some people harbor digestive-tract bacteria that use part of inactivated irinotecan as a food source by digesting the drug with beta-glucuronidase enzymes. Unfortunately, this enzyme action metabolizes and reactivates irinotecan back into its toxic form, which causes serious side effects by damaging the intestinal lining.

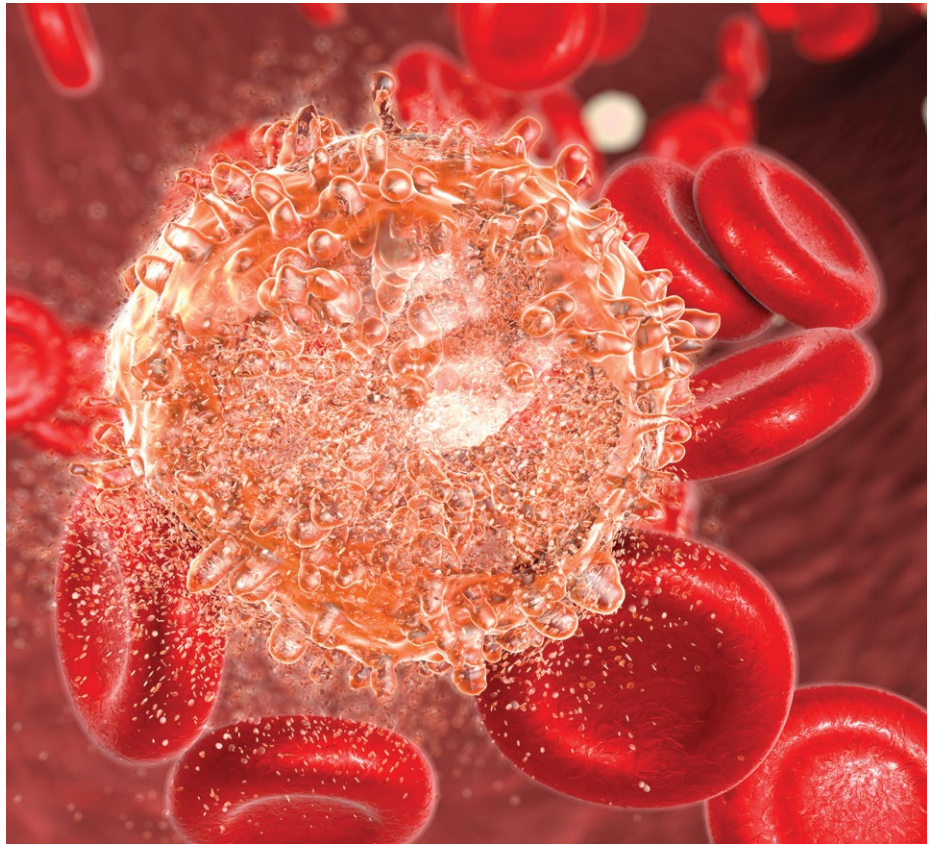
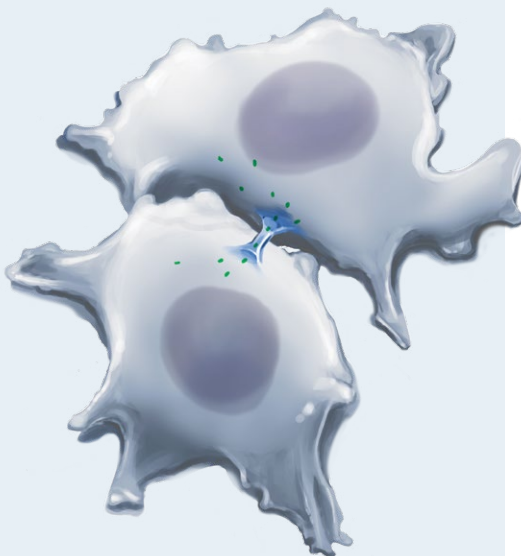
Dr. Kelly and her colleagues investigated whether the composition of a person's microbiome influenced whether irinotecan would be reactivated or not. The researchers collected fecal samples from 20 healthy individuals and treated the samples with inactivated irinotecan. Then using metabolomics (the study of the unique chemical fingerprints that cellular processes leave behind), the researchers grouped the fecal samples according to whether they could metabolize, or reactivate, the drug. Four of the 20 individuals were found to be "high metabolizers" and the remaining 16 were "low metabolizers."

Fecal samples in both groups were analyzed for differences in the composition of their microbiomes, focusing on the presence of beta-glucuronidases. The researchers found that the microbiomes of high metabolizers contained significantly higher levels of three previously unreported types of beta-glucuronidases compared with low metabolizers.

The findings suggest that analyzing the composition of patients' microbiomes before giving irinotecan might predict whether patients will suffer side effects from the drug.

Mobile mRNAs

In a study published online on October 24 in the *Proceedings of the National Academy of Sciences*, Einstein researchers, led by Robert Singer, Ph.D., describe the mechanism by which messenger RNA (mRNA) molecules travel from one cell to another: via extensions called membrane nanotubes that form when cells are in direct contact with each other. The transfer of mRNA from cell to cell could influence processes such as tissue development and cellular response to stress. Dr. Singer is professor and co-chair of the department of anatomy and structural biology, as well as co-director of the Gruss Lipper Biophotonics Center and of the Integrated Imaging Program. He is also the Harold and Muriel Block Chair in Anatomy and Structural Biology. Gal Haimovich, the study's lead author, was a Gruss Lipper postdoctoral fellow at Einstein when the research was conducted.



Innovative Anti-Leukemia Strategy

Acute myeloid leukemia (AML) is a devastating and hard-to-treat cancer of the blood and bone marrow. Defects in the transcription factor PU.1 are known to play a role in causing AML. But until now, all efforts at targeting AML caused by defective PU.1 have failed. Transcription factors—proteins that regulate gene expression by binding to DNA—have historically been very hard to target with drugs. Ulrich G. Steidl, M.D., Ph.D., and colleagues reported last October in the *Journal of Clinical Investigation* that they had inhibited PU.1 through the novel strategy of targeting the minor groove—a part of the DNA double helix to which transcription factors don't usually bind. The researchers' first-in-class PU.1 inhibitors successfully halted overactive cell division in blood samples from AML patients, suggesting that targeting PU.1 could be a successful strategy for treating the disease. Dr. Steidl is the Diane and Arthur B. Belfer Faculty Scholar in Cancer Research, director of the Stem Cell Isolation and Xenotransplantation Facility and a professor of cell biology and of medicine at Einstein and associate chair for translational research in oncology at Montefiore.

Lab Chat

Derek Huffman, Ph.D., studies the biology of aging. He is an assistant professor of molecular pharmacology and of medicine and co-director of the chronobiosis and energetics/metabolism of aging core in Einstein's Institute for Aging Research.

What inspired you to go into science?

I got interested in doing research when I was an undergraduate and a family member received a dire diagnosis. I felt that research was the best way to make a difference for those burdened with disease.

Where were you raised?

In St. Joseph, MO, a town of about 80,000 people just outside Kansas City. It's known as "the place where the Pony Express started and Jesse James ended."

What brought you to Einstein?

I was studying energetics and cancer in graduate school, but became captivated by newly discovered links between metabolism and aging. I came to Einstein in 2007 as a postdoc to explore those links and other aspects of aging under Nir Barzilai, a leader in the field.

Dr. Barzilai studies the genetics of longevity. How do you approach aging?

We study the aging-metabolism interplay—how metabolic changes contribute to disease—and strategies to modulate metabolic pathways to promote healthy aging.

One of your specialties is an experimental technique called parabiosis. What does it involve?

Parabiosis is an old technique, dating to the 1800s, in which two organisms are

surgically joined so they share a single circulatory system. Using parabiosis, we showed that exposing young mice to old blood leads to cellular dysfunction in the gut. We then identified factors in the old circulation involved in causing those changes. These findings could lead to new ways to promote healthy intestinal aging and perhaps delay or treat aging-related metabolic disorders.

Would regular transfusions of young blood forestall aging?

The short answer is no, but that hasn't stopped some from pursuing this for commercial interests. The truth is, we know that not every youthful factor is good for an old body. Bottom line: parabiosis helps identify new candidates that may play a role in aging, but translating these discoveries to human use poses a different challenge.

The National Institute of Aging awarded you a grant to create mouse models of resilience. Could you explain?

Resilience is an organism's ability to respond to a physical challenge or stress and return to "normal." It's thought to correlate with good health and longevity. But we lack good animal models for studying this complex trait. The idea is to characterize how male and female mice respond to various stresses, such as elective surgery and infection, at various ages. We would then use this



information to develop rapid, inexpensive assays for evaluating interventions aimed at improving aging, health and resilience.

What is the secret to healthy aging?

Having the right genes is a good start. But that's rare, and not something you can control. You can delay aging in other ways, most notably through a balanced diet and exercise.

Do you practice what you preach?

I used to run regularly, but now I'm limited by a bum knee from years of playing sports—and the time I spend with my nine-month-old daughter, Emma. I try to stay in shape by riding a Peloton stationary bike, which allows you to compete in online spinning classes. It's a lifesaver. I can exercise to the brink of exhaustion and my knee won't pay for it.

RESEARCH NOTES

\$25 Million NIH Grant for Clinical and Translational Research in the Bronx

Years before they officially integrated, Montefiore and Einstein had already joined forces. They established the Block Institute for Clinical and Translational Research (ICTR), which harnesses the strength of both institutions to accelerate research and improve healthcare. Now, for a third time, the ICTR has received National Institutes of Health funding for a five-year cycle. The ICTR advances innovative research by providing vital resources for Einstein investigators through core facilities, education and career development. The ICTR is led by Harry Shamoon, M.D., associate dean for clinical and translational research; the ICTR associate directors are Marla Keller, M.D., vice chair for research in the department of medicine, and Paul Marantz, M.D., M.P.H., associate dean for clinical research education.



Einstein Ranks 7th in NIH Awards

Einstein investigators secured \$174 million from the National Institutes of Health (NIH) in federal fiscal year 2017—the largest annual total in the institution’s history. An analysis of NIH funding conducted by the Blue Ridge Institute for Medical Research shows that Einstein ranks seventh in dollars awarded per investigator (28th in total funding) among the nation’s top medical schools. Einstein’s top-ten ranking was determined by dividing total NIH funds awarded by the number of principal investigators for the top 40 medical schools. (The top 40 institutions all received more than \$120 million in 2017.) This places Einstein ahead of such medical schools as Columbia, Stanford, Johns Hopkins, Harvard and Yale.

Rank	School of Medicine	Total Awards	No. of PIs	Total \$ / PI
1	University of Southern California	\$169,628,084	176	\$963,795.93
2	Mayo Clinic, Rochester	\$253,755,770	266	\$953,969.06
3	Icahn School of Medicine at Mount Sinai	\$305,679,847	350	\$873,370.99
4	University of California, San Diego	\$334,752,481	385	\$869,486.96
5	University of California, Los Angeles	\$328,366,751	406	\$808,785.10
6	Duke University	\$356,025,482	444	\$801,859.19
7	Albert Einstein College of Medicine	\$174,455,049	220	\$792,977.50
8	New York University School of Medicine	\$232,235,358	296	\$784,578.91
9	Columbia University Health Sciences	\$350,338,254	450	\$778,529.45
10	Stanford University	\$422,642,872	545	\$775,491.51

MAJOR NIH RESEARCH AWARDS IN FISCAL YEAR 2018



New Data for TB Research

To develop faster and more cost-effective therapies for tuberculosis, researchers need to better understand the biology of *Mycobacterium tuberculosis*, the bacterium that causes the disease. William R. Jacobs, Jr., Ph.D., has received a five-year, \$2.85 million grant from the National Institute of Allergy and Infectious Diseases to systematically delete the coding regions of each of the nearly 4,000 genes of *M. tuberculosis* and mark each of those mutant variants with an identifying “barcode” DNA sequence. The complete set of barcoded deletion mutants will be distributed to researchers around the world. Studying how the mutations affect the bacterium’s function and survival may give researchers insights into better strategies for preventing or treating TB infections. Dr. Jacobs is the Leo and Julia Forchheimer Chair in Microbiology and Immunology, a Howard Hughes Medical Institute investigator and a professor of genetics and of microbiology & immunology at Einstein.

