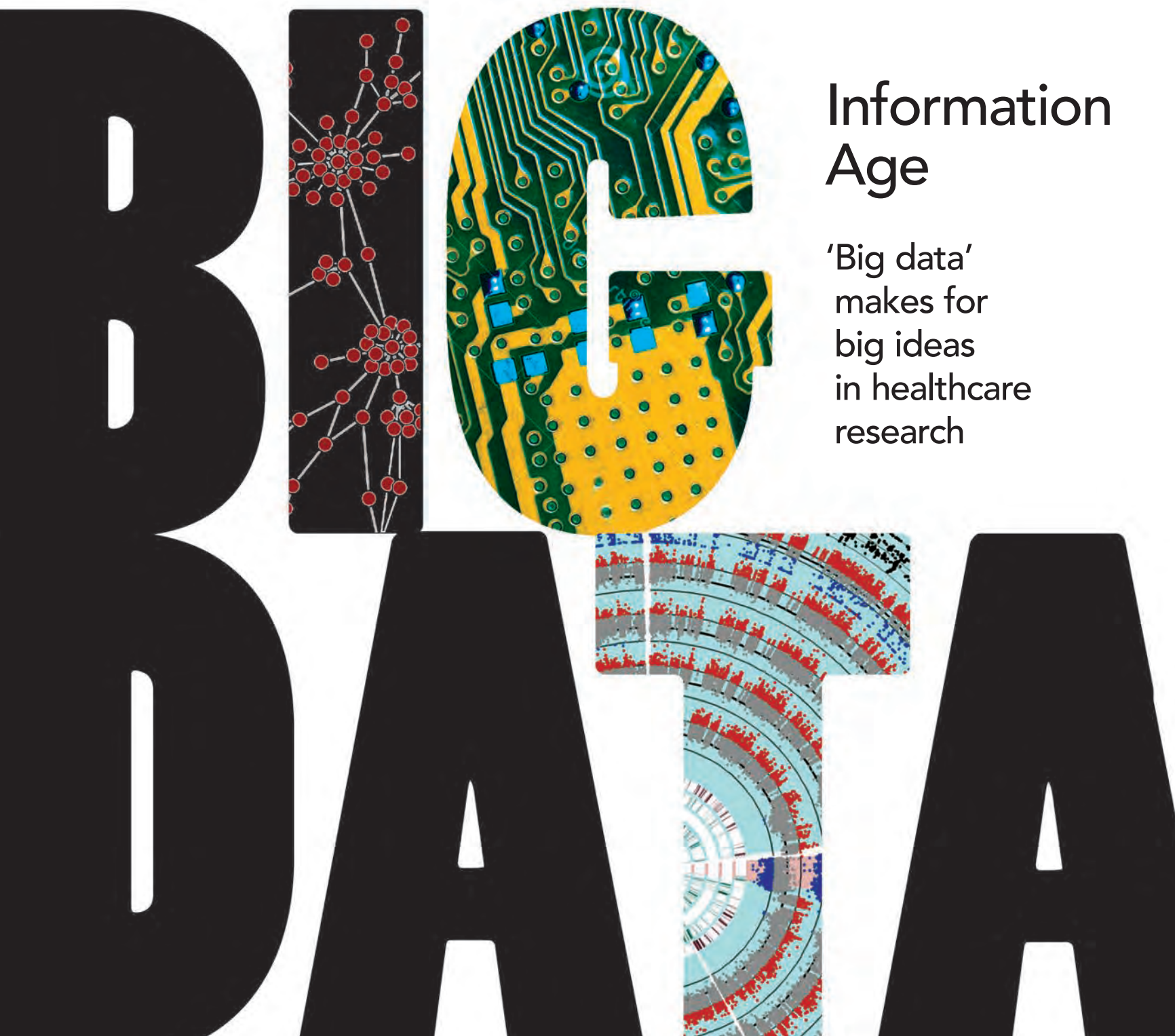


weillcornellmedicine

THE MAGAZINE OF
WEILL CORNELL
MEDICAL COLLEGE AND
WEILL CORNELL
GRADUATE SCHOOL OF
MEDICAL SCIENCES

VOL. 13, NO. 2



Information Age

'Big data' makes for big ideas in healthcare research



REUNION

2014

THE EVOLUTION OF MEDICAL EDUCATION

This year's reunion theme will explore the myriad ways advancements in medical science have altered the way we educate medical students. Alumni will have the opportunity to learn about the new curriculum we're launching this year, which complements the most recent innovations in technology and medicine.

We have a number of exciting lectures and events during reunion weekend, including the following highlights:

FRIDAY, OCTOBER 10TH

A New Curriculum for a New Era, 9:15 – 10:00 a.m.

Explore the evolution of medical education at Weill Cornell Medical College from the Flexner Report (1910), subject by subject (1964), and Problem-Based Learning (1995) to the debut of the new curriculum (2014).

Carol L. Storey-Johnson, MD '77, *Senior Associate Dean of Education*

Peter M. Marzuk, MD, *Associate Dean of Curricular Affairs*

From Microscopes to Microchips: The Evolution of Medical Education at Weill Cornell, 10:00 – 11:45 a.m.

Hear from alumni panelists as they share how they were taught to handle patient cases as medical students compared to the state-of-the-art treatments available today. The juxtaposition of experiences will highlight the remarkable advances in medical science and the extraordinary changes in how medical students are taught now.

Featuring: Thomas H. Lee, Jr., MD '79, Tiffany A. Traina, MD '99, and panelists from the 25th and 50th Anniversary Classes

Guided Campus Tours, 3:00 – 5:00 p.m.

Walk through the halls of Weill Cornell and visit the Margaret and Ian Smith Clinical Skills Center, the Anatomy Lab, the Weill Education Center, and the state-of-the-art Belfer Research Building.

SATURDAY, OCTOBER 11TH

Medical School Admissions: Would You Get in Today? 10:00 – 10:45 a.m.

Learn from the Associate Dean of Admissions about how the admissions process has changed over the past 50 years as well as how it addresses the issues of physician shortages and physician maldistribution.

Charles L. Bardes, MD, *Professor of Clinical Medicine and Associate Dean of Admissions*

Now and Then - Reflections from 1300 York Avenue, 11:00 a.m. – 12:00 p.m.

Join members of the milestone classes and current students as they reflect on their time at Weill Cornell: why they attended medical school, their most memorable experiences on campus, and what they wish they had learned as medical students.

Moderator: Spencer H. Kubo, MD '80, *President, WCMCAA* and panelists from the 25th and 50th Anniversary Classes

Gala Dinner Dance, 7:00 p.m. | Cipriani 42nd Street

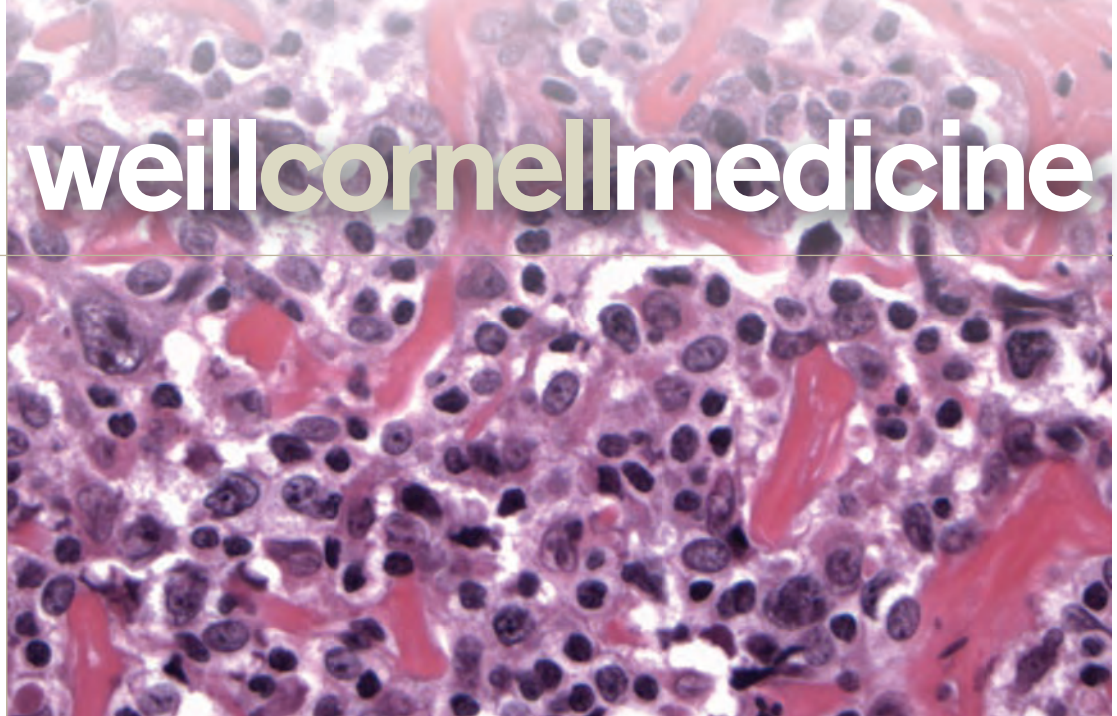
Join us for these events and more! **To find out more information about Reunion 2014 or to register, please visit <http://weill.cornell.edu/alumni/reunion>.**



Weill Cornell Medical College



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FEATURES

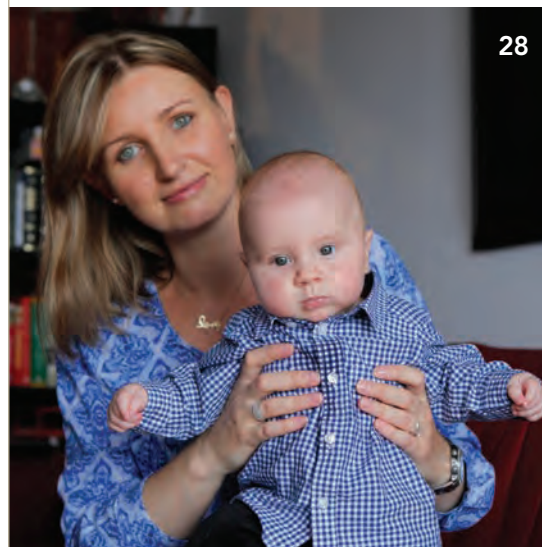
22

22 TARGET PRACTICE ANDREA CRAWFORD

Like many cancers, lymphoma is not a single disease but a diverse group of malignancies; it has two main forms and more than sixty subtypes. Although most lymphomas have long been treated the same way, the increasing understanding of the disorder has inspired striking new approaches to research and treatment at Weill Cornell's Sandra and Edward Meyer Cancer Center. "You shouldn't treat everybody who walks in the door the same way," says John Leonard, MD, associate dean for clinical research and the Richard T. Silver Distinguished Professor of Hematology and Medical Oncology. "We want to treat with a tailored approach based on what's most likely to work for that individual patient."

28 DEEP BREATHS BETH SAULNIER

For patients suffering from pulmonary embolism (PE), the outcomes are often grim. Some 60,000 to 100,000 Americans die of the condition annually, with 10 to 30 percent of patients perishing within a month of diagnosis. At Weill Cornell, clinicians are working to better those odds. Now, when a PE patient comes in, a page goes out to the new Pulmonary Embolism Advanced Care (PEAC) team, which comprises specialists in pulmonology, cardiology, cardiothoracic surgery, and interventional radiology. "When someone comes in really sick, the standard ED or medicine person often can't get all the players to see them fast enough before something bad happens, and they could die," says James Horowitz, MD, assistant professor of medicine. "So we've created this multi-disciplinary approach."