Probing Stem Cell Regulation

Embryonic and induced pluripotent stem cells hold great promise for regenerative medicine. Gene expression in stem cells is influenced by epigenetic marks, including methyl groups that are added to or removed from DNA. A class of proteins called TET enzymes aids in removing methyl groups from DNA, thereby activating specific genes in stem cells. Aberrant TET-mediated regulation of gene activity can lead to abnormal stem cell function and development, and to diseases such as cancer. Meelad Dawlaty, Ph.D., has received a five-year, \$1.75 million grant from the National Institutes of Health to investigate how TET proteins regulate embryonic stem cells. Findings from these studies will improve basic understanding of stem cell biology and could help identify new targets for treating diseases. Dr. Dawlaty is an assistant professor of genetics and a member of the Ruth L. and David S. Gottesman Institute for Stem Cell and Regenerative Medicine Research at Einstein.

Exploring Dystonia’s Genetic Cause

The neurological disorder dystonia causes muscles to contract involuntarily. It is the third most common movement disorder (after Parkinson’s and essential tremor) and affects about 250,000 Americans. Einstein’s Kamran Khodakhah, Ph.D., and colleagues developed a mouse model of DYT1, the most common inherited form of dystonia, that replicates the neurological symptoms of patients. Using this mouse model, they determined that dystonia is caused primarily by dysfunction of the brain’s cerebellum. The National Institute of Neurological Disorders and Stroke has awarded Dr. Khodakhah a five-year, \$2.3 million grant to use his mouse model to determine at the cellular and molecular levels how mutations associated with DYT1 cause dystonia. Dr. Khodakhah is professor and chair of the Dominick P. Purpura Department of Neuroscience and the Florence and Irving Rubinstein Chair in Neuroscience.



LOOKING BACK & AHEAD

Q&A with Allen M. Spiegel, M.D.

Marilyn and Stanley M. Katz Dean, Albert Einstein College of Medicine

“Becoming a physician, it seemed to me, was one of the best ways of leading a purposeful life.”

1. Dr. Spiegel with, from left, Steven M. Safyer, M.D., president and CEO, Montefiore; David A. Tanner, chair emeritus, Montefiore’s Board of Trustees; Ruth Gottesman, Ed.D., chair emeritus, Einstein’s Board of Trustees.
2. Dr. Spiegel with Edward R. Burns, executive dean.
3. Dr. Spiegel with Uruguay’s president, Tabaré Vázquez, M.D.
4. Dr. Spiegel with Muriel Block.

Looking Back

Your parents were both survivors of the Lodz ghetto, and you were born in a German displaced persons’ camp. How did this experience influence the decisions you made in life?

In two fundamental ways: first, my own humble origins gave me a deep appreciation for the value and potential of every human life, irrespective of place and circumstances of origin. Second, as the child of Holocaust survivors I was inevitably exposed to “secondhand smoke.” I will leave it to those reading this to figure out the meaning of that double entendre. This exposure was undoubtedly a critical factor motivating me from childhood to succeed, by which I mean to lead a purposeful life.

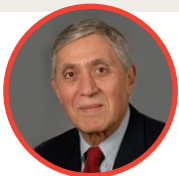
You first worked at Einstein at age 16, participating in a National Science Foundation-supported program to encourage students to pursue science careers. What has struck you as the most significant change between your first stint at

Einstein and when you returned as dean 44 years later?

In that brief summer of 1962, I was too young, and my exposure was too limited, for me to get a real sense of all that Einstein represented. I was simply grateful to be given an opportunity to learn something about laboratory research from people who were generous with their time and patient with my limited understanding of science. When I came to Einstein as dean in 2006, it was apparent that the qualities I had glimpsed 44 years before—a culture of collegiality and thoughtful mentorship of students at all levels—were alive and well.

What influenced your decision to become a physician/scientist?

Becoming a physician, it seemed to me, was one of the best ways of leading a purposeful life. At the same time, as I gained more exposure to laboratory research in college, medical school and during a fellowship at the National Institutes of Health [NIH], I realized that pursuing a research career could



June
Dean’s tenure begins



June
Michael F. Price Center for Genetic and Translational Medicine/Harold and Muriel Block Research Pavilion opens

2006

2007

2008

2009



April
First Einstein Strategic Research Plan is published



July
New Einstein-Montefiore affiliation agreement is signed, establishing an era of increased integration

afford me the opportunity to discover new knowledge and contribute not only to caring for patients but also to improving our ability to care for them. Becoming a physician/scientist gave me the best of both worlds.

You initiated a lot of changes during your time as Einstein’s dean. Which ones do you consider the most significant?

The most significant would have to be facilitating Einstein’s transition in 2015 to become part of Montefiore Medicine.

In our research mission, it was recruiting outstanding new faculty and retaining many key faculty who were being heavily recruited by other top academic centers. This directly led to the expansion in number of our NIH-funded centers, and reaching unprecedented levels of overall external research funding.

In our educational mission, it was appointing new deans for student affairs and for education, and being able, with extraordinary support from former

Board chair Ruth Gottesman, to create the new Clinical Skills and Education Centers. All of this contributed to enhancing our medical education program, achieving full accreditation from the Liaison Committee on Medical Education and positioning us to achieve independent degree-granting status.

Our development efforts were highly successful, particularly in the period between 2007 and 2013, which saw the remarkable bequest of more than \$160 million from the late Muriel Block.

Contributing to our development success was a dramatic improvement in all parts of our communications efforts. Even the physical appearance of our campus was transformed to a more beautiful state internally and externally.

None of these positive changes would have been possible without a talented and dedicated leadership team that included Ed Burns, Jed Shivers, Gordon Earle, Sal Ciampo and Yvonne Ramirez.

What has been the most personally fulfilling part of being dean?

To me, being a successful dean means finding personal fulfillment in seeing the success of others: research faculty, graduate students and postdoctoral fellows, clinician-educators, medical students. In that respect, the past 12 years have been highly fulfilling for me.

What’s the most important lesson you’ve learned during your time at Einstein?

Being a medical school dean is a tough job! But it can also be remarkably rewarding if you’re able to leave the institution in a better state than when you began.

What do you consider the most significant research accomplishments during your time as dean?

It would be unfair to Einstein’s many outstanding researchers to single out one or even several accomplishments. Instead, I would just point out that Einstein faculty have made major contributions over the past 10 years in a wide



Fall
Ruth L. Gottesman Clinical Skills Center opens



Fall
The Education Center, designed for active and team-based learning, opens

2009

2012

2014

2015



Einstein receives bequest of more than \$160 million from Harold and Muriel Block, the largest gift in Einstein history

LCME

June
Liaison Committee on Medical Education awards Einstein full, eight-year accreditation

range of fields, including the biology of aging, immunotherapy, cancer, brain science, diabetes and other metabolic disorders and infectious diseases.

If you hadn't entered the field of medicine, what career might you have pursued?

First becoming a concert pianist, and then an orchestra conductor. But that's pure fantasy—extremely unrealistic, given that there's no evidence I possess a shred of relevant talent in these demanding fields.

It has not gone unnoticed that you like to watch soccer matches while working out on an elliptical trainer at Einstein's Falk Athletic Center. How did you get interested in soccer, and what's your favorite team?

That interest stems from my enjoyment in seeing my son play soccer through high school. But it's strictly vicarious, since aside from an inept stint on the

Columbia freshman soccer team, I never really played the game myself. In contrast, spurred on by my daughter's years of competitive swimming, I took up lap swimming for some years as my daily exercise routine.

As for favorite soccer teams, I don't really have one, but I do like certain players—for example, Alexis Sanchez (formerly of Arsenal, now of Manchester United).

Looking Ahead

What are your hopes for Einstein's future over the next 10 years?

In an ideal world, as opposed to the one we actually live in, the U.S. health system will evolve along lines (value-based, not volume-based) pioneered by Montefiore. As part of Montefiore Medicine and within a more equitable and cost-effective U.S. healthcare ecosystem, Einstein will thrive. Its outstanding researchers (faculty, grad students and postdocs) will make high-impact discoveries that lead to better disease prevention and treatment, and

its M.D. graduates will be ever more capable of caring for their patients. And on a more parochial note, the new train station connecting Einstein with points north and south will completely transform our campus (for the better) in ways hard to imagine right now.

What are your post-dean plans?

As I stated in June 2017 when I announced my intention to step down after 12 years as dean and a preceding 16 years in major administrative positions at the NIH, I look forward to remaining active, but without significant administrative responsibility. Teaching and mentoring, particularly of aspiring physician/scientists, is something I would relish.



September

Einstein becomes part of Montefiore Medicine

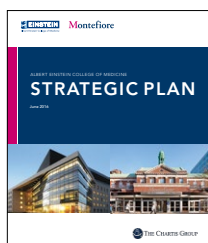
NIH

Einstein brings in a record-high \$174 million in National Institutes of Health funding

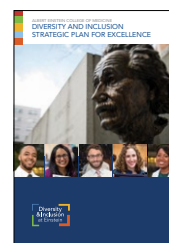
2016

2017

2018



New comprehensive Strategic Plan published, focusing on Einstein-Montefiore integration in research and education



Einstein develops its first Diversity and Inclusion Plan

ACCOMPLISHMENTS

DR. SPIEGEL'S 12-YEAR TENURE



Funding, Financials and Philanthropy

- \$1.8 billion in funding from the NIH (fiscal years 2007–17)
- \$500 million raised in philanthropy, leading to 17 new endowed chairs and four new faculty scholars
- Faculty Senate approved guidelines for strengthening the tenure process while enhancing Einstein's sustainability

Research

- Sixteen new basic science and clinical department chairs appointed
- New directors appointed for Diabetes Center, Intellectual and Developmental Disabilities Research Center, Magnetic Resonance Research Center and Stem Cell Research Institute
- Eight NIH-funded centers, including three new centers: Aging Research, Clinical and Translational Research and Diabetes Translational Research

Education

- New leadership in medical education and student affairs
- Establishment of milestone events for medical and graduate students, including the White Coat Ceremony
- Increased scholarships to reduce indebtedness
- Process for independent degree-granting authority initiated

Meet the New Dean

Gordon Tomaselli Named the Marilyn and Stanley M. Katz Dean at Einstein

Gordon Tomaselli, M.D., F.A.H.A., F.A.C.C., F.H.R.S., an internationally renowned physician-scientist in the field of cardiovascular disease, has been named the Marilyn and Stanley M. Katz Dean at Einstein. Dr. Tomaselli assumes his new role on July 1, 2018.

Dr. Tomaselli comes to Einstein from Johns Hopkins University School of Medicine, where he serves as the chief of the division of cardiology and co-director of the Heart and Vascular Institute. In that role, he leads a group of more than 550 clinicians, scientists and other staff, including 101 faculty members and 87 fellows.

A cardiac electrophysiologist who specializes in sudden cardiac death and heart rhythm disturbances, Dr. Tomaselli has conducted NIH-funded research for two decades. He currently oversees a \$30 million research budget, one of the largest at Hopkins.

Dr. Tomaselli earned his medical degree from Einstein, and will return to lead its scientists in key areas of basic, clinical and translational research, from brain science to immunotherapeutics to obesity and cancer. He will also work with students and faculty to continue to transform medical and scientific education.

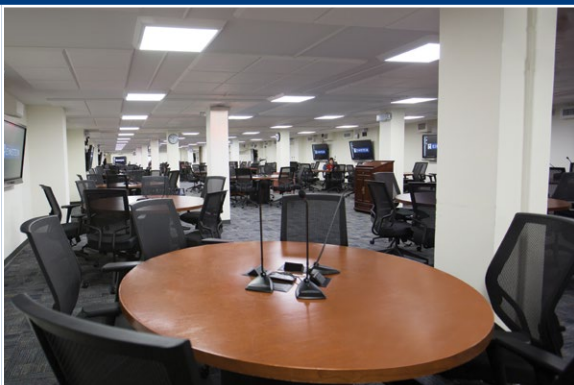
“We are so fortunate to have Gordon join the Montefiore Einstein



community at this time of exciting growth and change,” says Steven M. Safyer, M.D., president and CEO of Montefiore Medicine. “As a prominent researcher, clinician and natural leader, Gordon is the perfect fit. He sees the big picture that unites research and education with great clinical care to advance the field of medicine.”

“This is a professional and personal high point for me,” says Dr. Tomaselli. “The medical milestones and scientific discoveries achieved during my career had their genesis at Einstein and this role presents me with a chance to give back.”

Visit our website for full coverage: www.einstein.yu.edu



Campus Improvements

- 200,000 square feet of new laboratory space built and filled in the Price Center/Block Pavilion and Van Etten
- Additional 325,000 square feet of renovated laboratory space
- More than 40,000 square feet of active-learning educational space opened in Forchheimer and Van Etten
- Einstein’s “Main Street” in Forchheimer, with Einstein Café, developed
- Campus beautification

MONTEFIORE-EINSTEIN MAVENS OF MEDICINE



EYES WIDE OPEN

A Q&A WITH
ROY S. CHUCK, M.D., PH.D.

Dr. Chuck is professor and chair and the Paul Henkind Chair in the department of ophthalmology and visual sciences at Einstein and Montefiore. A native of Berkeley, CA, Dr. Chuck started his career as an engineer, working on lasers that later formed the technological basis for LASIK refractive eye surgery. He switched careers in the mid-1980s and earned medical and doctoral degrees at Columbia University's College of Physicians and Surgeons. But Dr. Chuck never left lasers far behind, becoming one of the nation's top LASIK surgeons.

He is now also internationally renowned for his contributions to corneal stem-cell surgery, corneal transplant surgery and the study and treatment of dry eye. Dr. Chuck joined Einstein and Montefiore in 2009.

What's the most exciting recent development in eye care?

I'd single out the new injectable drugs for age-related macular degeneration, which clouds central vision through abnormal blood-vessel growth and bleeding in the retina. It's a leading cause of vision loss in people over age 50. The new drugs for treating this condition were originally developed to treat cancer. They work by inhibiting vascular endothelial growth factor, or VEGF, a signaling protein that stimulates blood-vessel formation. A bonus is that these anti-VEGF drugs are also effective for treating diabetic retinopathy.

Given the high incidence of diabetes in the Bronx, could these drugs have a significant impact on the local community?

Yes. Diabetic retinopathy is the leading cause of blindness in the Bronx. But unfortunately, we see a lot of advanced cases in our clinics, since many people aren't diagnosed or treated until very late.

What's the best way to prevent diabetic retinopathy?

Through regular checkups, starting in childhood. Ophthalmologists are often the first to diagnose diabetes, since the earliest signs of the disease tend to appear in the retina. We just opened our first two school-based eye clinics as part of the Montefiore School Health Program. We'll roll out clinics to other

public schools in the Bronx if these two are successful. Beyond that, we need to prevent the development of diabetes in children in the first place, by encouraging them to eat more healthily and to exercise so they can ward off obesity, a major risk factor for diabetes.

Many workers spend all day in front of a computer screen. Is that a cause for concern?

The most common issue is eyestrain, which leads to a condition called dry eye. Taking frequent breaks can help, and so can using artificial tears or eye drops. More-serious cases can be treated with topical prescription eye drops containing cyclosporine or lifitegrast.

Kids also spend endless hours looking at screens of one type or another. Are they suffering the consequences, too?

Yes, but not in the same way. About half of all kids today are nearsighted—almost double the percentage that we saw just a generation ago. It's not clear why. Some people blame too much device time, but evidence suggests that the biggest culprit is lack of outdoor play. Exposure to light and physical activity somehow lessen the likelihood that kids will develop myopia.

LASIK surgery was a major advance, allowing people to do without eyeglasses. But many people are hesitant to undergo surgery to correct their vision. Are there alternatives?

We're developing a noninvasive treatment for myopia based on corneal cross-linking. Rather than using a laser to reshape the eye's surface, we apply photosensitive eye drops containing the B vitamin riboflavin. When activated by

UV light, the riboflavin molecules initiate reshaping of the eye. The basic concept was developed elsewhere, but our innovation was to package all the technology into a device the size and shape of a contact lens. We have also added real-time ultrasound sensing, which allows precise control of the amount of correction. The treatment can be done in a half hour while the patient is sitting in a chair in an outpatient setting. The whole system is portable, low cost and simple to use, which would make it ideal for use in underserved populations around the world.

Would the correction be long-lasting?

We think so. But if your eye does change shape as you age and you need a touch-up, the procedure can be repeated.

When will this be available?

That's hard to say. We've launched a startup company called TECLens that will be testing the technology in a pre-phase I, or safety, trial.

Were you always an entrepreneur?

I sold my first patent application when I was a medical student at Columbia. Mehmet Oz—better known these days as television's Dr. Oz—and I developed a new laser technology for welding tissues. We handed over our invention to Columbia's technology transfer people, who licensed it to Johnson & Johnson. Dr. Oz and I were each paid \$10,000 for our efforts. We're trying to encourage similar entrepreneurial efforts here on campus.

What do you do for fun?

Life gets put on hold when you have three young children!

EVERY BREATH THEY TAKE

BY GARY GOLDENBERG



**Research studies,
clinical services and
community projects
at Einstein and
Montefiore are helping
asthma sufferers
breathe easier**

If someone were to design the perfect setting for an asthma epidemic, it would probably look like the Bronx.

New York's northernmost borough has every ingredient for making asthma flourish: plentiful outdoor respiratory irritants and indoor allergens, a genetically susceptible population (prevalence is highest among blacks and Puerto Ricans), a high rate of obesity (now recognized as an important cause of asthma), a preponderance of poverty (low-income households are especially hard-hit) and inadequate referrals to specialty care. The problem is particularly acute for children.

One in four Bronx children has asthma—triple the national average. Bronx children with asthma are hospitalized at twice the rate for asthmatic children in New York City as a whole, and quadruple the rate for asthmatic kids nationally. Bronx adults are also disproportionately affected. Data from the

New York State Department of Health show that the death rate from asthma in the Bronx is nearly double the rate for New York City as a whole, with some 50 Bronx residents (most of them children) dying from the disease each year.

A Disease of Triggers and Flare-ups

Asthma is a chronic respiratory disease that can affect people of any age, but it usually starts in childhood. More than 25 million Americans—seven million of them children—have the disease. Each year, asthma costs the country \$56 billion and accounts for 640,000 emergency-room (ER) visits, 157,000 hospitalizations and 4,000 deaths.

When people have asthma, the bronchioles—airways that carry the air we breathe into our lungs—are chronically inflamed. This inflammation leads to airway constriction that causes asthma's recurring symptoms: wheezing, chest tightness, shortness of breath and





Simon Spivack, M.D., and David Rosenstreich, M.D., are co-directors of the Montefiore Asthma Center.

coughing. Patients are hypersensitive to certain triggers that keep their airways inflamed and periodically set off symptoms or worsen them to the point of causing life-threatening asthma attacks.

More than half of people with asthma have “allergic asthma.” Their triggers include pollen, mold, particles from cockroaches and dust mites, animal dander and other allergens that provoke their immune systems to release inflammatory chemicals that affect the airways. For most other asthma cases, the causes of airway inflammation and other symptoms include obesity, cold air, strenuous physical exercise, chest infections, air pollution (from tobacco smoke, household cleaning products and ozone, for example) and aspirin sensitivity, which all too often goes undiagnosed. (See page 26.)

Since there is no cure for asthma, proper care involves controlling the disease to prevent serious complications:

flare-ups that cause absences from school or work; severe attacks that lead to ER visits and hospitalization; and, most importantly, permanent narrowing of the bronchial tubes. Controlling asthma means avoiding triggers (sometimes with the aid of allergy shots) and taking drugs that tame inflammation and open airways when symptoms occur.

Two types of drugs are used for treating asthma. So-called long-term control medicines (primarily inhaled corticosteroids) are taken daily to quell airway inflammation and prevent asthma symptoms. When asthma flare-ups occur, short-acting “rescue” bronchodilator drugs can quickly relax constricted bronchial-tube muscles.

Every Breath They Take **IMPROVING PATIENT CARE**

Taming Uncontrolled Asthma

Coughing persistently at night as well as during the day...experiencing wheezing or other asthma symptoms more than twice a week...needing increasingly high drug doses to keep symptoms at bay: all are indications of uncontrolled asthma. Alarming, nearly half of Bronx children with asthma have uncontrolled disease—putting them at risk for poor cardiovascular fitness, obesity and psychosocial problems such as depression, anxiety and learning disabilities.

Einstein and Montefiore have responded to the asthma emergency in their borough with a wide-ranging research effort and community programs and clinics, including the Montefiore Asthma Center. Since 2011, it has served as the Bronx’s only referral center for children and adults with persistent or uncontrolled asthma—a life-altering and potentially fatal condition.

Gaining control over their asthma can make a world of difference for patients, and the Montefiore Asthma Center helps them attain that goal.

“When we created the asthma center, we decided that all patients must receive what is considered the gold standard in asthma care: consultations with both an allergist [in part for allergy testing] and a pulmonologist [in part for spirometry, or lung-function measurement],” says

Gaining control over their asthma can make a world of difference for patients, and the Montefiore Asthma Center helps them attain that goal.

Simon Spivack, M.D., co-director of the Montefiore Asthma Center, chief of the division of pulmonary medicine at Einstein and Montefiore and professor of medicine, of epidemiology & population health and of genetics at Einstein. He notes that the clinic staff also includes an asthma educator—vital for a disease that requires patients to take on significant responsibilities for their own care.

“Most cases of asthma can be managed, but it takes a lot of work,” says David L. Rosenstreich, M.D., who co-directs the asthma center along with Dr. Spivack and is chief of the division of allergy and immunology at Einstein and Montefiore, and professor of medicine, of microbiology & immunology and of otorhinolaryngology and the Joseph and Sadie Danciger Distinguished Scholar in Microbiology/Immunology at Einstein.

“The first thing we do,” says Dr. Rosenstreich, “is make sure that the patient actually has asthma. About 20 percent of our patients have some other condition, such as vocal-cord dysfunction or chronic obstructive pulmonary disease, which masquerades as asthma. And then there’s the challenge of determining the severity of the disease, which dictates treatment.”

The asthma center is supported by clinicians and scientists at Einstein and Montefiore who ensure that treatment guidelines are implemented, help patients self-manage their disease and



“We in primary care must do a better job of identifying children with uncontrolled asthma and making referrals.”



reduce their exposure to household allergens and other asthma triggers, and investigate how factors such as obesity contribute to asthma.