28

34 'BIG DATA,' BIG DREAMS HEATHER SALERNO

Big data is a term used to describe information so large and complex that it's difficult to parse with standard software tools. While the ability to examine massive datasets has already revolutionized the business world, big data is now poised to transform the public health sector, as the power to aggregate reams of material—along with technological advances that can make sense of it all—changes the way physicians and scientists conduct research. A look at some of the ways in which Weill Cornell faculty are harnessing big data, from an inventory of New York City's microbiome to health analyses at the world's largest human gathering.

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DEPARTMENTS

3 DEAN'S MESSAGE

Comments from Dean Glimcher

4 THE BEST AND THE BRIGHTEST

6 LIGHT BOX

Taking the pledge

8 SCOPE

Graduation day. *Plus*: Searching for Skorton's successor, a "Breakthrough" for postdocs, new IBD institute, website for clinical trials, assistant dean for clinical affairs, a best-ever Match Day, and the Ansary Stem Cell Institute's tenth anniversary.

12 TALK OF THE GOWN

Tapping "small data." *Plus*: Risks of home birth, medical history, a healthier Qatar, tales of *One Doctor*, battling leishmaniasis, new approaches to pain, and tracking an MS trigger.

40 NOTEBOOK

News of Medical College and Graduate School alumni

47 IN MEMORIAM

Alumni remembered

48 POST DOC

"Dr. Shochu"

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The Power to Help Patients

Laurie H. Glimcher, MD,
Dean of the Medical College

Big data. More than a buzz word, these myriad forms of information are overturning basic tenets of medicine, including how we make diagnoses and categorize disease. Encompassing electronic medical records, clinical trial data, population studies, and, of course, the 3.4 billion nucleotides that make up a person's genome, the information is becoming available at exponential rates to physicians and scientists.

In oncology, for example, we now know that based on molecular subtypes, one patient's breast cancer may have more in common with some lung or liver cancers than with other forms of breast cancer—an understanding that is disrupting traditional notions of specialties. In the lab, big data is upending the most fundamental principle of scientific inquiry—that researchers first form hypotheses and then set out to prove or disprove them. Instead, investigators are increasingly using data-analysis tools to discern patterns that lead them to correlations.

In this issue's cover story on big data, we highlight the work of researchers who are harnessing that vast trove of information in a wide variety of ways—from treating patients more effectively during a possible epidemic to mapping New York City's microbiome, an effort that began with the collection and sequencing of some 1,500 bacteria samples found in the subway system. You'll read about how the ability to examine massive datasets depends on accessing more—and more powerful—data, and how, to that end, we've joined a 150-member coalition of healthcare providers, research institutions, and disease advocacy groups who share genomic information with the aim of advancing human health. You'll meet investigators such as Olivier Elemento, PhD, an assistant professor of computational genomics.

In his Cancer Systems Biology Laboratory, Elemento and his team analyze the genomes of tumors and build computer models to test the efficacy of potential drugs to combat them, using analytics to sort through hundreds of thousands of potential combinations and dosages.

Big data enhances much of what we do today at Weill Cornell. It's evident in the work of our Sandra and Edward Meyer Cancer Center, where, with great success, new therapies are being targeted to the personal characteristics of patients and their cancers. This work, like all that is being done to advance precision medicine, owes its existence to the ability to analyze enormous amounts of so-called “omics” data. In the case of a recent lymphoma therapy, such information led our physician-scientists to a deeper understanding of the chemical modifications that determine how a cancer cell behaves and where its weaknesses lie.

The power of data is evident in the work of Amos Grunebaum, MD, professor of clinical ob/gyn and chief of labor and delivery at NYP/Weill Cornell. In the largest study of its kind, Grunebaum found an increased risk in home deliveries after analyzing birth certificate files from the CDC's National Center for Health Statistics. Large-scale data analysis also drives the work of Deborah Estrin, PhD, a professor of healthcare policy and research who holds a joint appointment at the Cornell Tech campus. An engineer and computer scientist, Estrin is a pioneer in leveraging the reams of information that an individual generates every day to measure patients' pain empirically and improve the quality of their lives.

The scope of the data analysis systems we now have at our disposal is awe-inspiring—but the real power of big data lies in what we do with it. Here at Weill Cornell, we see big data as yet another tool in our fundamental quest: to improve the lives of patients.



LISA BERG



The Best and Brightest

An Update on Faculty Recruitment at Weill Cornell

The physician-scientists at Weill Cornell are on the frontlines of healthcare, making breakthrough discoveries that lead to innovative treatments and cures for patients. With the help of our donors and friends, and the resources made possible by the new Belfer Research Building, we continue to expand our team of experts by bringing more of the best and brightest scientists to campus. These world-class researchers collaborate, across disciplines, to speed the latest discoveries from the lab bench to the patient bedside.

“As we continue to recruit more leading lights, **we enhance our capacity to provide hope** and health for generations to come.”

Laurie H. Glimcher, MD

Stephen and Suzanne Weiss Dean
Provost for Medical Affairs

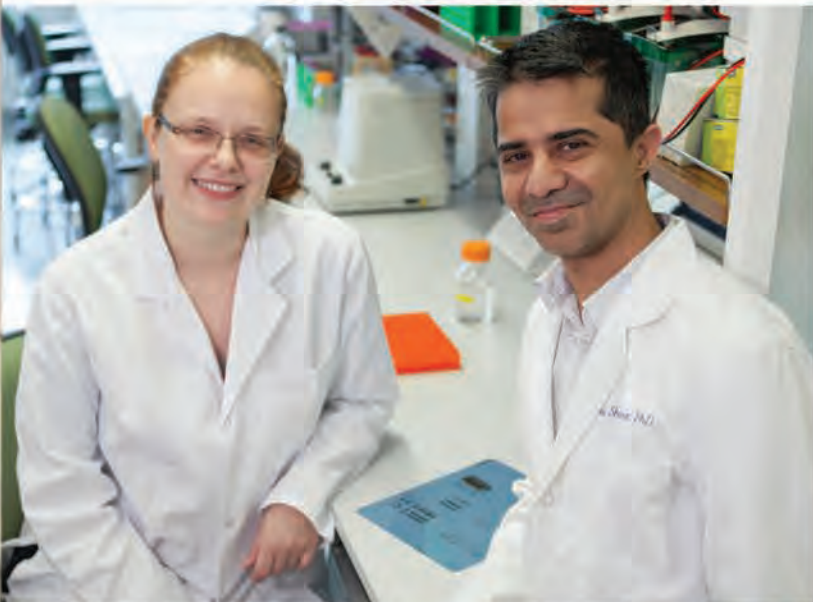


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Spotlight on...

The Helen and Robert Appel Alzheimer's Disease Research Institute within The Feil Family Brain and Mind Research Institute



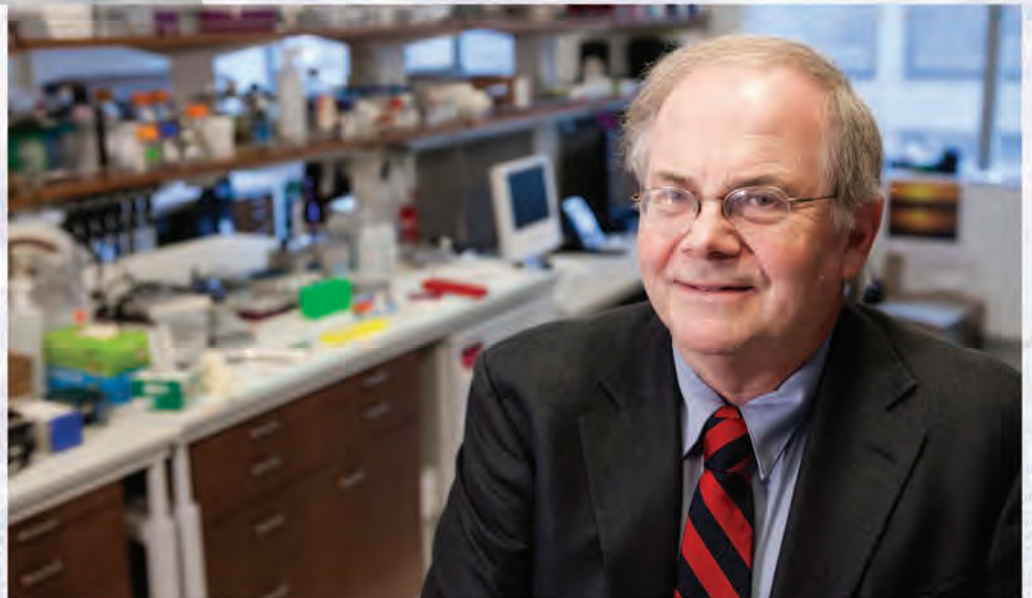
Alzheimer's disease is rapidly becoming one of the world's leading health concerns. Our best weapon to combat this illness is research; the more we understand the disease at a molecular level, the greater our ability to find potential treatments and cures or possibly prevent it from occurring. With the Appel Institute, Weill Cornell recognizes this vital need and has focused efforts to recruit some of the most accomplished biomedical researchers in the field.

Dr. Jacqueline Burré, Assistant Professor of Neuroscience, and Dr. Manu Sharma, Assistant Professor of Neuroscience, are recent recruits at the Appel Institute. Dr. Burré is studying early pathological events that trigger neurological disorder and neurodegeneration, and Dr. Sharma is investigating the development of neurodegenerative diseases at the cellular-molecular level. Both of these accomplished researchers joined us from Stanford University.

"We now know from a variety of studies that there is a **big difference between normal aging and Alzheimer's disease**. And if it's a disease, that means it can be prevented and treated."

Gregory Petsko, DPhil

Arthur J. Mahon Professor of Neurology and Neuroscience
Director of the Appel Alzheimer's Disease Research Institute



To neuroscientist Dr. Gregory Petsko, who began his tenure at Weill Cornell in 2012, Alzheimer's disease is nothing short of a looming national catastrophe. A renowned scientist who's dedicated the latter part of his career to investigating the disease's molecular underpinnings and devising new treatments for it, Dr. Petsko hopes to make even greater inroads against this devastating neurodegenerative condition as the new director of the Helen and Robert Appel Alzheimer's Disease Research Institute and the Arthur J. Mahon Professor of Neurology and Neuroscience. Among other honors, Dr. Petsko is a member of the Institute of Medicine of the National Academies.

We are grateful to all of our donors for their continued support. For more information on making a gift to the *Driving Discoveries, Changing Lives* Campaign, please contact Lucille Ferraro, Campaign Director, 646-317-7387 or luf2003@med.cornell.edu.

Light Box





Solemnly swear: At Commencement 2014, new physicians take the Hippocratic Oath.

AMELIA PANICO PHOTOGRAPHY

Scope

News Briefs



AMELIA PANICO PHOTOGRAPHY

Red and white: Graduates, families, friends, and faculty filled Carnegie Hall for the traditional Commencement festivities in May.

'Become a Person Who Innovates,' Glimcher Tells Grads

Nearly 300 clinicians and researchers capped off their years of study with a festive ceremony in Carnegie Hall in May. The annual Commencement celebration featured the conferral of 142 MDs, seventy PhDs, and thirty-six master's of science; forty-three physician assistants received MS degrees in health sciences. Cornell President David Skorton, MD, presided over the ceremony with Medical College Dean Laurie Glimcher, MD, Graduate School Dean Gary Koretzky, PhD, and WCMC-Q Dean Javaid Sheikh, MD. "With change occurring at an astronomical rate, I challenge you to be leaders in your field," Glimcher told the graduates. "Become a person who innovates and drives medicine or biomedical science forward and shapes it for the better. It's no exaggeration to say that the health of generations to come lies in your hands."

The ceremony included remarks by Sandeep Kishore, PhD '10, MD '14, chosen by his peers as student commencement speaker. "I used to think that vulnerability was a sign of weakness," he said, "but now I'm realizing that human vulnerability, if we are honest about it, is perhaps our greatest source of human strength. Vulnerability is the basis for real connection, for empathy."