Getting Kids Proper Asthma Care

A key asthma treatment guideline calls for pediatricians to refer every child with poorly controlled asthma to an allergist and a pulmonologist. (As noted above, the Montefiore Asthma Center offers such care to all patients.) “These specialists conduct tests essential for diagnosing asthma severity and prescribing treatment,” says Karen Warman, M.D., an associate professor of pediatrics at Einstein and a pediatrician at Montefiore’s Comprehensive Family Care Center. “They also help us convince parents that their child needs to take medications. There’s little we can do to improve their child’s condition if parents aren’t on board with the care plan.”

But national surveys have shown that pediatricians routinely ignore this guideline. In response, Dr. Warman launched a retrospective study of care delivered to 4,600 children (ages 7 to 17) with uncontrolled asthma. The results, published in 2017 in the *Journal of Asthma*, were even worse than she expected.

“Just 19 percent of the children had seen an allergist or pulmonologist,” she says. “Even more disturbing, only 42 percent of those with an asthma-related hospitalization—a red flag



Karen Warman, M.D., center, with pediatric residents Jesil Pazhayampallil, left, and Kyle Hengel.

for a referral—had seen a specialist. These kids weren’t getting the care they needed.

“We in primary care must do a better job of identifying children with uncontrolled asthma and making referrals,” she adds. “We have to ask questions, digging deep into symptoms and medication use, and we need to do hands-on demonstrations to show kids how to use asthma devices. They’re complicated. You can’t just prescribe them and send the patient off.”

Dr. Warman believes that, with proper training and resources, primary care providers can improve the asthma care they offer patients. She conducted a pilot study that enrolled 79 inner-city children in a primary care-based program applying national asthma treatment guidelines, which include

spirometry testing. The children were significantly more likely than they had been under their previous routine care to be identified as having moderate or severe persistent asthma, to be prescribed inhaled steroids and to have their medication plans intensified. After participating in the program, fewer of the children needed trips to the ER: 32% had asthma-related care in the ER in the 12 months prior to the program and only 8% did in the 12 months following the program.

“Asthma is a controllable illness,” Dr. Warman notes. “Given the right treatment regimen, most patients can be healthy and active.”

Respiratory therapists Tesha Crosse and Camille King (standing) conduct a pulmonary function test with patient Shyrine Brown.

Every Breath They Take

HAIR OF THE DOG HELPS LONG-SUFFERING ASTHMA PATIENT

Every cold sufferer knows the misery of sneezing, congestion and a runny nose. But imagine having all these symptoms not for days but for more than 20 years.

Barbara Roseval of East Hempstead, NY, lived this nightmare, with symptoms that started during her first pregnancy. An allergist prescribed allergy shots, but her condition only grew worse. She soldiered on for years while raising three kids and working as a paralegal. “My nose was like a fountain,” she says. “I should have bought stock in Kleenex.”

Barbara eventually went to a second allergist, who suggested she might have aspirin-exacerbated respiratory disease (AERD)—a poorly understood trio of conditions including asthma; sinus disease with recurrent nasal polyps; and sensitivity to aspirin and other nonsteroidal anti-inflammatory drugs. People with AERD may constitute as many as one out of 10 asthma cases.

While Googling her condition, Barbara came across an AERD specialist in the Bronx: Elina Jerschow, M.D., an associate professor of medicine at Einstein and an attending physician in pediatric and adult allergy and immunology at Montefiore. “I e-mailed her on a Saturday evening, hoping I would hear back in a few days,” Barbara recalls. “She responded within an hour.”

“I see many patients like Barbara who have been going from doctor to doctor without getting a proper diagnosis,” says Dr. Jerschow. “The average

time from onset of symptoms to diagnosis is about three to five years.”

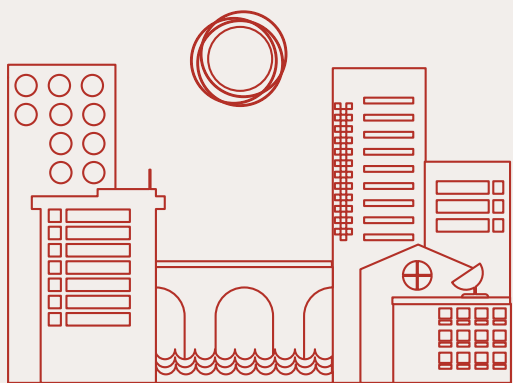
Dr. Jerschow confirmed that Barbara did indeed have AERD and began treating her with aspirin—yes, aspirin. “The idea is to gradually induce tolerance with increasing doses of aspirin over a couple of days, while the patient is carefully monitored,” says Dr. Jerschow. “After desensitization, one can be maintained with daily doses of aspirin.”

Barbara started improving within weeks. “I cried my eyes out from relief,” she recalls. “For years, nobody could make heads or tails of my symptoms.”

Next, Barbara’s nasal polyps were removed by Waleed M. Abuzeid, M.B.B.S., an assistant professor of otolaryngology—head & neck surgery at Einstein and director of rhinology and skull-base surgery at Montefiore. Barbara’s sense of smell, which had vanished years earlier, returned. “Oh, how I had missed the smell of bacon and fresh coffee in the morning!” she exclaims.

Unfortunately, some AERD patients don’t respond to desensitization therapy, and many nonresponders get even sicker with treatment. Doctors aren’t sure why, and there’s no way to predict how a patient will react to the therapy.

In 2015, Dr. Jerschow launched a study to learn more about the variations in response to daily aspirin desensitization, focusing on a demographically





Elina Jerschow, M.D., center, with Waleed M. Abuzeid, M.B.B.S., and Barbara Roseval.

diverse group of patients in the Bronx. Respiratory symptoms improved in six out of seven of the white non-Latino patients who completed the desensitization program. However, 15 of 20 black and four of 12 Latino patients either didn't respond to daily aspirin treatment or experienced worsening of their asthma and sinus symptoms.

Delving deeper, Dr. Jerschow looked for blood markers that could help clinicians distinguish the study's responders from nonresponders. She found that patients tended to respond better to aspirin treatment if they had higher blood levels of 15-HETE (a naturally occurring chemical

involved in inflammation) before therapy and lower levels of eosinophils (inflammation-causing white blood cells often associated with asthma) during therapy.

"It would be premature for physicians to use these measures to predict outcomes," says Dr. Jerschow. "The findings need to be replicated in a larger patient sample, and a test for 15-HETE is not commercially available."

Barbara took part in the study and is ever grateful she had a good outcome. "Everything is under control," she says, two years after her first visits with Drs. Jerschow and Abuzeid. "I got my life back because of them."



Every Breath They Take

SELF-MANAGEMENT TECHNOLOGY SOLUTIONS

An Electronic Nudge for Physicians

In 2007, an expert panel under the auspices of the National Institutes of Health (NIH) issued a revised set of guidelines “to help clinicians provide quality care to people who have asthma.” Studies indicate that routine use of those guidelines could reduce complications in asthma patients by 70 percent—and translate into 44 percent fewer hospital admissions and 80 percent fewer asthma deaths.

Yet surveys of patients and providers and reviews of medical records show that the asthma-care guidelines are not consistently applied. Providers cite a variety of reasons for not adhering, notably a lack of time during patient visits and the difficulty of assessing disease severity and whether a patient’s asthma is being adequately controlled—essential steps for prescribing appropriate medical therapy and providing optimal care.

How to persuade clinicians to incorporate those asthma-care guidelines into routine care? One answer, according to Marina Reznik, M.D., an associate professor of pediatrics at Einstein and an attending physician at Children’s Hospital at Montefiore (CHAM), is to give caregivers an electronic nudge. “Every patient encounter begins with the electronic health record, so why not harness this tool to encourage the best practices?” she says.

Dr. Reznik is spearheading a



Marina Reznik, M.D., works with a young patient at the Montefiore Asthma Center.

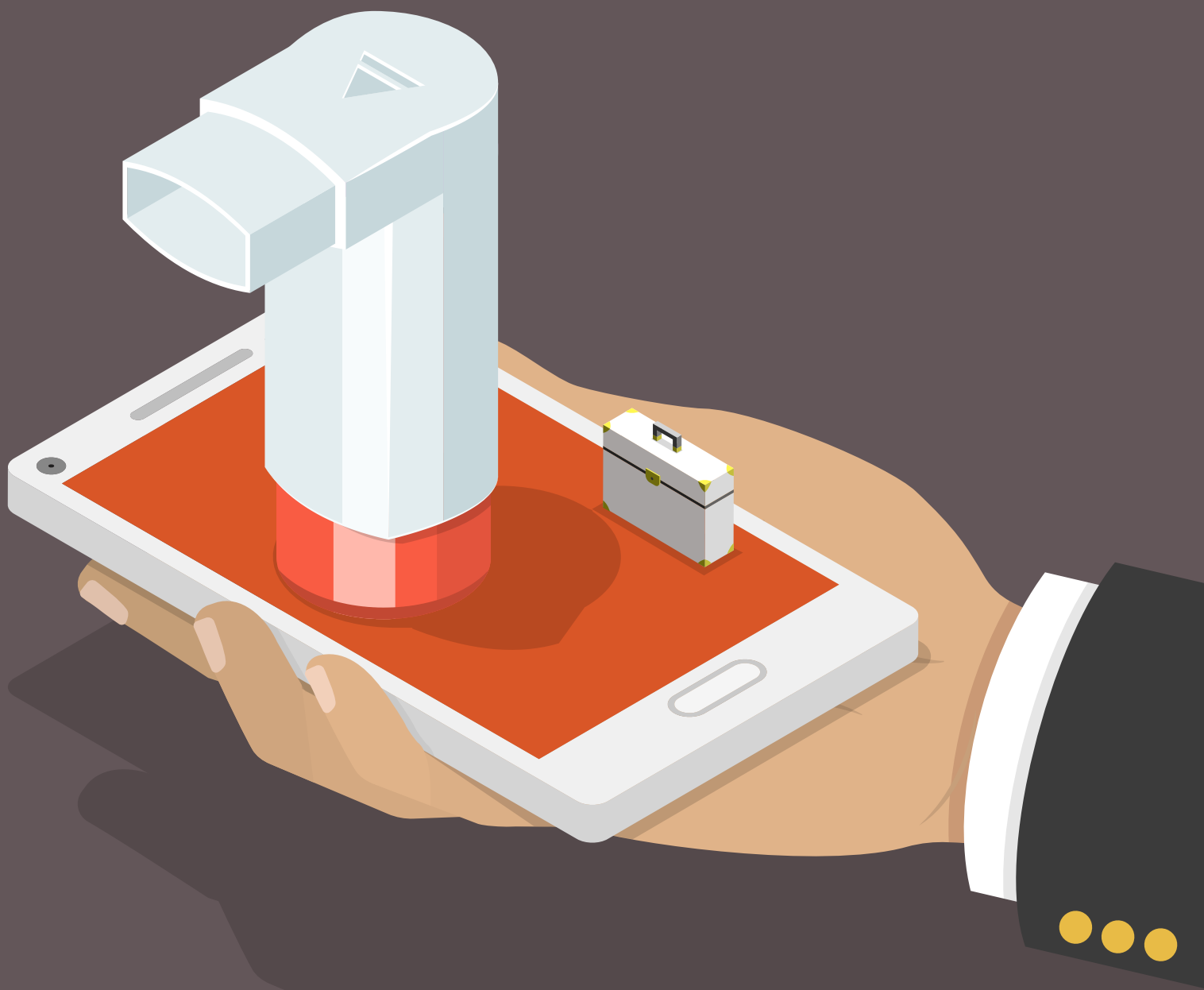
randomized controlled clinical trial in which Montefiore’s electronic health record system, known as EPIC, prompts nurses to ask patients and their parents a structured series of questions about asthma that address everything from symptoms to medication use to exercise limitations.