The graduating MDs included thirty-four from the Qatar branch, seventeen men and seventeen women representing thirteen countries. "I know you can make a difference—in the lives of your patients, in increasing the store of biomedical knowledge, and in educating the public in ways that can change the world," Skorton told the graduates and their families, who filled a concert hall bedecked with red and white flowers. "We're counting on you to

change it." In her speech, Glimcher reminded the new physicians that, as they progress in their careers, they must carry with them the Weill Cornell mantra to put patients at the center of everything they do. "In 1913, Woodrow Wilson addressed a graduating class much like yourself with these words," she said. "'You are not here merely to prepare to make a living. You are here in order to enable the world to live more amply, with greater vision, with a finer spirit of hope and achievement.'"

Search Launched for Cornell President

The search is under way for a successor to President Skorton, who announced in March that he will leave Cornell University at the end of June 2015 to lead the Smithsonian Institution in Washington, D.C. Skorton will serve as secretary of the world's largest museum and research complex, affectionately known as "America's Attic."

A cardiologist, Skorton came to Cornell in 2006 after three years as president of the University of Iowa. His decision to remain through the next academic year will allow him to preside over the University's 150th anniversary celebrations, which include a gala kickoff in New York City in mid-September. The end of Skorton's tenure as president will also mean his wife's departure from the faculty; physiologist Robin Davisson, PhD, a professor of cell and developmental biology at Weill Cornell who holds a joint appointment at the College of Veterinary Medicine, will also relocate to Washington. "I am honored to be chosen to lead the Smithsonian Institution, one of our true national treasures," Skorton says. "The



PANICO

Moving on: Commencement 2014 was the second to last for outgoing Cornell President David Skorton, MD.

mission of the Smithsonian—"The Increase and Diffusion of Knowledge"—resonates deeply with me and mirrors the collective mission of the remarkably talented community of scholars, students, and staff with whom I have had the privilege to collaborate at Cornell these past eight years."

The Board of Trustees has pledged to make the search for the University's thirteenth president "exhaustive and inclusive." For updates on the process or to suggest a candidate, go to leader.ship.cornell.edu/president-search.

Breakthrough Prize Trio Funds Postdoc Award

Three winners of the inaugural Breakthrough Prize in Life Sciences—faculty members representing each of the Tri-Institutions—have committed part of their award funds to support the next generation of investigators. Weill Cornell cancer researcher Lewis Cantley, PhD '75, Sloan-Kettering oncologist Charles Sawyers, MD, and Rockefeller University neurobiologist Cornelia Bargmann, PhD, each received \$3 million in prize money along with the award in 2013. With additional support from their respective institutions, they have created a \$3 million endowment to fund the Tri-Institutional Breakout Awards for Junior Investigators.



ABBOTT

Lewis Cantley,
PhD '75

Each year, three \$25,000 grants will be given to outstanding postdocs—one each from Weill Cornell, Sloan-Kettering, and Rockefeller. As many as three additional prizes may be awarded annually to applicants from the three institutions, regardless of affiliation. The inaugural winners will be announced by the end of this year. "The Tri-Institutional Breakout Awards are a unique and powerful statement of our institutions' support for early-career investigators," says Cantley, director of the Sandra and Edward Meyer Cancer Center and the Margaret and Herman Sokol Professor in Oncology Research. "They will encourage our trainees to pursue innovative work and reinforce their commitment to critical basic science research."

TIP OF THE CAP TO...

Jason Baker, MD, assistant professor of clinical medicine, winner of the Humanitarian Award from the Diabetes Research Institute Foundation.

Brian Bosworth, MD, the Anne and Ken Estabrook Clinical Scholar in Gastroenterology, elected president of the New York Society for Gastrointestinal Endoscopy.

Frank Chervenak, MD, chairman of ob/gyn and the Given Foundation Professor of Obstetrics and Gynecology, named an honorary member of the International Academy of Reproduction.

Owen Davis, MD, professor of ob/gyn and of reproductive medicine, elected vice president of the American Society for Reproductive Medicine.

Joy Gelbman, MD, assistant professor of clinical medicine, winner of the Go Red for Women Luminary of Heart Award from the American Heart Association.

Paraskevi Giannakakou, PhD, associate professor of pharmacology, named president-elect of the World Hellenic Biomedical Association.

Roger Härtl, MD, professor of neurological surgery and co-director of the Weill Cornell Spine Center, and his team, in col-

laboration with Ithaca-based biomedical engineers led by **Larry Bonassar, PhD**, who won the American Association of Neurological Surgeons' Ronald Apfelbaum Research Award for their work on a collagen gel to repair herniated discs.

Hooman Kamel, MD, assistant professor of neurology and of neuroscience, winner of the Michael S. Pessin Stroke Leadership Prize from the American Academy of Neurology.

Lia Logio, MD, the Herbert J. and Ann L. Siegel Distinguished Professor of Medicine, named president-elect of the Association of Program Directors in Internal Medicine.

Ryan McGarry, MD, instructor in medicine, whose documentary, *Code Black*, has won numerous accolades including the jury prize for best documentary feature at the Los Angeles International Film Festival. It chronicles his experiences training at L.A. County General Hospital.

Jean Pape, MD '75, professor of medicine, who was knighted and named to Haiti's National Order of Honour and Merit for his work as founder and director of GHESKIO.

Karen Lin Su, MD '97, clinical associate professor of pediatrics, winner of the Pioneer Award from the CARES Foundation, an advocacy group for congenital adrenal hyperplasia.

Patricia Yarberry-Allen, MD, clinical assistant professor of ob/gyn, winner of the American Medical Women's Association Presidential Award.

Roberts Institute Founded to Support Research on Inflammatory Bowel Disease

Leading immunologist David Artis, PhD, has been recruited to lead the newly established Jill Roberts Institute for Research in Inflammatory Bowel Disease. The institute, made possible by the generosity of longtime benefactor Jill Roberts and the Jill Roberts Charitable Foundation, is dedicated to understanding the molecular underpinnings of IBD with the goal of developing new treatments. Housed in the Belfer Research Building, it will build on the successes of Weill Cornell's existing IBD research and clinical care programs in the Jill Roberts Center for Inflammatory Bowel Disease, the Joan and Sanford I. Weill Department of Medicine, and the Department of Surgery. "With the incidence of diseases like Crohn's and ulcerative colitis on the rise, it is incumbent upon us to develop new therapies and ultimately a cure for these devastating diseases," says Dean Glimcher. "Jill's vision and David's expertise will enable us to make transformative research breakthroughs, and I'm very excited about what we can accomplish together."

Artis focuses his research on how immune system dysregulation can lead to chronic inflammatory diseases such as psoriasis, arthritis, and IBD. According to the Centers for Disease Control and Prevention, inflammatory bowel diseases including Crohn's and ulcerative colitis affect some 1.4 million Americans.

Clinical Trials Office Gets User-Friendly Website for Patients and Researchers

A new website will make information about clinical trials more accessible to patients, researchers, and physicians. The site—jcto.weill.cornell.edu, which went live in mid-May—offers educational materials for patients, resources for researchers, and a catalogue of open trials at NYP/Weill Cornell. "Clinical research is an essential component of what ultimately is going to result in improved outcomes for patients," says John Leonard, MD, director of the Joint Clinical Trials Office, associate dean for clinical research, and the Richard T. Silver Distinguished Professor of Hematology and Medical Oncology. "Unfortunately for a vast majority of patients, many don't know that clinical trials are an option for them. So having a resource where they can get information and start to figure out whether or not a clinical trial is something to consider is an essential component of the process."

Stracher Is Assistant Dean of Clinical Affairs

A second faculty member has been named to the newly created position of assistant dean of clinical affairs. Adam Stracher, MD, associate professor of clinical medicine, will help lead Weill Cornell's clinical enterprise—with a particular focus on its Physician Organization, whose Primary Care Division he directs. "We already provide incredibly high-quality healthcare," notes Stracher, who came to Weill Cornell as an internal medicine intern in 1993, "but the challenge we face is to continue to do so while also providing the highest value of care, enhancing the health of our diverse patients, and preparing for new payment models and systems of care." Stracher's appointment follows that of Matthew Fink, MD, chairman of the Department of Neurology and the Louis and Gertrude Feil Professor of Clinical Neurology, who was named an assistant dean of clinical affairs several months ago.



The envelope, please: Class of 2014 members Asha Jamzadeh (left), Jesse Bastiaens, and Ana Valdez reveal their matches.

Smiles and Champagne on Match Day

Match Day 2014 is being hailed as Weill Cornell's finest, with 86 percent of the residencies landed by its physicians-in-training located at institutions ranked in *U.S. News & World Report's* top fifty. Nationwide, the March rite of passage had more than 40,000 students competing for some 29,600 spots. Weill Cornell's fourth-years celebrated with champagne in Griffis Faculty Club, where they opened their match envelopes to the cheers of classmates and faculty. One, Eleanor Emery, MD '14, joined the festivities from Italy via Skype, with her roommate opening the envelope that revealed she was headed to Mass General for internal medicine. Sixteen of the new MDs and MD-PhDs will do their residencies at NYP/Weill Cornell and five at NYP/Columbia; overall, about four dozen are staying in the New York metro area.

Symposium Marks Ansary Center Anniversary

A roundtable discussion hosted by journalist Charlie Rose was one of the highlights of the Ansary Symposium on Stem Cell Research. The daylong event, which marked the tenth anniversary of the creation of the Ansary Stem Cell Institute at Weill Cornell, brought leading scientists to campus in early June to discuss the field's achievements, challenges, and potential. "Stem cells can be used for a wide range of problems, including heart degeneration, Alzheimer's, diabetes, and even targeting tumors," said Shahin Rafii, PhD, the Institute's director. "We just have to do the right basic science, have the right safety regulations, and move into the clinic."

The roundtable featured Rafii as well as Zev Rosenwaks, MD, director of Weill Cornell's Ronald O. Perleman and Claudia Cohen Center for Reproductive Medicine, Susan Solomon, CEO of the New York Stem Cell Foundation, and others.

FROM THE BENCH

HIV Spreading in Middle East and North Africa

HIV epidemics are emerging among intravenous drug users in the Middle East and North Africa, reports Ghina Mumtaz, a PhD candidate in epidemiology at WCMC-Q. Mumtaz is lead author of a study, published in *PLOS Medicine*, that found increased rates of HIV infection among drug users in at least a third of the countries in the region. In Pakistan, for example, the rate rose from 11 percent in 2005 to 25 percent in 2011. "Not only have we found a pattern of new HIV epidemics among people who use intravenous drugs," says Mumtaz, "but we also found indications that there could be hidden HIV epidemics among this marginalized population in several countries with still-limited data." The *PLOS* study estimated that there are about 626,000 people who use intravenous drugs in the Middle East and North Africa, or about twenty-four for every 1,000 adults; a reported 18 to 28 percent share needles.

Praise for Patient-Centered Medical Homes

According to a study in the *Annals of Internal Medicine*, the care delivery model known as the patient-centered medical home (PCMH) has demonstrable benefits. Lisa Kern, MD, associate professor of healthcare policy and research, found that primary care physicians who practice in such settings—which offer coordinated, team-based care—are more likely to give patients recommended preventive screening and appropriate tests. The study evaluated practices in the Hudson Valley over a period of three years. It found that in addition to adopting the PCMH model, the practices that provided the best care were also more likely to use electronic health records.

Antioxidant Found Ineffective for Lung Disease

An antioxidant used to treat chronic, progressive respiratory disease has been found to be no more effective than a placebo—prompting calls for more rigorous research in the field and for patients to ask their doctors about re-evaluating their regimens. The antioxidant, known as NAC, was studied over a sixty-week period in people with idiopathic pulmonary fibrosis (IPF), an incurable disease that causes thickening and scarring of the lungs. Affecting an estimated 100,000 Americans—most commonly men aged fifty to seventy—it's fatal in up to 60 percent of cases. "The study underscores the difficulty in predicting treatment outcomes in

IPF, says lead author Fernando Martinez, MD, executive vice chair of medicine. "Accordingly, we need to design clinical studies that better predict how individual IPF patients—not study populations—will respond to treatment."

'Chaperones' Offer New Front in Alzheimer's

Working with colleagues from Columbia and Brandeis, Weill Cornell researchers have devised a new approach to treating Alzheimer's disease. It involves a class of compounds, known as pharmacologic chaperones, that can stabilize a protein complex that plays a vital role in neuronal health. Co-senior author Gregory Petsko, DPhil, director of the Helen and Robert Appel Alzheimer's Disease Research Institute, and colleagues found the compound to be effective and relatively non-toxic in cell cultures of mouse neurons. "The idea that it would be beneficial to protect a protein's structure is one that nature figured out a long time ago," says Petsko, the Arthur J. Mahon Professor of Neurology and Neuroscience in the Feil Family Brain and Mind Research Institute. "We're just learning how to do that pharmacologically."



Gregory Petsko, DPhil

Custom Stents for High-Risk Aortic Aneurysms

Custom-designed stent grafts could offer a treatment option for people with complex aortic aneurysms deemed at high risk for open surgery. Darren Schneider, MD, chief of vascular and endovascular surgery at NYP/Weill Cornell, is leading an FDA-approved clinical trial of the devices, manufactured by Cook Medical and custom-made for each patient's anatomy. The study focuses on thoracoabdominal aortic aneurysms, which cause a potentially deadly enlargement of the main artery carrying blood from the heart to other vital organs; in such cases, open surgery carries a 20 percent mortality rate.

Gene Plays Key Role in Triple Negative Cancer

The lab of Dean Laurie Glimcher, MD, has found that a gene previously unassociated with breast cancer plays a vital role in progression of the disease's triple negative form. The work on the gene XBP1, reported in *Nature*, involved investi-

gators from nine institutions. "Patients with the triple negative form of breast cancer are those who most desperately need new approaches to treat their disease," says Glimcher, a professor of medicine. "This pathway was activated in about two-thirds of patients with this type of breast cancer. Now that we better understand how this gene helps tumors proliferate and then return after a patient's initial treatment, we believe we can develop more effective therapies to shrink their growth and delay relapse." About 42,000 triple negative patients are diagnosed each year, comprising some 20 percent of all breast cancer diagnoses.

Testosterone Blood Tests Can Be Unreliable

While diagnoses of low testosterone have risen over the past decade—the condition is increasingly featured in mainstream advertising for treatments for "low T"—a study by Weill Cornell urologists finds that blood tests for it can be unreliable. Darius Paduch, MD, associate professor of urology and of reproductive medicine, reports that a review of data from more than 10,000 patients found that despite advances in technology, inconsistent lab practices can lead to faulty testing. "In some cases," he says, "testosterone levels tested on the same day from a blood sample taken from a single patient differed by as much 30 percent from one lab to the next." To improve diagnosis, he says, it's critical to focus on treating the patient and his symptoms—which can include fatigue, loss of libido, and erectile dysfunction—while using blood tests as a secondary guideline. The research, the largest review and analysis of its kind, was reported in *Urology*.

Study Questions Outcomes of Palliative Chemo

Does palliative chemotherapy live up to the name? In a collaboration with colleagues at Harvard and the Dana-Farber Cancer Center, Holly Prigerson, PhD, found a sobering answer: terminal patients who receive chemo in the last months of their lives are less likely to die where they want to and are more likely to undergo invasive medical procedures. The researchers say that the findings underscore a disconnect between the care that many cancer patients say they want and what they receive—and highlight the need for clearer discussion of the harms and benefits of palliative chemo. The researchers analyzed data from 386 patients in the six-year, federally funded Coping with Cancer study, which followed terminally ill people and their caregivers until after the patients died.

Talk of the Gown

Insights & Viewpoints



JEFF WEINER

Deborah Estrin, PhD

Knowledge Is Power

With a joint appointment at Cornell Tech, computer scientist Deborah Estrin, PhD, wants your 'small data' to help you live healthier

Big Brother is scary. But could Little Brother be our best friend?

Privacy advocates fret about our many digital footprints. E-ZPass knows where you've been; Netflix knows what you watch and when; Facebook knows what you like—not to mention who your friends are. Your GPS-enabled smartphone not only alerts you when you're near a Starbucks, it can figure out whether you've walked to the café or taken the subway.

In large part, all that data benefits the companies involved—in the form of market research, targeted advertising, inventory

management, and more. But Deborah Estrin, PhD, wants to upend that equation.

A Weill Cornell professor of healthcare policy and research, Estrin is a pioneer in network sensing—analyzing the torrent of data we generate to better understand the world and its inhabitants. With a joint appointment at the new Cornell Tech campus, where she's a professor of computer science, Estrin is spearheading the effort to use what she calls "small data" to improve the health and wellness of those who generate it. "It's about getting access to the data that's captured as you transact and interact online, so you can use the data as well," Estrin explains. "We're trying to cre-

ate an ecosystem where your data can be automatically accessed to help you."

Take pain management. In a collaboration with Cary Reid, MD, PhD, the Joachim Silbermann Family Clinical Scholar in Geriatric Palliative Care and director of the Translational Research Institute for Pain in Later Life; Daniel Stein, MD, a researcher in the Department of Healthcare Policy and Research; and Vivian Bykerk, MD, and Alana Levine, MD, clinicians at Hospital for Special Surgery, Estrin is designing ways to gauge the efficacy of a patient's medications based on his or her daily activities. That project is focused on rheumatoid arthritis; work with Neel Mehta, MD, assistant pro-

fessor of anesthesiology, is addressing pain after back surgery. “The time that someone leaves the house could indicate morning stiffness from arthritis,” Estrin notes. “How many hours do they spend out of the house? How mobile are they during the day? When they walk, what’s their speed and longest duration?” The project, which is supported by the NSF and NIH, tackles a perennial roadblock to treating pain: the fact that there’s no precise way to measure it. “And with many conditions, pain doesn’t just go away,” she says. “When pain slightly decreases week by week, that’s hard for an individual to report accurately.”

When it comes to medical uses for small data, pain is just the beginning. Other potential applications include lupus, MS, depression, asthma, migraines, and general wellness. In work with the major insurer UnitedHealth Group, Estrin is exploring ways to help establish and sustain healthy eating habits via analysis of online grocery carts. “If 20 percent of your cart is filled with fresh produce, can we increase that by 3 percent a week?” Estrin muses. “You may have a donut as an indulgence a few times a week—but that can be a lot better than eating a muffin every day because you think it’s healthier.” Estrin is also working with Mary Charlson, MD, the William T. Foley Distinguished Professor of Medicine and executive director of the Center for Complementary and Integrative Medicine, on ways to manage weight and stave off diabetes. “People need to make small, consistent changes,” Estrin says. “Education is completely insufficient. Knowing what we should do doesn’t help us execute on what we need to do.”

Essential to all these projects is packaging the information in a way that’s user-friendly—and that doesn’t make more work for busy physicians and stressed patients. “The data capture is easy; we’re working on turning it into something a clinician can use,” she says. “Doctors don’t have time to be data scientists, nor do patients. So how can you present it in a quick, robust, reliable way?”

While the tech campus is under construction on Roosevelt Island, its programs are housed in the building that Google owns in Chelsea. Estrin notes that once it’s in its permanent home in 2017, Cornell Tech will be “just a stop away on the F train” from the Medical College. That proximity will facilitate Tech’s Healthier Life hub in the Jacobs Technion–Cornell Innovation Institute—but cross-pollination has already begun. Estrin is a regular presence on York Avenue, giving talks and meeting with students and faculty; several grad students at the Center for Health Informatics and Policy attended her spring seminar on mobile health.

Once the hub’s curriculum is fully established, Estrin envisions that Weill Cornell students will take Cornell Tech courses and vice versa. The idea



PROVIDED

A Hub for Health

The Cornell Tech campus is focused around three subject areas, known as “hubs.” **Built Environment** involves architecture and urban planning; **Connective Media** concerns a range of communications-related topics, including advertising and social networking. The third will entail close collaboration with Weill Cornell. Potential topics for joint research in the **Healthier Life** hub of the Jacobs Technion–Cornell Innovation Institute include innovative medical devices, sensor-enabled smartphones, improved electronic medical records, implanted electronic chips, and more.

Although the Cornell Tech campus on Roosevelt Island is still in the site-preparation phase—its first buildings are set to open in 2017—collaborations are well under way. In the summer of 2012, the Weill-Tech partnership was jump-started with the first Healthier Life workshop, held at the Medical College. As Dean Laurie Glimcher, MD, said at the time: “We need to make it clear to the citizens and leaders of this country how vital biomedical research and applied sciences and technology research are to dealing with our healthcare problems.”

is for the offerings on the Ithaca, medical, and tech campuses to complement each other without being redundant. “We’re not going to recreate bioinformatics or bioengineering degrees or the equivalent of medical school,” she says. “We want to create digital and data innovators who know enough about the lay of the land that they don’t feel daunted by it.” And with medicine in transition—due to the Affordable Care Act, the push toward electronic records, and more—she notes that it’s an apt moment for innovation. “It’s already a disrupted time,” she says. “Things are changing in the way care is delivered and in the business of medicine. It’s an interesting time for us to work together.”

— Beth Saulnier

Labor Pains

Researchers find that home birth can be a risky proposition



Over the last century, childbirth has gone from something that happened almost exclusively at home to something that happens almost exclusively in hospitals. By 1969, the number of out-of-hospital births in the U.S. had hit its lowest mark, 1 percent, and it stayed that way—until recently. Now, while most industrialized countries continue to see a decrease, the number of home births in the U.S. is rising.

This upward trend, according to Frank Chervenak, MD, chairman of obstetrics and gynecology at NYP/Weill Cornell, has been most significant among upper-middle class white women. Home births have garnered support from a number of professional societies including the U.K.'s Royal College of Obstetricians and Gynecologists, which has endorsed the practice. Even a few of Chervenak's students are showing some interest in having their own children at home; he was invited to join them in watching a documentary made by critics of the medicalization of childbirth.

This reversal of a century-long trend prompted Weill Cornell researchers to investigate what, if any, differences might exist in clin-

ical outcomes. So Chervenak and Amos Grunebaum, MD, professor of clinical ob/gyn and chief of labor and delivery at NYP/Weill Cornell, analyzed the CDC's Linked Birth and Infant Death Data Set covering deliveries from 2006 to 2009. In the largest study of its kind, published this spring in the *American Journal of Obstetrics and Gynecology*, they looked at nearly 14 million births—comparing neonatal mortality during the first twenty-eight days of life for planned home births, which represent about two-thirds of births that occur outside hospitals, to in-hospital births.

The result? Babies delivered at home by midwives are about four times more likely to die during the first twenty-eight days compared to those delivered by midwives in the hospital. For first-time mothers giving birth at home, the risk of neonatal death is nearly nine times greater, and for those going postdates beyond forty-one weeks gestation, the risk of neonatal mortality is nearly seven times greater. Says Grunebaum: "Our study shows that you can save babies' lives by delivering them in a hospital." The risk correlated to location and not the credentials of practitioners, as outcomes were not that different for deliveries performed in the hospital by midwives and obstetricians. Grunebaum adds that the findings likely understate the actual risk, as the data shown as hospital births include those that began at home but were transferred after complications arose.

While the actual rate of home births remains low, at 1.36 percent, Grunebaum is quick to say that "every single baby who dies counts." For every 10,000 home births, almost ten babies died who would likely have survived in the hospital.