“At the time of the visit, an algorithm using the nurses’ collected answers alerts the doctor whether the patient has persistent or uncontrolled asthma,” says

Dr. Reznik. “EPIC will then guide providers on steps to take for managing the disease.” Families will also receive educational materials and referrals for help in dealing with environmental triggers in the home, all through EPIC. “It’s one-stop shopping for asthma care,” she adds.

The idea is not completely new. An earlier test improved short-term asthma

Studies indicate that routine use of those guidelines could reduce complications in asthma patients by 70 percent.



care by sending physicians a printout reminding them about guideline-based care.

The current trial will evaluate whether giving physicians even more support and guidance through EPIC will sustain their adherence to guidelines, and whether their better adherence, coupled with enhanced interventions aimed at children and caregivers, will improve long-term asthma control. The enhanced interventions include employing outreach workers to support the sickest children by coordinating their care; providing education for caregivers to make sure they follow through on providers' recommendations; and offering prompts reminding caregivers to discuss issues or questions about their children's asthma during their next visits.

"The goal is to elicit an in-depth conversation between providers and the families of patients so we can manage children's asthma more effectively and curb inconsistencies in care," says Dr. Reznik.

The trial is supported by a five-year, \$4.2 million grant from the NIH and will gradually be rolled out to 20 Bronx clinics serving more than 5,000 children who have persistent or uncontrolled asthma. Half the clinics will use the asthma intervention, with the other half serving as controls.

Sunit Jariwala, M.D.

Asthma Self-Management: An App for That

Doctors aren't the only ones who have room for improvement when it comes to asthma care; many patients don't comply with recommended treatment. "Fully half of all asthma sufferers fail to follow their doctors' advice, putting themselves at high risk for serious, even deadly, complications," says Sunit Jariwala, M.D., an associate professor of medicine at Einstein and the lead adult allergist/immunologist at the Montefiore Asthma Center.

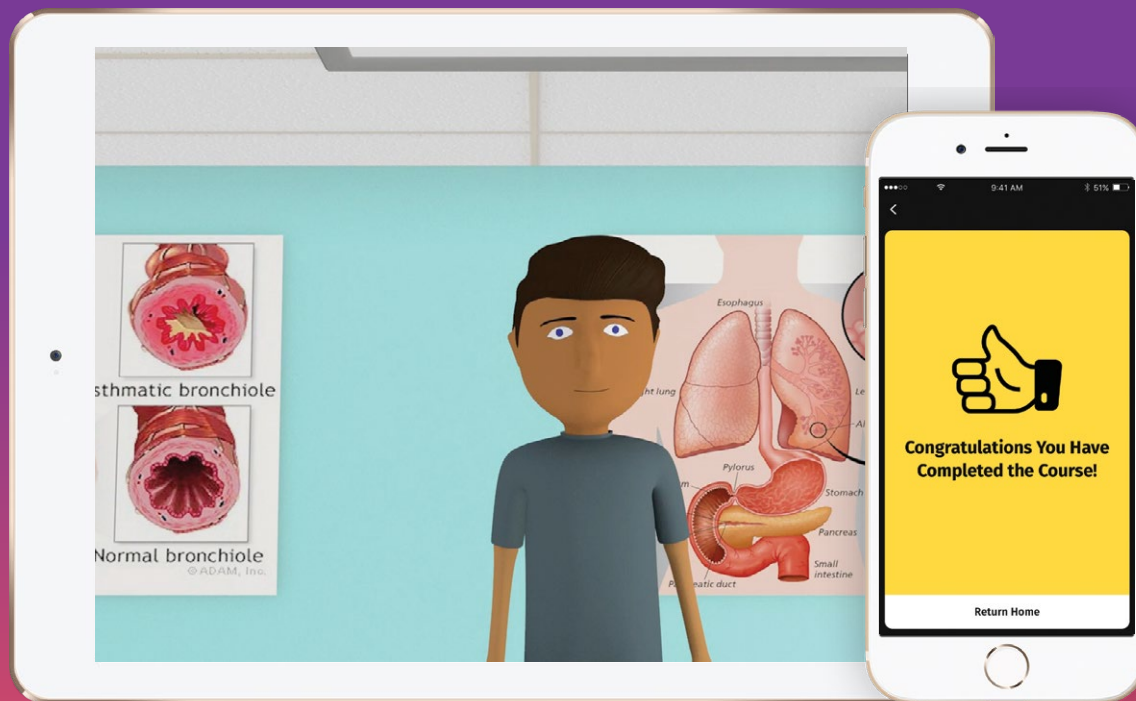
In an effort to convince patients to stick with guideline-based recommendations, Dr. Jariwala and his colleagues have devised a technological fix: an interactive and personalized smartphone app that combines asthma education with games that challenge the user's

"Fully half of all asthma sufferers fail to follow their doctors' advice, putting them at high risk for serious, even deadly, complications."





ASTHMAXcel



asthma knowledge and encourage healthier behaviors.

“We’ve ‘gamified’ asthma management,” says Dr. Jariwala. “We wanted to make the app engaging and fun. That’s the key to sustaining its use and, more importantly, empowering patients to gain control of their disease.”

The app, called ASTHMAXcel, gives patients an ever-present virtual assistant to teach them about asthma, including when and how to use their asthma control and rescue medications and how to minimize exposure to possible triggers. A future version of the app will include personalized text messages.

The app is based on a similar approach used at the Montefiore

Asthma Center, where a nurse educator helps people handle asthma’s day-to-day challenges. Such hands-on care has proven successful in reducing asthma-related hospitalizations and ER visits among both children and adults with uncontrolled asthma.

“Since we can’t be there to help patients 24/7, the ASTHMAXcel app extends our reach,” says Dr. Jariwala. “It also makes this type of education and support available to patients and providers who don’t have access to a specialized asthma center.”

A pilot test found that 50 adults who used the app (available for both Android and iOS phones) increased their asthma knowledge and achieved

The ASTHMAXcel app, developed by Dr. Jariwala.

better asthma control and quality of life. An ongoing study is assessing those outcomes in children with asthma.

Peak-Flow Feedback to Boost Compliance

Patients’ most serious noncompliance “sin” may be their failure to recognize the warnings signs of an asthma attack—the critical time when a rescue inhaler can prevent a bad situation from getting worse. It may seem baffling that people overlook wheezing or shortness of breath, but everyone tolerates such problems differently.



The peak-flow meters provide people with instant and objective feedback about whether they need to reach for their inhalers.

“Some asthmatics get used to breathing a certain way,” says Jonathan Feldman, Ph.D., an associate professor of pediatrics at Einstein. “Over time, their threshold changes and they simply don’t recognize their airways are restricted. Their perception is off.”

One solution, he says, is for patients to use peak-flow meters—handheld devices that measure the ability to expel air, expressed as peak expiratory flow, or PEF. The meters provide people with instant and objective feedback about whether they need to reach for their inhalers.

For a recent study of children with

A young asthma patient receives instructions on how to use a peak-flow meter.

asthma, Dr. Feldman enrolled Puerto Rican and African American children, who have higher rates of asthma-related complications than all other racial and ethnic groups. Half the children were trained to guess their PEFs just before taking a PEF reading, while the other half simply guessed their PEFs but didn’t get feedback from meters.

After six weeks, children trained to guess their PEFs just before taking PEF readings underperceived their asthma symptoms a mere 15 percent of the time, compared with a 42 percent

underperception rate for children who guessed their PEFs but didn't get feedback from meters. By the end of the study, children who saw their PEFs on meters were almost twice as likely to be taking medications for controlling their asthma compared with children who did not see their PEFs.

Now, in a follow-up study funded by the NIH, Dr. Feldman is testing whether peak-flow meters plus brief behavioral interventions can help adolescents with asthma (ages 10 to 17) perceive and control their asthma symptoms over the course of a year. Participants use programmable peak-flow meters that will periodically prompt users to predict their PEFs before measuring them with the meters. Ideally, the peak-flow meters will train children to recognize episodes of airway restriction on their own. "We've turned it into a game to make it more appealing to adolescents," says the researcher. As part of the study, the family reviews the child's performance with an asthma coach and the child receives individual counseling.

"The counseling will focus on those times when kids underperceive their symptoms," says Dr. Feldman. "These are teaching moments where we can help children connect symptoms and asthma triggers to peak flow."

"We have these fantastic medications for asthma," says Dr. Feldman, "but if the kids don't use them, they're meaningless."

A mother obtains care for her young child.

Rethinking Allergy-Shot Guidelines

Allergy shots gradually desensitize patients to allergens such as pollen and dust mites and have been used to treat allergy and asthma sufferers for nearly a century. Studies show that the shots (also known as allergy immunotherapy) can reduce asthma symptoms by as much as 30 percent.

Until a few years ago, doctors recommended restricting allergy shots to patients ages 5 and above. In 2013, revised guidelines were issued that abolished age restrictions.

"In a way, the change made sense," says Gabriele de Vos, M.D., an associate professor of medicine at Einstein and an attending physician in pediatric and adult allergy at Jacobi Medical Center. "Allergy shots have such a long track record for safety and efficacy, and there was reason to believe that allergy shots might help prevent asthma in very young children. But there was no strong research to support the changes to the guidelines."

"There was reason to believe that allergy shots might help prevent asthma in very young children. But there was no strong research to support the changes to the guidelines."



In fact, no one had ever done a scientifically rigorous study of allergy immunotherapy for the youngest asthma sufferers, largely because of the difficulty of giving regular injections to small children. Dr. de Vos decided the matter was too important to leave to chance, so she launched a randomized controlled trial of immunotherapy for preschoolers with asthma. It focused on allergic children who live in cities, who tend to have persistent or uncontrolled asthma and would stand to benefit the most from treatment.

“There was a big hope that the shots would prove effective and lead to a decrease in ER visits and hospitalizations,” she says. “It turned out that the shots were safe for young kids with asthma, but our preliminary analysis has found very little effect on their symptoms or disease outcomes.”

Dr. de Vos suspects that asthma symptoms at young ages may result primarily from viral infections and other nonallergic factors such as air pollution—conditions that allergy immunotherapy wouldn’t help. In addition, children in cities like New York are often sensitive to allergens such as cockroach particles, and those high-dose chronic exposures may be too much for allergy shots to handle. “We know from older children and adults that allergy shots work best against things we’re intermittently exposed to in small amounts,” she says.

“So I wouldn’t necessarily reverse the guidelines,” Dr. de Vos concludes, “but they may need to be refined. Determining who will benefit the most from allergy shots will allow for a more personalized approach to therapy.”

Every Breath They Take

OBESITY AND EXERCISE

The Obesity-Asthma Connection

Obesity is now recognized as an important cause of asthma. A 2007 study in the *American Journal of Respiratory and Critical Care Medicine* calculated that overweight or obese adults increase their risk of developing asthma by 50 percent. Compared with their lean counterparts, obese asthmatics also tend to have worse asthma control, a higher rate of asthma-related hospitalizations and longer hospital stays.

Studies suggest that in obese adults, mechanical pressure from excess body fat itself can cause asthma by hampering the lungs’ ability to stretch and expand and by reducing lung capacity. In addition, fat tissue synthesizes and secretes high levels of inflammation-causing cytokines, small proteins that may chronically inflame the bronchial tubes. But it’s much less clear why obese *children* face an increased risk for asthma.

One of the few researchers studying how childhood obesity and asthma are connected is Deepa Rastogi, M.B.B.S., an associate professor of pediatrics and the Joseph S. Blume Faculty Scholar in Pediatric Development at Einstein and director of the Pediatric Asthma Center at CHAM.

“Classic” childhood asthma is mainly allergic asthma: Immune cells known as type 2 helper T cells respond to dust mites or other allergens by secreting well-characterized

pro-inflammatory chemicals (interleukins 4, 5 and 13) that inflame the airways. Dr. Rastogi suspected that obesity-associated childhood asthma is driven by an immune response that is *not* connected to allergies. To find out, she recruited 120 Bronx children ages 7 to 11 and grouped them into four categories of 30 children each: obese asthmatics, nonobese kids with “allergic” asthma, obese nonasthmatics and a control group of nonobese, nonasthmatic children.