With this data in hand, the authors believe that medical professionals have an ethical obligation to advise patients of the increased risk. "I view this as analogous to smoking or drinking alcohol in pregnancy," says Chervenak, the Given Foundation Professor of Obstetrics and Gynecology. "It's the professional responsibility of obstetricians to recommend against home birth." At the same time, though, he and Grunebaum find merit in the arguments made by advocates of the practice. "Hospitals should understand why some patients desire to deliver at home," says Chervenak, "and make the hospital birthing experience as beautiful and safe as it should be." He notes that NYP/Weill Cornell has made design changes aimed at creating a soothing and comfortable birthing environment, and that the hospital has hired a midwife to help educate residents and physicians about the midwifery approach to the birthing process.

To address the concerns of women who want fewer medical interventions, Grunebaum suggests that physicians take the time to carefully explain the care they recommend. "It's important for patients to understand why the interventions are done," he says. "Some are necessary to improve their safety and their baby's safety."

— Andrea Crawford

History Lessons

For nearly forty years, the Heberden Society has looked to medicine's past



PACH BROTHERS

MD, probably funded it out of his own pocket—the Heberden Society launched a quarterly lecture series that continues to this day. “It’s important, especially for young people, to understand that they stand in a long line of those who have gone before—who have struggled to understand disease, to describe it, to research it,” says society co-founder Jeremiah Barondess, MD, professor emeritus of clinical medicine. “It’s not only a line that precedes us back to pre-Hippocratic days, but it will continue long after we’re gone.”

Now funded by the Office of the Dean, the Heberden Society is overseen by the head of the Medical Center Archives, Lisa Mix. With input from a committee of some half-dozen faculty, Mix invites four speakers a year—generally two from Weill Cornell or its affiliates and two from outside. Attendance varies from about twenty to upwards of fifty for the most popular topics; recent big draws, Mix says, include a talk by a Queens University professor entitled “Medical Miracles: Doctors, Saints, and Healing in the Modern World.” In May 2012, in the midst of a divisive presidential race, the group saw one of its most diverse crowds in recent memory when a researcher

from the Guttmacher Institute spoke on “The Tumultuous History of Women’s and Reproductive Health in the U.S.” “It was a timely topic,” says Mix, noting that the event drew an unusually high number of medical students.

Generally held at 5 p.m., the Heberden events aren’t lengthy or elaborate affairs: coffee and cookies from Griffis Faculty Club, some mingling, and a forty-minute speech followed by questions. Back in the day, Gibofsky notes, the meetings were a tad more genteel: inspired by traditions in his native Britain, Bearn would invite attendees back to the Department of Medicine Library for sherry and conversation. “I expect that if word of our sherry had gotten out, we probably would’ve been subjected to some kind of discipline,” Gibofsky notes with a laugh. “But it was sanctioned by the chief of medicine in his office—so it was like having a beer at home when your parents were around.”

— Beth Saulnier

In 1975, a handful of residents and faculty at what was then New York Hospital banded together to pursue a common passion: the history of medicine. “We felt it was integral to understanding how medicine was taught and how it should be practiced,” says Allan Gibofsky, MD ’73, then a resident and now a professor in the departments of medicine and healthcare policy and research. “Science is the focus of a classical medical education, but there needed to be a forum for study of the humanities of medicine as well.”

Gibofsky and his colleagues named their group the Heberden Society, in honor of an eminent doctor who practiced in eighteenth-century Britain. In addition to serving as a personal physician to King George III—signer of the royal charter that established New York Hospital in colonial times—William Heberden, MD, expanded knowledge in many fields, such as rheumatology. As medical students still learn, the clinical indicators of osteoarthritis include bony swellings of the fingers called “Heberden’s nodes.”

With early support from the Weill Department of Medicine—Gibofsky notes that legendary chairman Alexander Gordon Bearn,

Earlier age: Surgery at the second New York Hospital, circa 1894.



WCMC-Q

Healthy Habits

WCMC-Q works to combat diabetes and obesity in Qatar

There were pairs of middle schoolers running a race while carrying giant inflatable carrots. Kids dressed as potatoes and onions ran laps around a track. A student costumed as a watermelon slice competed with another, clad as a banana.

It was all part of The Challenge, an annual event offered by Weill Cornell Medical College in Qatar. Held in the field house of Qatar's Aspire Sports Academy, it brought together 150 children from fifteen schools for a day of lighthearted athletic competition—and some kid-friendly messages about the importance of diet and exercise.

The Challenge is part of WCMC-Q's campaign to promote healthy habits in the state, which has seen levels of diabetes and obesity rise to some of the highest in the region. Called *Sahtak Awalan: Your Health First*, the effort includes public service announcements, social media

posts, an "Ask the Expert" lecture series, and more. Organizers also host public events, like a cooking demonstration in which an American chef offered lessons for kids and adults in making such simple, healthy fare as fruit smoothies, grilled chicken, and guacamole with baked tortilla chips. "In public health you always see that changing behavior is difficult, but I think we're on the right path—educating people, increasing awareness," says Sohaila Cheema, MPH, director of the Department of Global and Public Health at WCMC-Q. "Information is easily available, and people are learning more about diseases. I think it's going to work."

In a general way, the rise in death and disability related to non-communicable diseases (NCDs) among native Qataris is a familiar tale. The society has become more

affluent and developed in recent decades, leading to increasingly sedentary lifestyles and a more Westernized diet, denser in calories and lower in whole foods. "In the U.S., 87 percent of total mortality is attributable to NCDs, the vast majority of which could be prevented or delayed," says Ravinder Mamtani, MD, professor of public health and associate dean for global and public health at WCMC-Q. "When you look at the same numbers in Qatar, the percentage is about 70—but it's creeping up, slowly and gradually."

The Qatari government, he and Cheema note, has confronted the problem head-on, developing programs for schoolchildren, hosting walkathons and conferences, offering mobile clinics, and building parks, among other efforts. It's also providing significant research support through the royal family's Qatar Foundation—an effort spearheaded by Sheikha Mozah, wife of the former emir. Says Cheema: "They're committed to bringing the country forward and making it healthier."

A 2013 survey, sponsored by the government and WHO, found that 70 percent of adult Qataris were overweight or obese,

Vegging out: Qatari students on the run at WCMC-Q's The Challenge

and about 17 percent had been diagnosed with type 2 diabetes. Qatar Foundation has funded a five-year study, overseen and conducted by investigators Lotfi Chouchane, PhD, professor of genetic medicine at WCMC-Q; Mohammed Al-Althani, MD, Supreme Council of Health, Qatar (SCH); Dr. Sheikha Al-Anoud bint Mohammad Al-Thani, SCH; Albert Lowenfels, MD, of New York Medical College; Mamtani; and Cheema. The study, currently under way, includes taking detailed histories and biometrics from 2,000 subjects, along with blood samples for genetic and blood-sugar analysis. “Knowing that these conditions can be prevented or delayed, it’s so unfortunate that they are still top killers,” says Mamtani. “Some people argue, as I have, that the real killers are not the diseases; I see them as outcomes. The real killers are the lifestyle choices that we make, in terms of physical activity and poor nutrition.”

The possible genetic motivators for the rise in obesity and diabetes among native Qataris and others from the Middle East is a prime research interest for Karsten Suhre, PhD, professor of physiology and biophysics at WCMC-Q. He points out that populations that evolved where drinking water was scarce—like desert dwellers and Polynesians, who took long ocean voyages—have a higher propensity for obesity. “Fat and water metabolism are very strongly linked,” says Suhre, noting that the quintessential desert animal, the camel, produces water from its own body fat.

With awareness of personal risk a vital part of any prevention strategy, Suhre is also pursuing ways to diagnose NCDs without invasive testing. Last fall, he was part of a team that announced that a device—known as an AGE reader, its technology involves shining ultraviolet light on skin—can be effective in providing early warning of heart attacks in diabetic Arabs and South Asians. And earlier this year, he reported in the *Journal of Clinical Endocrinology and Metabolism* that he’d developed a promising diabetes test using only saliva samples. Given that weight problems and poor habits often begin in childhood, Suhre envisions that such a test could be administered in schools or as part of routine dental visits. “Diabetes is a vicious disease, as initially when you get it you don’t feel any different,” he says. “You can live for years without knowing about it—but if you don’t adapt your lifestyle, you’re slowly but continuously destroying your body.”

—Beth Saulnier

Case Histories

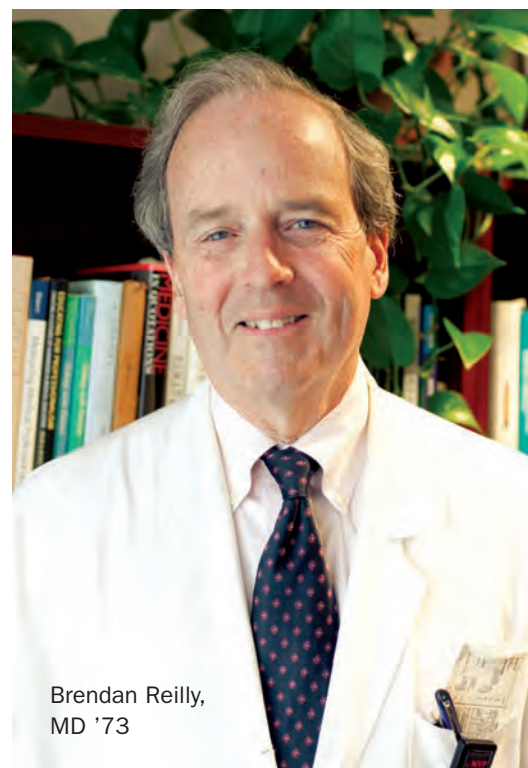
In One Doctor, Brendan Reilly, MD '73, reports from the front lines of internal medicine

Doctors are used to getting up early. But for a year and a half, Brendan Reilly, MD '73, put in some truly extraordinary hours: rising at 4 a.m. every day—yes, even on Christmas—to work on his first general-interest book. “It drove my wife crazy,” Reilly admits. “But I thought if I missed even a single day, I’d lose track.”

Last fall, an imprint of Simon and Schuster published the fruit of Reilly’s labors: *One Doctor: Close Calls, Cold Cases, and the Mysteries of Medicine*. In the book, Reilly uses a two-week period in the winter of 2010 as a microcosm of today’s healthcare system. Then executive vice chair of medicine at NYP/Weill Cornell and the Gladys and Roland Harriman Professor of Medicine, Reilly was on one of his regular, month-long in-service stints of clinical duty—periods when he’d spend so much time in the hospital that his wife had decided she might as well visit family out of town. During those two weeks, not only was Reilly supervising residents and treating some very sick patients, he was also coping, long-distance, with the health crises of his elderly parents: a father with metastatic bladder cancer and a mother suffering from heart problems and advanced Alzheimer’s disease. Meanwhile, he remained haunted by the death, decades earlier, of an older patient who’d committed suicide after a perfect storm of misunderstandings led him to believe he was sliding into dementia. “Lots of interesting psychological things happen to both patients and physicians in the process of medical care,” observes Reilly, who recently returned to the Dartmouth faculty after six years at Weill Cornell. “Some people have written about what it’s like from the patient’s point of view. But there aren’t a whole lot of books out there about what it’s like to be the doctor.”

A medical veteran of more than forty years, Reilly has practiced in small towns, Ivy League medical centers, and public, inner-city institutions. (While at Chicago’s Cook County Hospital, he designed a simple decision tree for diagnosing heart attack, work that journalist Malcolm Gladwell featured in *Blink*, a book about the power of first impressions.) In the *New York Times* review of *One Doctor*, the critic—herself an MD—described Reilly’s type of physician as “an eminent gray head [who] keeps doggedly showing up for clinical duty, teaching hospital residents who get younger and younger, caring for patients who echo those of years past.”