In a 2012 paper in *Chest*, Dr. Rastogi reported that asthma in obese children does indeed occur through an immune response distinct from what occurs in “classic” childhood asthma. It features type 1 helper T cells that release inflammatory chemicals entirely different from those released by the type 2 helper T cells of allergic asthma. A follow-up study by Dr. Rastogi showed that this unusual immune response persists in adolescents and is driven by insulin resistance, a common consequence of obesity.

These and other discoveries from Dr. Rastogi’s lab point to a web of environmental and genetic factors that conspire to cause asthma in obese children. A five-year, \$898,000 grant from the NIH is helping her untangle that web. She reported in early 2017 that obese asthmatic children have abnormally active genes in a signaling pathway involving CDC42, a protein that helps activate

Discoveries from Dr. Rastogi's lab point to a web of environmental and genetic factors that conspire to cause asthma in obese children.



Deepa Rastogi, M.B.B.S., studies the connections between childhood obesity and asthma.

T cells. The finding reveals new targets for therapy for this fast-growing subgroup of asthmatics, who account for half the cases seen at the Montefiore Asthma Center.

“Ideally, we’ll want to intervene early with these kids, before obesity and asthma set in,” says Dr. Rastogi. “We know that obese mothers tend to have obese children, suggesting that genetic predisposition or children’s environments—or both—may play a role. We can’t change peoples’ genes at this time, but we can change factors that contribute to obesity, such as poor eating habits and lack of exercise.”

Exercise: An Rx for Asthma and Obesity

Even though pediatricians recommend exercise for nearly every kid with asthma, many young asthma sufferers can be found sitting on the sidelines during gym class or on the playground, particularly in urban areas.

“Some don’t like to exercise, especially if their condition is not well controlled,” says Dr. Reznik. “Also, many parents and school officials mistakenly believe it’s not safe for these kids to exercise. But in many urban areas, there aren’t enough places for kids to exercise outside of school.”

Dr. Reznik has responded with an elementary school-based program that raises asthma awareness and encourages all children, asthmatics included, to be more active. The program is based on CHAM JAM (Children’s Hospital at Montefiore Joining Academics and Movement)—a mix of brief bursts of



in-class exercise and lessons on math and geography, guided by an audio CD. CHAM JAM is an initiative of Montefiore’s School Health Program, the largest and most comprehensive school-based health program in the country.

A test of CHAM JAM in four Bronx schools (in which two received the intervention and two served as controls) found that performing the in-class intervention up to three times a day significantly increased children’s activity levels. Teachers also reported that students focused better on their lessons afterward and that many kids took the CDs home to do the exercises with their families.

Now Dr. Reznik is expanding CHAM JAM with a special emphasis on asthma. Along with the exercise

component, the intervention will include an asthma awareness week, featuring a school-wide assembly and opportunities for kids to make drawings and compose poems and raps related to asthma. “All students are included, which we hope will create a more supportive school environment and reduce any stigma associated with the disease,” she says. There will also be efforts to educate school personnel to ensure that kids with asthma are getting proper care and have parental permission forms on file so school nurses can administer medications.

“There’s only so much we can do for these children in a clinical setting,” says Dr. Reznik. “We need to get out into the community and overcome barriers to proper asthma care at every level.”



Every Breath They Take

SOCIAL INFLUENCES

Healthy Housing: Removing Asthma Triggers

A central tenet of asthma care is that it's nearly impossible to keep asthmatics healthy if their homes aren't healthy, too—as free as possible from mold, cockroaches, dust mites and other potential asthma triggers. That's especially hard in the Bronx, where more than 80 percent of residents are renters, with little control over environmental triggers. Asthma specialists at Einstein and Montefiore have responded to this problem by taking part in several programs focused on both health and housing.

One example is the Bronx Healthy Buildings Program. For the past two years it has worked to improve indoor air quality and energy efficiency in substandard housing by inspecting buildings and fixing those needing repair.

The program—a joint project of Montefiore, the Northwest Bronx Community and Clergy Coalition, the New York City Department of Health and Mental Hygiene and other local partners—also hires and trains tenant leaders to serve as community health workers who teach other tenants about asthma self-management. When the program ends in 2018, the team will evaluate its impact on tenant health and medical expenditures, says Dr. Reznik, the principal investigator at Montefiore.

Asthma and substandard homes plague nearly every region of the Bronx,

making it difficult for health and housing advocates to know where to apply limited resources. That's where population health specialists such as Amanda Parsons, M.D., M.B.A., enter the picture. Dr. Parsons, an assistant professor of family and social medicine at Einstein and vice president of community & population health at Montefiore, uses data to design and carry out programs to improve the health of the community.

One of Dr. Parsons' colleagues—Colin Rehm, Ph.D., an assistant professor of epidemiology & population health—specializes in data mining, the art and science of finding hidden trends in gigabits of information. In a recent project, Dr. Rehm sorted through Montefiore's patient data to identify neighborhoods with unusually high rates of diabetes, hypertension or obesity. Dr. Parsons' team then worked with local bodegas to sell more fruits, vegetables and sparkling water, and fewer sugar-laden snacks and sodas.

The team has now begun using the same data-mining approach for asthma. Its first project found that Eastchester Gardens, a large public housing complex in the Williamsbridge section of the Bronx, has one of the borough's largest concentrations of asthma sufferers—particularly people with uncontrolled disease. Working with the tenants' association and the Bronx Community Health Network,



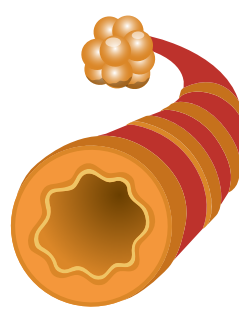
More than 80 percent of Bronx residents are renters, with little control over environmental triggers.



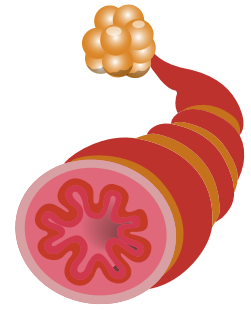
Key Asthma Facts



... Bronx children has asthma, triple the national average.



Normal bronchiole



Bronchiole during asthma attack

In asthma, airways called bronchioles are chronically inflamed and readily constrict when exposed to triggers such as pollen or dust.

Asthma Triggers



Pets



Pollution



Infections



Exercise



Stress



Dust



Obesity



Pollen



Aspirin

team member Elizabeth Spurrell-Huss, L.C.S.W., M.P.H., a community & population health senior project manager at Montefiore, organized a community health event called “Breathe Easy,” in which residents could consult with clinicians about asthma management and with pest-management experts about household cleanup.

“Public and private insurers won’t pay for mold removal or pest control, but they will pay for emergency room visits and hospitalizations that directly result from those triggers—which is frustrating,” says Dr. Parsons.

Both medical education and clinical care increasingly recognize that social, economic and environmental conditions

strongly affect people’s health—something that Dr. Parsons and her Montefiore colleagues have realized for quite some time.

“A hospital system cannot think just about providing treatment but must instead think about providing the community with the tools it needs to be healthy,” says Dr. Parsons. “We’ve made a conscious effort over the past few years to move from health fairs, which tend to focus on health screenings and community relations, to more-targeted community interventions. The idea is to take evidence-based prevention practices and adapt them to specific places and cultures.”

“A hospital system cannot think just about providing treatment but must instead think about providing the community with the tools it needs to be healthy.”

NEW
SECTION



MOTIVATIONS

The Frontline of Philanthropy at Einstein Montefiore



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To learn more, please visit montefiore.org/fundforme and einstein.yu.edu/donors/fundforme

MOTIVATIONS

A Message from the President of the
Alumni Association Board of Governors:

JANINA R. GALLER, M.D. '72



As president of the Alumni Association Board of Governors, I witness many traditions that make Einstein Montefiore such a powerful institution. One of my favorites is Match Day, which occurs every March in honor of our fourth-year medical students. At noon, after a ceremonial gong toll, students tear open envelopes alongside their peers in Lubin Dining Hall to learn where they will continue their education

as resident physicians. Seeing these students, hearing their stories and experiencing the excitement of *their* excitement is a wonderful reminder that we—fellow alumni, friends, donors, volunteers, faculty, staff and community members—are working toward the same goals: to heal, to teach, to discover and to advance the health and social justice of the communities we serve.

I am pleased to add to Einstein Montefiore's long list of traditions with this inaugural issue of *Motivations*, the office of development's new section within *Einstein* magazine dedicated to the frontline of philanthropy. In the following pages, we highlight some of the distinctive people and programs you help support, from caring for pediatric patients and their families at the Rose F. Kennedy Children's Evaluation and Rehabilitation Center to the innovations in our 3D surgical laboratory to the doctors and alumni who champion our mission. My hope is that you see yourself—and, just as important, the impact of your relationship with us—in these stories, and feel pride in both where we've come from and where we're headed.

Initiatives such as Match Day and *Motivations* are great examples of how we celebrate our commitment to the excellence, innovation and humanism embedded in Einstein Montefiore's history. These ideals form the foundation of a great academic medical center—and they are, indeed, our greatest traditions.

With warm wishes,

A handwritten signature in cursive script that reads "Janina R. Galler MD".



CONTINUED CONNECTION: BRADLEY SOMER^{M.D.} '96

On the last possible day to postmark medical school applications in 1991, would-be doctor Bradley Somer banged on the door of a closed FedEx office on Manhattan's 42nd Street. A custodian finally heard him, opened the door and let him drop the applications off. It was worth the effort. Dr. Somer joined the Einstein class of 1996 and is now a medical oncologist at West Cancer Center, a nationally recognized cancer treatment center in Memphis, TN.

A DIFFICULT PATH

His career path was far from easy. In September of his second year at Einstein—just four months after his wife gave birth to their first child—Dr. Somer was diagnosed with testicular cancer. During treatment, he experienced firsthand what it meant to be a great doctor by observing both those who treated him and his Einstein professors, including Stephen Lazar, Ed.D., former assistant dean; Victor Schuster, M.D., senior vice dean, Ted and Florence Baumritter Chair in Medicine and an attending physician in nephrology at Montefiore; and William

Frishman, M.D., an adjunct clinical professor of medicine. “Dr. Frishman stayed with me the entire time I waited to go in for surgery,” recalls Dr. Somer. “It was inspiring.”

Throughout treatment, Dr. Somer missed just one exam cycle, and returned to his classes determined to stay on track. Support from Einstein's faculty, he says, helped him succeed during the rest of his time on campus. “Einstein showed me the path,” he says. In 1996, with perfect course scores and an award for “outstanding scholarship, devotion to patient care and concern for colleagues,” Dr. Somer graduated from Einstein.

During his residency at the University of Pennsylvania, he was assigned to a leukemia and bone marrow transplant center. The knowledge he gained at Einstein helped him excel at hematology, deepening his passion for cancer care. After his residency, he moved to Memphis with his growing family, raised five children and joined the West Cancer Center. While serving as the center's medical oncologist, he also holds several executive posts and teaches at the University of Tennessee Health Science Center.



A GREAT START

Reflecting on his decades-long medical career, Dr. Somer credits his Einstein training for his accomplishments. His passion for helping Einstein set new standards for excellence in education and clinical care continues today: Dr. Somer is a champion of the Albert Einstein Cancer Center, a philanthropist and an alumni convener for the Einstein community.

“The caliber of support I received at Einstein is hard to match,” he says. “I give back to the school so that other students can receive the same support and care that my professors, peers and the leadership showed to me.”

Two of Dr. Somer's children recently took the Medical College Admission Test. He hopes their applications make it to Einstein long before the deadline.

SPOTLIGHT:
**A NEW ERA FOR
RFK CERC**

Serenity entered the world drug-exposed and endured a chaotic childhood. When her daughter Pearl was born 15 years ago, Serenity feared she wouldn't know how to be a good mother. She came to Einstein Montefiore's Rose F. Kennedy Children's Evaluation and Rehabilitation Center (RFK CERC) to learn how to care for and support her child in a way her own mother never could. Serenity attended RFK CERC's intensive parent-child program to explore new ways of reading, singing and communicating with Pearl.

A few years later, she gave birth to Jayden and noticed that he wasn't developing as Pearl had. RFK CERC's developmental behavioral pediatrician and speech-language team soon made a diagnosis of autism.

More than 7,000 infants, children and parents visit RFK CERC every year. Families like Serenity's come to address problems related to childhood development, behavior and trauma.



MOTIVATIONS



Nancy Tarshis, M.A., M.S., supervisor of RFK CERC's Speech and Language Services, with two patients.

“If you have a child with a disability, we have something here that could be useful to you, regardless of the child’s age or issues,” says Theodore Kastner, M.D., M.S., director of RFK CERC.

RFK CERC has provided those resources to children and their parents for more than 50 years, offering a full range of services from speech therapy to dentistry. “We view each person in a holistic way, rather than as a set of symptoms or problems,” says Anne Murphy, Ph.D., clinical director of RFK CERC.

WELCOME TO “HEALTH HOME”

The Affordable Care Act allowed the New York State Department of Health to launch a new program called Medicaid Health Homes, aimed at extending healthcare to more children and families. Health Homes are not actual physical spaces but rather an approach to coordinating care using comprehensive care managers, who

With the Montefiore Health Home, RFK CERC is poised to help thousands more parents like Serenity take good care of their children.

serve as patients’ guides through a complex healthcare system. RFK CERC opened the Montefiore Health Home in December 2016; it was the first Health Home in New York State.

In the past, if a child had a developmental disability or a mental illness and also was diagnosed with a chronic illness or HIV, he or she might have two or three separate case managers, each writing a separate care plan for the medical problem the manager oversaw. Reconciling these siloed plans proved inefficient and complicated, leading to suboptimal care.

Now, with Health Homes, each family partners with one central care manager responsible for helping that family with everything it needs, from primary care to housing. The result: less-frequent trips to the emergency room, fewer days in the hospital, improved quality of care and lower overall healthcare costs.

Dr. Murphy points to the Montefiore Health Home care managers as key to helping families cope with the stresses of poverty and mental and physical illness. “The vision of RFK CERC is to keep children at home with their parents,” she says. “Care managers bring the work we already do here and take it into people’s homes.”

Some 24,000 Bronx children are eligible for Health Home care, according to Dr. Kastner. “When we opened, we served 40 of those kids. We think we can build our capacity to serve nearly 1,000 this year. The biggest challenge for us is going to be raising capital to hire the staff and get them in place.”

With \$25 million in endowment funding, RFK CERC can bring 100 additional care managers into CERC’s already strong programs and provide the onboarding, training and access to resources they need. Dr. Kastner projects that the Health Home program will be self-sustaining after this initial start-up phase.

RFK CERC has helped Serenity become a different kind of parent to her children. Pearl is thriving in high school, and Jayden, now 12, still comes to RFK CERC every Friday before school for speech therapy. With the Montefiore Health Home, RFK CERC is poised to help thousands more parents like Serenity take good care of their children.



RFK CERC by the Numbers

7,000

families served
every year

50,000

visits annually

100⁺

professionals

50⁺

years of service to children
and families

14

clinical programs,
including pediatrics,
special-needs dentistry
and psychology

60

clinicians trained each year
to treat intellectual and
developmental disabilities

OTHER LIVES:

DR. DAVID ALTSCHUL

"The louder the better," says Dr. Altschul of the band's musical philosophy.

The guitar hanging on his office wall explains why David Altschul, M.D., practices at Montefiore.

During his neurosurgery residency at Montefiore, Dr. Altschul was moonlighting as the lead singer and guitarist of a garage-rock band called the Red Herrings. That piqued the interest of David Gordon, M.D., who helped train Dr. Altschul during his residency and was a fellow guitar player. “We made a friendly agreement,” says Dr. Altschul, laughing. “He’d help me get a job here, and I’d help him get into the band—and it worked out.”

AFTER-HOURS JAMMING

When Dr. Altschul—now an attending physician of neurological surgery at Montefiore and an assistant professor of neurosurgery and of radiology at Einstein—started his new job, both neurosurgeons brought their guitars into the hospital. “David was down the hall from me, so we would jam together between seeing patients or after hours,” says Dr. Altschul.

With two physicians and an architect on guitar, a computer programmer on bass and a Wall Street bond trader on drums, the Red Herrings rank as one of New York City’s best-educated bands. The group draws its inspiration from a wide range of musical genres, including blues, reggae and garage rock, with influences as diverse as Jack White, Radiohead, the Ramones and Bob Marley. “The louder the better,” says Dr. Altschul of the band’s musical philosophy. The Red Herrings play at clubs on Manhattan’s Lower East Side.

Dr. Altschul grew up learning to play the piano, but switched to guitar in his late teens. He loved playing



Dr. Altschul with his band the Red Herrings rocking out at Arlene’s Grocery.

guitar-driven songs by artists such as Led Zeppelin and Jimi Hendrix. When he started medical school at the State University of New York’s Downstate Medical Center in 2002, Dr. Altschul formed his first band with two childhood friends, and the Red Herrings were born. His brother, Kurt, later joined the band as a guitar player.

The Red Herrings compose all their own songs and have recorded 30 of them to date. Dr. Altschul writes the lyrics—a task that has gotten more challenging over the years. He is married to Dr. Dorothea Altschul, a neurointerventionalist at Columbia, and the couple has three children, ages 2 to 6. “It’s easy to write lyrics when you’re young and single and experiencing the angst of dating and breaking up a lot,” he says. “But my life is pretty great right now.”

STILL PLAYING AFTER ALL THESE YEARS

One of the Red Herrings’ latest songs, “Going Gray,” explores a new topic



for the 15-year-old group. “It’s amazing to me that the band is still alive and kicking given how busy we all are,” says Dr. Altschul, noting that all the members now have families and careers. “But it’s cathartic for us. Whenever we haven’t gotten together for too long a time, we all get itchy and say, ‘We need to play right now.’”

The group’s growing fan base includes actor Bruce Willis. Dr. Gordon is a close friend of Willis’ and has even appeared in some of the action star’s films. “It’s really wild when he comes to our gigs,” says Dr. Altschul. “The place is packed with our family and friends—and then there’s Bruce Willis! It’s a lot of fun.”

ON THE WEB:

To listen to the Red Herrings, check out their website: www.theredherringlive.com

MOTIVATIONS

YOUR IMPACT:



SURGERY

in

3D

The mechanical arm spins in its case, applying thin deposits of resin. Several hours later, the distinct shape of a human spine begins to emerge: 33 vertebrae and the soft discs that separate them. The 3D printer has created an exact replica of a patient's backbone.

The Montefiore Einstein 3D Laboratory has been making surgery easier for doctors and patients since the spring of 2017. It helps surgeons envision, plan and conduct complex operations more precisely than ever before—anticipating challenges, reducing risk during surgery and, ideally, improving outcomes for patients. The lab's co-directors are Oren Tepper, M.D., the director of craniofacial and aesthetic surgery at Montefiore and an assistant professor of surgery at Einstein, and Evan Garfein, M.D., an associate professor of surgery at Einstein and the chief of the division of plastic and reconstructive surgery at Montefiore.

Consider surgery for scoliosis, a curvature of the spine. Before the development of the 3D lab, orthopedic surgeons correcting this condition could see the patient's spine only from the back, and only during the operation itself. But now, says Dr. Tepper, 3D models allow surgeons to get a 360° view before they begin to operate.

HELPING CONJOINED TWINS

Montefiore's use of 3D models has also helped correct congenital jaw deformities by allowing doctors to build anatomically accurate implants, and to

perform surgeries to repair childhood deformities of the skull. For example, 3D modeling contributed greatly to the successful separation of conjoined twins Jadon and Anias McDonald in 2016. James Goodrich, M.D., Ph.D., the chief of the division of pediatric neurosurgery at Children's Hospital at Montefiore and a professor in the Leo M. Davidoff Department of Neurological Surgery at Einstein, led the 27-hour procedure. Before separating the twins, Dr. Goodrich—an expert in conjoined-twin surgery—and his colleagues used 3D modeling to help plan the operation. Now, more than 18 months after their procedure, the McDonald twins are thriving toddlers.

The creation of 3D models starts with computed tomography (CT), magnetic resonance imaging (MRI) and 3D digital images. Technicians take those images and use special

The 3D lab helps surgeons envision, plan and conduct complex operations more precisely than ever before—anticipating challenges and reducing risk during surgery.



1



2

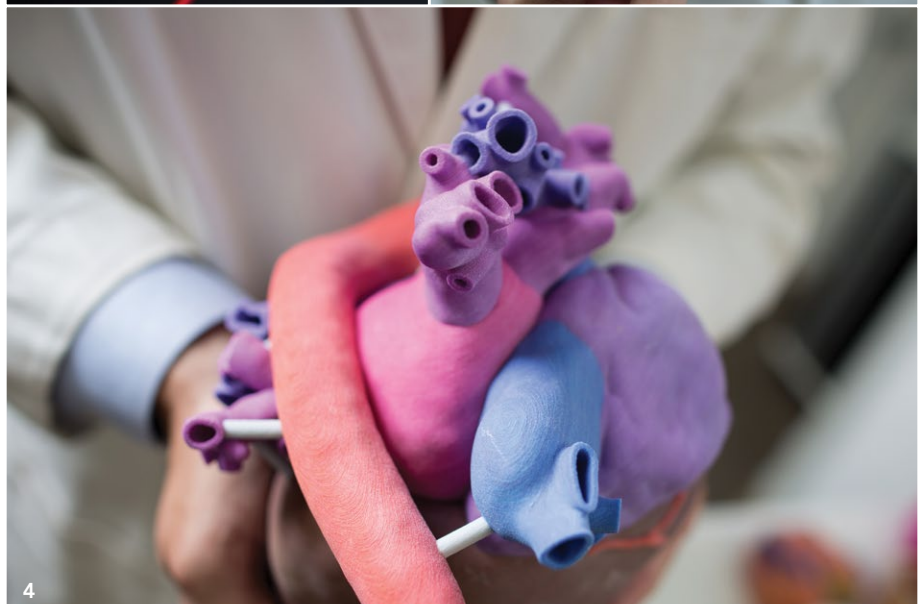
1. A freshly produced 3D backbone model; 2. A 3D model like this one aided the McDonald twins' separation.

software to turn them into 3D anatomical renderings, which they send to Montefiore's 3D printer. The whole process—from consultation to imaging to virtual modeling to printing—can take as little as a few hours or as much as a full day, depending on the model's complexity.

LOOKING TO THE FUTURE

Einstein students and fellows already benefit from the educational opportunities the 3D lab offers. An updated curriculum ensures that scientists and researchers use 3D models to educate future surgeons. Pediatric cardiology fellows recently examined models, built from scans of Montefiore patients, that covered a range of heart conditions—some so rare that the fellows might encounter them only once or twice during their training.

The 3D lab is expanding its scope beyond the surgery department; it now works with orthopedics, urology and cardiology to benefit the entire Einstein Montefiore community—with additional partners welcome. “We’re hoping that people will come to the 3D lab with their designs—and not just those for anatomical models,” says Dr. Tepper. “If you have an idea for a splint or a hand-washing station, the lab can print a prototype for testing. That kind of help can really speed innovation.”