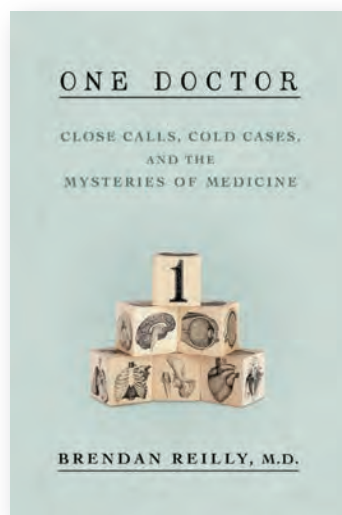
During the period Reilly writes about, those patients include a paraplegic with pressure



Brendan Reilly,
MD '73

PROVIDED

sores so gruesome they send a med student into a dead faint; a retired psychiatrist whose kidneys fail after he self-prescribes antibiotics for a cold; a homeless woman suffering from metastatic breast cancer and psychotic delusions; an HIV-positive septuagenarian who'll ultimately be diagnosed with a life-threatening heart infection; and a wealthy architect with end-stage pancreatic cancer whose furious, heartbroken wife hurls invective at the medical staff.



And that just takes readers up to page twelve. “He is a good, fluent writer with a fine ear for dialogue,” the *Times* said, “and his excursions from the particulars of his cases to broad medical, social, and economic principles are always on point.”

Among the issues that Reilly addresses are disparities in care between rich and poor; the rising commercialization of medicine; and the pay gap between specialists and primary care physicians. The crisis in primary care is his overarching concern; he notes that in the “inverted pyramid of health-care manpower,” such practitioners should form a wide base. “But in the U.S., we’re on the verge of the opposite happening; the base of primary care doctors is tiny and teetering,” he says. “My message is, that’s a mistake. We as a country need to figure out how to reverse that trend, so there’s greater emphasis on patients having, quote, ‘one doctor.’ That’s why the book is titled what it is. If we continue with this fragmented, super-specialized way of doing medicine, patients will continue to fall through the cracks.”

— Beth Saulnier

Fly Swatter

Infectious disease expert Henry Murray '68, MD '72, battles a tropical disease

Leishmaniasis has long been an endemic disease of the developing world, causing the death and disfigurement of millions—and for decades, the few drugs available to treat it offered their own brand of misery. The first, developed in the Forties, required a month of daily infusions and was so toxic that a third of patients couldn’t complete the course. When that started to fail due to misuse, it was replaced by another IV drug that entailed a month of treatment—and caused kidney damage, high fevers, and chills. Given the infrastructure limitations in impoverished countries, neither was easy to administer.

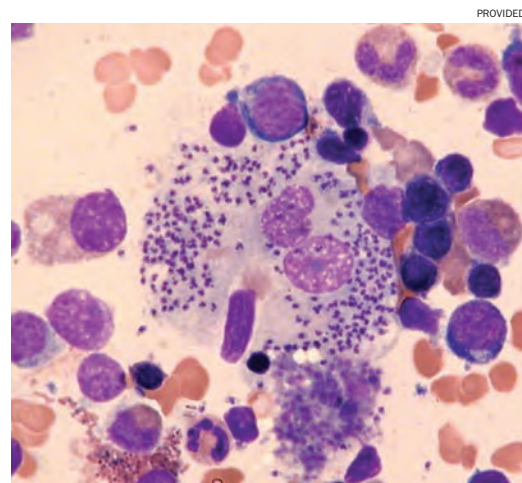
For thirty-five years, Weill Cornell infectious disease expert Henry Murray '68, MD '72, has been studying how the *Leishmania* protozoan parasite defeats a host's defenses and how those attacks can be treated. In March, the FDA approved a longed-for treatment he had helped to develop: a leishmaniasis drug in pill form. Called miltefosine, it was already in use abroad. “In countries like India or areas in Africa or South America, to have an oral agent means you can put aside the need for vials, refrigeration, injection equipment—all the things that keep care from being delivered,” says Murray, the Arthur R. Ashe Jr. Professor of Medicine. “When we came in with a pill you took twice a day for twenty-eight days, it opened up vistas that hadn’t been possible.”

Spread by tiny female sandflies, leishmaniasis is named for a British army doctor who studied it in India at the turn of the previous century. Classified by the CDC as a neglected tropical disease, it infects an estimated 1.6 million people worldwide each year. And, Murray notes, “estimated” is the operative word; many more cases likely go unrecorded. “There’s no way in the world the statistics can be accurate,” Murray says. “The reporting is poor because these diseases typically occur in

rural areas of developing countries that are embedded in poverty.” Primarily found in Africa, South America, and the Indian subcontinent, leishmaniasis comes in three forms: cutaneous (about 1.2 million cases), visceral (about 400,000), and the unusual mucosal infection.

Besides a few dozen cutaneous cases in Texas and Oklahoma over the past century, the disease is generally seen in three populations in the U.S.: new immigrants from endemic regions, Americans who have recently traveled abroad, and immunocompromised patients whose long-quiet *Leishmania* infections assert themselves. While the cutaneous form results in unsightly (but generally painless) skin ulcers, the visceral—known worldwide as “kala-azar”—is a systemic illness causing fever, chills, weight loss, weakness, anemia, and enlargement of the liver and spleen. Murray had never seen a case of kala-azar firsthand until the AIDS epidemic brought an influx of foreign-born patients with compromised immune systems. Since 2003, several thousand cutaneous cases (and some visceral) have been seen in U.S. soldiers returning from Iraq and Afghanistan.

Miltefosine, sold under the trade name Impavido, was approved by the FDA to treat all



Parasitic relationship: A bone marrow macrophage infected with *Leishmania*

three forms—but like previous therapies, it can't eradicate the parasite from the body. "You probably never get rid of it entirely," Murray notes, explaining that the parasite remains dormant inside cells deep within the liver, spleen, and bone marrow. "But once you're cured, most patients don't have a problem unless their immune system gets disturbed."

Like many of his Weill Cornell contemporaries, Murray traces his interest in infectious disease to one man: legendary tropical medicine professor Benjamin Kean, MD. With Kean's encouragement, Murray began his leishmaniasis research in 1980 under a grant from the Rockefeller Foundation's Great Neglected Diseases of Mankind Program. Years later, a surprise visit from an Indian researcher led to extensive investigations in his country's impoverished state of Bihar, site of 50 percent of kala-azar cases worldwide. "We set up a tip-top clinical trials unit up in the wilds of Bihar," Murray says, "with snakes in the fields and all that." The collaboration led to key improvements in leishmaniasis treatment—not only the development of an oral regimen, but the creation of a rapid diagnostic test requiring only blood from a finger prick. In 2010, the *New England Journal of Medicine* published their results showing that the newest intravenous therapy, known as AmBisome, is effective in a single infusion. With the recent FDA approval of miltefosine, patients and physicians in the U.S. can choose between a month of pills or a shorter IV treatment, both of which carry side effects.

Each year, the visceral form of leishmaniasis takes an estimated 20,000 to 40,000 lives in the developing world. While the cutaneous version is rarely fatal, Murray stresses that, if left untreated, it can be terribly disfiguring—with devastating social, financial, and emotional consequences. "Cosmetically, it's a real problem," Murray says. "There's so much stigma abroad, especially for women. They can't get married, can't have families. Their lives are ruined by this." When an oral therapy was made available to such people in desperately poor, medically underserved communities, he says, "It was like the heavens opened up."

— Beth Saulnier

The Hurt Blocker

Can behavioral self-management techniques relieve pain in older adults?



ABBOTT

Cary Reid, MD

It's a common misconception that as we age, we inevitably suffer aches and pains. Geriatrician Cary Reid, MD, hears it frequently from patients, but the worst offenders are often fellow clinicians. "Many providers believe that adults in their eighties, nineties, or beyond, are supposed to have pain," says Reid, the Irving Sherwood Wright Associate Professor in Geriatrics and associate professor of medicine. "It's a fatalistic belief, it's an ageist belief, and physicians who believe it are less likely to intervene aggressively."

Yet intervention is key for older adults, whose pain may stymie even the most mundane tasks—preparing a meal, showering, sleeping. Studies have shown a correlation between inactivity and rapid decline in physical and cognitive function in the elderly, making effective pain-management strategies critical for ensuring quality of life. Reid is an assiduous advocate for developing these strategies, particularly approaches that don't require medications. Since joining Weill Cornell's faculty and its Irving Sherwood Wright Center on Aging some twelve years ago, he's sought interventions that focus on helping patients manage their pain without popping a pill.

His latest approach does just that. Working with the Visiting Nurse Service of New York and supported by a three-year grant from the Agency for Healthcare Research and Quality, Reid is testing the theory that elderly patients who are taught deep breathing, relaxation, visual imagery, and goal-setting techniques by physical therapists can successfully manage their pain. The group is studying the therapy, called a cognitive behavioral pain self-management protocol, in a two-year randomized clinical trial that is expected to wrap up in the summer. "We know through a number of studies that cognitive behavioral approaches can be helpful, but one of the real difficulties is that we have too few providers skilled in delivering the therapy, even in New York City," he says. "If we find this clinical trial to be successful, the next step is to train more

physical therapists to address this issue.”

Persistent pain can be a significant problem among older adults, particularly those who have one or more advanced chronic conditions—diabetes and heart, lung, and kidney disease among them—as well as cancer patients and survivors who’ve had surgery, radiation, or chemotherapy. As many as half of all adults in the U.S. ages sixty-five and older say they’ve experienced pain in the previous thirty days, according to a 2006 report from the U.S. Department of Health and Human Services, with 80 percent of nursing home residents experiencing pain regularly.

The reflexive response from many physicians has been to prescribe painkillers, which can be effective but also increases the risk of stroke, heart failure, changes in mental status, and bone fractures precipitated by falls. There’s a place for pharmacological solutions, Reid says—but doctors must have more than drugs in their armamentarium. “Think about a portfolio of pain-management practices,” he says, “like a stock portfolio with multiple investments.” His intervention borrows from cognitive behavioral therapy (CBT), a psychotherapeutic approach used for decades to treat anxiety, sleep disorders, depression, and more. Delivered by a psychologist or psychiatrist, CBT focuses on the connections between patients’ emotions and their underlying condition.

Reid theorized that the therapy could work for elderly patients suffering from pain. The logical teachers would be physical therapists, who frequently treat older adults for the pain’s underlying condition and can integrate elements of CBT during their regular sessions. “It’s a meditative relaxation technique that causes people to calm down,” Reid says. “The protocol is not a panacea; it’s not going to make the underlying condition go away. But if we can lower pain scores for a few hours and help people relax, I’d say that’s effective.”

The Visiting Nurse Service of New York (VNSNY) trained half its physical therapists in the protocol; they’re currently delivering the therapy to people in the five boroughs and Nassau County. The PTs teach patients how to take deep breaths and to relax their muscles sequentially to relieve tension, letting their imaginations transport them to peaceful places. Patients become aware of their physical limits before their pain flairs and set goals for how much activity they want to accom-

plish before it sets in. “We want our patients to think of these as their bag of tools or tricks,” says physical therapist Eileen Bach, VNSNY’s director of quality and patient safety. “You can pull out the one that will best help you manage your pain. It’s critically important for patients to have a self-management approach.”

VNSNY’s physical therapists not trained in the protocol will deliver standard care to other patients in the same time frame.

Study leaders will compare outcomes of the roughly 600 patients enrolled in the study; if the CBT approach is successful, the technique will give providers another proven intervention. “We’re generating an evidence base for physicians,” Reid says. “Now they can say to their patients, ‘Here are the things I can recommend, and if you do them consistently they can help you.’ That’s empowering.”

—Alyssa Sunkin

Counting Sheep

A unique partnership between mentor and student helps build the case that a bacterium found in farm animals may trigger MS

Multiple sclerosis (MS) has long been known as a disease of temperate climates, with case numbers rising along with distance from the equator. In recent years, researchers have pondered another potential risk factor—one of the woolly, four-legged variety. It seems that in places like Scotland and New Zealand that have large sheep populations, there’s a higher incidence of MS.