1. 3D lab co-directors Oren Tepper, M.D., left, and Evan Garfein, M.D.; 2. CT is the first phase in creating a 3D model; 3-4. 3D models for surgical preparation and training.

CLASS NOTES

1960s

Melvin Shapiro, M.D. '60, has retired after 50 years as a gastroenterologist. In addition to practicing clinical gastroenterology and endoscopy, he has developed multimedia endoscopic teaching and educational programs for national and international gastrointestinal societies. Highlights of his career include serving as an officer of the World Organizations of Endoscopy and Gastroenterology and as president of the American Society for Gastrointestinal Endoscopy. He and his wife, Bobbie, have three sons and five grandchildren. The couple lives in Encino, CA.

Howard Bruckner, M.D. '64, lives in New York City, where he operates a freestanding cancer center and the MZB Foundation for Cancer Research (bruckneroncology.com). He publishes and reports on new methods of safely expanding applications for targeted drugs to improve the quality of response for various conditions, including just-confirmed cholangiocarcinoma and colon cancer.

1970s

Jacob Ackerman, M.D. '71, lives in Flushing, NY. He still enjoys seeing patients in his office and performing eye surgery, but has turned over the operation of his ambulatory surgery center to his son, Steven. Dr. Ackerman has 22 grandchildren and one great-grandchild. He sends his best wishes to his classmates.

Gary D. Rifkin, M.D. '71, F.A.C.P., F.I.D.S.A., chairs the department of medicine at the University of Illinois College of Medicine in Rockford. Dr. Rifkin, who is also a professor of clinical medicine and infectious diseases, joined the college faculty in 1978. He has served as the vice chair and the acting chair of the department of medicine and has won several awards. He is board-certified in internal medicine and infectious diseases and is a fellow of the American College of Physicians and the Infectious Diseases Society of America. Dr. Rifkin maintained a clinical practice in Rockford and served as a physician and epidemiologist at several local medical centers from 1978 to 2012.

Robert Ritch, M.D. '72, lives and practices in New York. In 2017, he received several awards, including the Asia-Pacific Academy of Ophthalmology presidential award and the Joanne G. Angle Association for Research in Vision and Ophthalmology service award. He also gave the Mansour F. Armaly Lecture at the University of Iowa Glaucoma Conference and was selected as a member of the International Advisory Committee of ARVO-Asia, a conference held by the Association for Research in Vision and Ophthalmology in Brisbane, Australia.

Roger Duvivier, M.D. '74, F.A.C.O.G., has served for several decades as a volunteer in Guatemala for WINGS, a nongovernmental organization. He is also a member

of the Antigua Guatemala Rotary International Club, which serves indigenous populations in need of clean water, sanitation services and education and reproductive healthcare. In March 2018, the Einstein office of diversity enhancement and the department of obstetrics & gynecology and women's health honored him by holding the fourth annual Duvivier Lecture. The keynote speaker was Albert Galaburda, M.D., a professor of neurology at Harvard Medical School and the director of the office of diversity and inclusion at Beth Israel Deaconess Medical Center in Boston.

Maja Nowakowski, M.D. '74, develops medical school curricula and teaches immunology at the State University of New York Downstate Medical Center. Her research focuses on human monocyte/macrophage activation and regulation of inflammatory responses in allergy/asthma and HIV-1 infection. Dr. Nowakowski's twin sons—born at Einstein!—are Mark Nowakowski, now a partner at KPMG LLP, a U.S. audit, tax and advisory firm, and David Nowakowski, director of research at Baring Asset Management. Mark lives in Decatur, GA, with his wife, Katie, and their sons Benjamin, 12, and Sebastian, 10. David lives in London with his wife, May, and their children Siri, 8, and Lucas, 6. Dr. Nowakowski's daughter, Tamara, is the operations manager at Zeel.com, an in-home massage service. She lives in Pittsburgh with her husband, Stephen McCormick.

MOTIVATIONS

Harold Pincus, M.D. '75, is a professor and the vice chair of psychiatry and the co-director of the Irving Institute for Clinical and Translational Research at Columbia University's College of Physicians and Surgeons. He received the 2017 Institute of Living's Charles C. Burlingame Award for contributions to the field of psychiatry. Dr. Pincus also serves as the director of quality and outcomes research at New York–Presbyterian Hospital and as a senior scientist at the RAND Corporation. He lives in New York City.

Steven Rosenberg, M.D. '75, lives in Palm Beach, FL. He recently was appointed to a third term on the Florida Board of Medicine, and was elected chair of the Joint Committee on Marijuana. His daughter, Miranda, graduated from the University of Pennsylvania Perelman Medical School, where she is serving her internship.

Margo Vale, M.D. '75, and Michael Vale, M.D. '75, are happy to announce the births of their grandchildren Charles Henry Vale on July 3, 2016, and Penelope Jane Rubin on February 25, 2017. Charles' parents are Eddie and Katey Vale of Chevy Chase, MD; Penelope Jane's parents are Judy Vale and Mike Rubin of Brooklyn, NY.

Andrew M. Gross, M.D. '77, J.D., lives and works in Dallas, TX. His son, Michael, 27, just graduated from Southern Methodist University Law School and is engaged to be married. His daughter Dana, also 27, is a second-year resident at Baylor College of Medicine in Houston, and is planning a career in pulmonary/critical-care medicine. Dr. Gross' elder daughter,

Rachel, 32, is a senior associate at a Dallas law firm.

Jerry O. Stern, M.D. '77, retired from Boehringer Ingelheim Pharmaceuticals as a vice president and the global therapeutic area head for virology and liver diseases. He and his wife, Robina, recently celebrated their 47th anniversary. The Sterns' elder granddaughter, Ava, a high school senior, has worked for the past two summers at Einstein in the lab of Dr. Richard Kitsis. Ava plans to apply to the Einstein M.D./Ph.D. program, and looks forward to a career in biomedical research. Their younger granddaughter, Olivia, is actively engaged in her high school's science research program.

1980s

Paul Blanc, M.D. '82, lives in San Francisco. His book, *Fake Silk: The Lethal History of Viscose Rayon* (Yale University Press, 2016), was awarded the 2017 Viseltear Prize from the American Public Health Association for "Outstanding Book on the History of Public Health."

Joel Cohen, M.D. '83, recently left his senior faculty position in the department of neurology at Einstein Montefiore to join the stroke unit at Shaare Zedek Medical Center in Jerusalem, where he lives with his wife, Pearl, and their four children. The Cohens are proud to announce that their daughter, Sara, is engaged to Chanina Landesman of Givat Shmuel, Israel.

Carl E. Rosenkilde, M.D. '85, retired as a neurologist in February 2017. He lives in Mount Kisco, NY.

STAY IN TOUCH

Keep your classmates up-to-date by submitting your news to *Einstein* magazine. We look forward to including you in our next issue. E-mail us at alumni@einstein.yu.edu.

1990s

Ronald S. Lubetsky, M.D. '91, lives in Hollywood, FL. In October 2017, Dr. Lubetsky completed a fellowship in integrative medicine at the University of Arizona, Tucson. On March 24, 2017, Dr. Lubetsky and his wife welcomed their son Benjamin Emmanuel Uriel Lubetsky to their family.

Carla Golden, M.D. '92, works at the Oakland Children's Hospital and Research Center in the department of hematology/oncology, in Oakland, CA.

Hugh Bases, M.D. '94, serves as a developmental-behavioral pediatrician at the New York University School of Medicine. His wife, Randi Asher (Ferkau '95), is in private practice in New York City.

Malini Sen, M.D. '95, lives in Kolkata, India, and works at the Indian Institute of Chemical Biology. She is grateful to Einstein for helping shape her career as a scientist. Dr. Sen studies the mechanisms of pathogenesis in microbial infections and would love to hear from classmates with similar interests.

Kristin E. Harkin, M.D. '97, F.A.C.E.P., lives in New Rochelle, NY, and serves as the chair of the New York State Board of Medicine.



"I feel empowered and deeply grateful for the scholarship that's allowing me to achieve all that is possible with an Einstein education."

– Hope Miodownik, Class of 2019

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Montefiore

A LOOK BACK



Wally/NY Daily News/Getty Images

A New Path for Pacemakers

Cardiac pacing once required cutting open the chest to reach the heart. Sixty years ago, on August 18, 1958, Montefiore surgical resident Seymour Furman performed a radically less invasive procedure on 76-year-old Pincus Shapiro, admitted to Montefiore two months earlier with congestive heart failure. In a technique he'd practiced on dogs, Dr. Furman inserted an electrode-tipped catheter into Mr. Shapiro's left arm and threaded it through the median basilic vein into the right ventricle. The Electrodyne pacemaker at the catheter's other end delivered small jolts of electricity to maintain a regular heartbeat, making Mr. Shapiro the world's first transvenous-pacemaker patient. Three months later, his heart had recovered sufficiently for doctors to remove the catheter—and for Mr. Shapiro to return home, with reporters and photographers on hand. "Electrode in Heart Saves Man's Life," read the *New York Times* headline, and the *Daily News* ran this page-one photo of Dr. Furman lighting a cigar for Mr. Shapiro as his wife Estelle looked on. Mr. Shapiro lived another four years. Dr. Furman became a renowned expert on pacemakers, his groundbreaking procedure leading to today's miniaturized devices. He worked for more than 50 years at Montefiore and Einstein, where he became a distinguished professor of cardiothoracic surgery and of medicine. Dr. Furman died in 2006 at age 74, from complications of cardiovascular disease.



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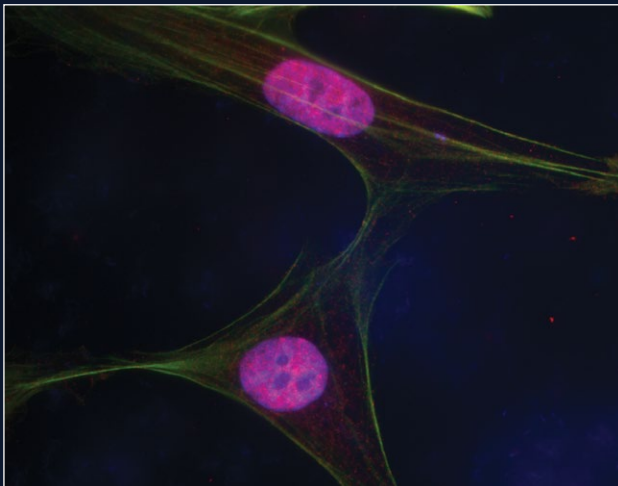
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EINSTEIN IMAGE

Lowe syndrome is caused by mutations in the gene *OCRL*, found on the X chromosome. The syndrome is characterized by congenital cataracts, poor muscle tone, kidney disease and intellectual disabilities. *OCRL* codes for an enzyme that regulates the polymerization of F-actin, a cellular building block that supports the growth and development of neurons and their extensions (neurites and dendritic spines). To better understand how *OCRL* mutations cause intellectual disabilities and affect F-actin polymerization, the lab of Herbert Lachman, M.D., cultivated induced pluripotent stem (iPS) cells made from Lowe syndrome patients' white blood cells. The iPS cells were differentiated into neural progenitor cells, which form neurons, and other brain cells such as astrocytes and oligodendrocytes. This image of two neural progenitor cells shows F-actin (green) outlining the cytoskeleton. A different form of actin, known as G-actin (red), predominates in cell nuclei, where it regulates gene expression by interacting with chromatin. Dr. Lachman is a professor in the department of psychiatry and behavioral sciences at Einstein. Jesse Barnes, a graduate student in Dr. Lachman's lab, conducted the research.