Last fall, a pair of Weill Cornell researchers published a key piece of evidence supporting the disease’s ovine connection. In *PLOS ONE*, Timothy Vartanian, MD, PhD, professor of neurology and neuroscience in the Feil Family Brain and Mind Research Institute, and Tri-Institutional MD-PhD student K. Rashid Rumah described the possible role of a pathogen found in the gut of sheep and other grass-eating animals in triggering MS. In a first, they and colleagues in the Vartanian Lab identified epsilon toxin—which is produced by the bacterium *Clostridium perfringens*—in a twenty-one-year-old woman in the midst of an MS flare-up. “While it is clear that new MS disease activity requires an environmental trigger,” notes Vartanian, the paper’s senior investigator, “the identity of this trigger has eluded the MS scientific community for decades.”

Epsilon-secreting strains of *C. perfringens*, the researchers note, are not part of the human gut’s normal flora. The investigators theorize that in MS patients, the bacterium hibernates there in a protective spore; when it grows, it generates a small quantity of epsilon, which travels through the blood and into the brain. “That we identified this bacterium in a human is important enough,” says Rumah, the paper’s lead author. “But the fact that it is present in MS patients is truly significant because the toxin targets the exact tissues damaged during the acute MS disease process.”

The epsilon work brought the two investigators together in what Olaf Andersen, MD, director of the Tri-Institutional MD-PhD Program, calls “a scientific marriage made in heaven.” Vartanian, director of Weill Cornell’s Judith Jaffe Multiple Sclerosis Center, had long questioned the conventional wisdom that MS begins as an autoimmune attack on myelin, the fatty tissue that encloses nerve fibers. As an MD-PhD student at the University of Chicago, he’d developed the hypothesis that MS begins with a “toxic insult” to the oligodendrocyte, the myelin-forming cell of the central nervous

system; he went on to pursue the topic while on the Harvard faculty before coming to Weill Cornell in 2009.

As a Stanford undergraduate, Rumah had pursued his own MS investigations. While studying the blood-brain barrier, he'd been intrigued by a 1986 paper hypothesizing that *C. perfringens* might cause the disease. By the time he graduated, he had found direct evidence of epsilon antibodies in the serum and spinal fluid of two MS patients. Early in his MD-PhD career, he pursued the topic under the mentorship of John Zabriskie, MD, professor emeritus of clinical microbiology and immunology at the Rockefeller University. By the time he first met with Vartanian, Rumah had evidence that four of thirty-four MS patients harbored antibodies to epsilon. "This was a perfect storm, in a positive sense," Andersen observes. "They each brought something unique to the project. It was a true partnership."

Rumah's first major experiment in the Vartanian lab—in collaboration with that of his official thesis adviser, Rockefeller microbiologist Vincent Fischetti, PhD—involved studying the serum and spinal fluid of dozens of MS patients along with healthy controls. When Rumah's experiment revealed that 10 percent of subjects with MS had epsilon antibodies versus just 1 percent of controls, it marked a breakthrough. "That exciting finding provided support to our hypothesis that epsilon toxin drives new lesion formation," Vartanian says, "and gave us a rationale for moving forward." Rumah then examined stool samples from MS patients and controls and found the signature of a *C. perfringens* strain in one patient. After devising a highly sensitive culture method for the organism, postdoc Jennifer Linden, PhD, then was able to isolate the strain from the specimen. With the line of investigation becoming ever more promising—and the workload growing beyond the scope of a few researchers—Vartanian dedicated a significant portion of his lab's resources to the project.

The researchers stress that they still have a long way to go in proving that epsilon drives MS; at last count there are more than 100 proposed environmental triggers for the disease. One key question is whether the newly forming MS lesion can be recreated *in vitro* or in a mouse model. To address this, Linden and research associate Yinghua Ma, PhD, added epsilon to brain tissue in the hope of revealing an



ABBOTT

Timothy Vartanian, MD, PhD, and student K. Rashid Rumah

MS-like pattern of attack—and the experiment worked. "They showed that the toxin bound to the oligodendrocytes and killed them," Vartanian says, "but it had no effect on other cells in the brain." In addition, Linden has shown that the toxin binds to neural blood vessels and damages the blood-brain barrier. "In essence," Vartanian says, "these gifted young scientists were able to recreate one of the most important features of the newly forming lesion."

Although Rumah has returned to his medical studies—he completed his PhD thesis last year and received the degree at Rockefeller in June—his work with the lab is ongoing. He hopes to complete his MD requirements early and resume the research in January 2015. And while he is pondering a possible residency in pathology, the MS studies are his abiding passion. "My goal," he says, "is to get back to the work."

And if the toxin is ultimately proven to

trigger MS? What then? Rumah notes that eradicating it from the environment—or, if there's a history of the disease in your family, simply avoiding sheep farms—is hardly an option. "It's a spore-forming bacterium. Spores can be found just about anywhere and are very difficult to eliminate," he explains. "So while you might think you'd have to be around livestock to be exposed, the fact that it forms spores makes it able to survive in basically any environment imaginable. Spores can survive in outer space."

On the bright side, researchers are already pursuing a way to neutralize it on another front: Vartanian's lab is exploring a probiotic cocktail that could destroy *C. perfringens* in the human gut. Says Vartanian: "It would be such a beautiful and natural way to treat the gastrointestinal system—and solve the problem."

— Beth Saulnier & Kristina Strain





John Leonard, MD (left), and
Leandro Cerchiatti, MD

Target Practice

Precision approaches
are a major advance
in the treatment of
blood cancers

By Andrea Crawford

As chief executive of a New Jersey-based global food importer, George Gellert works hard and plays hard. But two summers ago, during his regular tennis game, something felt off. “All of a sudden, my energy was zapped,” says Gellert, who’s in his mid-seventies. He didn’t think it was serious, but he went to his doctor anyway—and when the blood test results came back, the physician didn’t like what she saw. After being referred to Weill Cornell hematologist-oncologist John Leonard, MD, he got the diagnosis: lymphoma.

For many patients receiving such news, that’s the only word they remember hearing. Lymphoma, a blood cancer in which tumors form in the immune system, kills some 20,000 Americans a year. Like many cancers, however, lymphoma is not a single disease but a diverse group of malignancies. Originating in the immune system’s white blood cells known as lymphocytes, it consists of two main types—Hodgkin’s and non-Hodgkin’s (NHL). Within those two

Back at work: Patient George Gellert



JOHN ABBOTT

forms, more than sixty subtypes have been categorized based upon pathology—whether it originates from B-cells or T-cells, aggressive or indolent, and so on. When molecular characteristics of tumors are factored in, subtypes get divided even further. No two tumors, in fact, may be alike.

This diversification of what was once considered a singular disease defines a striking new approach to cancer research and treatment at Weill Cornell's Sandra and Edward Meyer Cancer Center and elsewhere. Leonard, associate dean for clinical research and the Richard T. Silver Distinguished Professor of Hematology and Medical Oncology, notes that for many years, most lymphomas had been treated the same way. "It was kind of one size fits all," he says. "But it didn't fit very well." Today, therapies are increasingly being tailored to the personal characteristics of patients and their cancers. "You shouldn't treat everybody who walks in the door the same way," says Leonard. "We want to treat with a tailored approach based on what's most likely to work for that individual patient."

Leonard stresses that it's not particularly helpful to identify subsets of patients if you don't have the tools to treat them differently. For Gellert, the specific diagnosis was diffuse large B-cell lymphoma (DLBCL), the most common type of lymphoma and a highly aggressive form. With chemotherapy, DLBCL is curable in about two-thirds of cases—but for the remaining third, it either does not respond to chemo or does only briefly before relapsing. Patients who fall into the latter category, many of whom are elderly, typically die within two years of diagnosis. This makes refractory, or resistant, DLBCL one of the greatest unmet needs in lymphoma treatment, says Leonard. Given Gellert's age and other characteristics, he gave him a roughly 50 percent chance of a cure with standard therapy. As Gellert puts it dryly: "I didn't like that."

Blood cancers have been at the forefront of research on tailored approaches to treatment, known as precision medicine. In large measure, these advancements are due to researchers' ability to access tumor material from such patients more readily than they can with other types of cancer. In the past decade, Weill Cornell researchers

'You shouldn't treat everybody who walks in the door the same way. We want to treat with a tailored approach based on what's most likely to work for that individual patient.'

Master Class

Taking aim at the 'undruggable'

The epigenome—a.k.a. the regulatory genome—is controlled by master regulatory proteins called transcription factors. Each of these master regulators controls thousands of genes within cells. One such factor is the protein BCL6—and from the time Ari Melnick, MD, started his lab, he's been studying it.

Expressed in nearly all types of B-cell lymphomas, BCL6 is required for the development and survival of diffuse large B-cell lymphoma (DLBCL). But it also plays a role in maintaining the healthy function of many immune cells, so to disable it entirely could bring about severe side effects, including systemic inflammation and atherosclerosis.

For years, master regulators like BCL6 have been considered "undruggable," too complex to target. BCL6, for example, works largely through protein-protein interactions rather than enzymatic activities—which have long been the standard targets of pharmaceutical development. Master regulators had not been considered in the past, Melnick says, because scientists didn't understand how they work. "These master regulatory factors are present in the cell nucleus and bind directly to DNA," he explains. "Some are brought to DNA by other kinds of molecules. So there are very different scenarios for how these instructions are rewritten."

Melnick, the Gebroe Professor of Hematology and Oncology and director of the Raymond and Beverly Sackler Center for Biomedical and Physical Sciences, and his team at the Sandra and Edward Meyer Cancer Center have made a number of observations about BCL6's partner proteins and how it interacts with them at the structural level. They have mapped out which atoms on the proteins interact with each other and found that BCL6 functions as a kind of "Swiss army knife"—using certain partner proteins for its effects in cancer and others for its actions in the immune system and inflammation. Based on these results, Melnick developed a new class of drugs that only specifically block the effects of BCL6 in cancer without affecting its role in controlling inflammation. "With that, we've been able to achieve success in designing drugs that target the undruggable," he says. "We can block the lymphoma functions of BCL6 without affecting its other actions in normal tissues, so we can hit BCL6 in tumors without having a toxic effect on normal cells."

Melnick's lab developed a novel therapy to target that site on BCL6; last fall, in a study published in *Cell Reports*, it showed that five doses of the drug eradicated human lymphoma in mice—with no other form of treatment or any discernible side effects. He and his colleagues are refining these drugs so they can be tested in clinical trials. What's more, the protein appears to be active in a number of other cancers; collaborators around the country have found Melnick's new inhibitor to be powerful in killing lung and breast cancer cells.



ROGER TULLY

Ari Melnick, MD

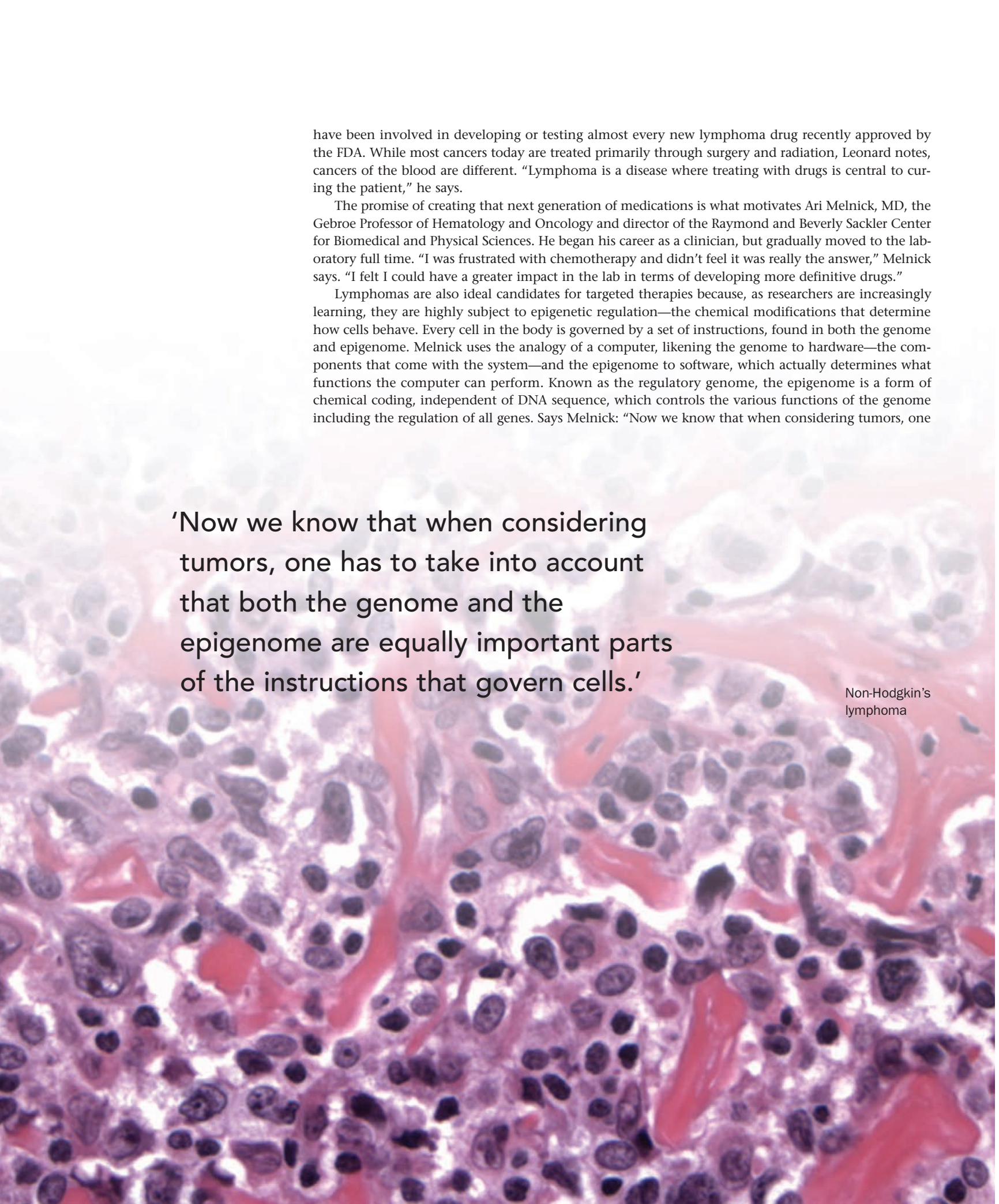
have been involved in developing or testing almost every new lymphoma drug recently approved by the FDA. While most cancers today are treated primarily through surgery and radiation, Leonard notes, cancers of the blood are different. "Lymphoma is a disease where treating with drugs is central to curing the patient," he says.

The promise of creating that next generation of medications is what motivates Ari Melnick, MD, the Gebroe Professor of Hematology and Oncology and director of the Raymond and Beverly Sackler Center for Biomedical and Physical Sciences. He began his career as a clinician, but gradually moved to the laboratory full time. "I was frustrated with chemotherapy and didn't feel it was really the answer," Melnick says. "I felt I could have a greater impact in the lab in terms of developing more definitive drugs."

Lymphomas are also ideal candidates for targeted therapies because, as researchers are increasingly learning, they are highly subject to epigenetic regulation—the chemical modifications that determine how cells behave. Every cell in the body is governed by a set of instructions, found in both the genome and epigenome. Melnick uses the analogy of a computer, likening the genome to hardware—the components that come with the system—and the epigenome to software, which actually determines what functions the computer can perform. Known as the regulatory genome, the epigenome is a form of chemical coding, independent of DNA sequence, which controls the various functions of the genome including the regulation of all genes. Says Melnick: "Now we know that when considering tumors, one

'Now we know that when considering tumors, one has to take into account that both the genome and the epigenome are equally important parts of the instructions that govern cells.'

Non-Hodgkin's
lymphoma



has to take into account that both the genome and the epigenome are equally important parts of the instructions that govern cells.”

Studying patients with acute myeloid leukemia, Melnick developed epigenome maps of human tumors and found that regulation of the epigenome is a hallmark of the disease. “We’ve developed methods to read these epigenetic instructions in patient tumor cells,” he says. “Then we’ve used that as a kind of blueprint to map out which master regulators might be writing those instructions.” With the aim of preventing these regulators from writing cancer-causing instructions into the cells, researchers want to understand how they work from a biochemical standpoint and then develop drugs that block their activities.

After Gellert’s diagnosis, he prepared himself for six rounds of chemotherapy, knowing he had a fifty-fifty chance that it would work. But just a few days before treatment was to start, he got a call from Leonard. The oncologist told him about a new proof-of-concept Phase 1 clinical study led by Peter Martin, MD, assistant professor of medicine and the Charles, Lillian, and Betty Neuwirth Clinical Scholar in Oncology. Should Gellert enroll, Leonard told him, for approximately one week before his chemotherapy began he’d take azacitidine, an existing drug approved for treatment of myelodysplastic syndrome. “I told him, ‘I’m game,’ ” Gellert recalls. “I was the ninth patient to take this regimen.”

The protocol was based on the work of Leandro Cerchietti, MD, assistant professor of medicine and the Raymond and Beverly Sackler Research Scholar. Cerchietti’s team had discovered epigenetic aberrations in DLBCL tumors that were resistant to chemotherapy—mutations that prevented certain genes from being expressed and made the tumors more aggressive. Cerchietti turned to azacitidine, a known methyl transferase inhibitor, to see if it would reverse the epigenetic process that was silencing the gene—and if so, restore the chemotherapy’s ability to kill cancerous cells. One of the most common forms of epigenetic alteration is methylation, the process by which a methyl group, consisting of three hydrogen atoms and one carbon, attaches to DNA and switches off the gene. Cerchietti and his team discovered that the cells of DLBCL tumors had a high degree of DNA methylation, which was making them resistant to chemotherapy. These methyl groups, also known as silencing chemicals, were preventing tumor cells from dying by inactivating genes that normally suppress tumor growth.

At first, the researchers tried administering high doses, but found it damaged DNA, which caused other effects. At low doses, however, the drug allowed for re-expression of the genes that had been shut down without causing damage. Once the broken pathways were reactivated, the resistant cells were vulnerable to chemotherapy. “In essence,” says Cerchietti, “we’re reprogramming the cancer into a more benign tumor.” And by uncovering an important weakness in the tumor and finding a way to exploit it with an existing drug, the researchers and oncologists were able to get new therapies to patients in need very quickly.

Gellert received three injections of azacitidine per day for five days in the week before beginning chemo. (The drug is now being tested in oral form.) When Cerchietti and his colleagues published the trial results in *Cancer Discovery* last summer, Gellert was among the ten out of twelve patients who’d remained cancer-free for up to twenty-eight months. In addition to the high rate of complete remission, the therapy was well tolerated.

Cerchietti is testing the approach against other aggressive lymphomas, as well as advising teams at Weill Cornell and elsewhere that are taking the same approach in solid-tumor cancers such as those of the breast, lung, and colon. For the next trial, oncologists will prolong the duration of azacitidine treatment to ten days, thus allowing more time for a complete lymphoma reprogramming. Over the course of treatment, Cerchietti’s team will monitor changes in gene expression through a simple blood draw. “The ultimate goal is to administer the drug until you get the maximum reprogramming effect,” he says. “No more, no less.”

Leonard notes that the precision medicine approach is inherently challenging; smaller subsets of patients can make it difficult to build large cohorts for clinical trials. But the molecular characteristics of cancers that scientists are revealing have totally changed the game, Melnick says, making the field of blood cancer research unrecognizable from just a few years ago. “Thanks to critical insights and new technology, we’re able to advance at a speed that is far beyond what I ever imagined,” he says.

With almost 90,000 new cases of lymphoma estimated to be diagnosed this year, speed in the laboratory and the approval process translates into saving lives. Gellert, for one, is grateful he had the chance to be treated under the new paradigm. “I got sick in July,” he says, “and in December I was skiing.” ●



Happy ending: Joanna Cis was expecting baby Kacper when she suffered a life-threatening pulmonary embolism.

Deep Breaths

Thanks to teamwork—and a lot of free pens—physicians and surgeons are treating pulmonary embolism faster and more effectively

By Beth Saulnier

Photographs by John Abbott

When Joanna Cis's right leg started to ache, she didn't take it too seriously. Being seven months pregnant with her first child, the thirty-four-year-old dismissed it as another discomfort of the third trimester, as inevitable as it was unpleasant. "I thought the baby was pushing on a vein or something, and it would go away with time," she recalls, speaking in the lilting accent of her native Poland. "So I didn't do anything about it." For two weeks, the pain persisted. Then one Sunday last fall, she suffered a severe ache on the left side of her chest. And her leg still hurt—so badly that she couldn't stop rapping on her thigh, as though to work out a muscle cramp.

Neither she nor her husband got much sleep that night. But it wasn't until she rose to take a shower the next morning that they really got worried. "In ten minutes my calf doubled in size, and it got darker and darker," she says. "We were shocked and scared." As her husband, Marcin, recalls: "The leg actually swelled up in front of my eyes. In two hours, it was the size of mine."

Joanna and Marcin, who run a construction business together, hurried from their home in Greenpoint, Brooklyn, to her ob/gyn in Queens—who immediately sent her to the emergency department at Flushing Medical Center. Scans found that she had a large blood clot in her left lung, known as a pulmonary embolism (PE). She also had a deep-vein thrombosis (DVT)—in her case, a large blood clot in her right groin area—which could break free at any moment,

'The scary thing about PE is that it can happen to anybody at any age.'

traveling to the heart and lungs and causing yet more emboli and possibly death. Within two hours she was in an ambulance headed for NYP/Weill Cornell, lights flashing and siren blaring. "From Queens to Manhattan took fifteen minutes, with traffic and everything," Marcin remembers. "It was the easiest commute ever."

Marcin can make light of their high-speed adventure now, because everything worked out: both mother and child survived a condition that is too often deadly or debilitating. According to the CDC, accurate figures on DVT/PE are hard to come by. Each year an estimated 300,000 to 600,000 Americans suffer them; in people over eighty, the rate may be as high as one in 100. The outcomes are often grim: 60,000 to 100,000 Americans die of the condition annually, with 10 to 30 percent of patients perishing within a month of diagnosis. In a quarter of cases, the first and only symptom is death. "The scary thing about PE is that it can happen to anybody at any age," says Akhilesh Sista, MD, assistant professor of radiology in the Division of Interventional Radiology. "It could be a twenty-year-old woman who's on birth control, has a genetic propensity toward clotting, and develops a big DVT that goes to her heart and lungs."

Besides genetics, age, and use of oral contraceptives, other risk factors for PE include cancer, pregnancy, smoking, obesity, and recent surgery. Another common cause is prolonged immobility—whether due to bed rest during an illness or from sitting in the same position while traveling. In 2011, tennis great Serena Williams suffered a PE after flying from New York to L.A. with a foot injury that limited her mobility; while covering the invasion of Iraq in 2003, an NBC reporter died from a PE after hours crouched inside an Army tank. "PE is one of the more sinister and insidious diseases," Sista says. "It's on every list, but there's nothing specific about the presentation. It may be that somebody collapses—but that could be stroke, arrhythmia, all sorts of things. The presentation can range from not feeling quite right to being dead on arrival. We may not find out it was a PE until the postmortem."

But for the past two years, NYP/Weill Cornell has led an effort to improve treatment for pulmonary embolism, through a combination of teamwork and a specialty best known for minimally invasive image-guided interventions. In early 2012, Sista and his interventional radiology (IR) colleagues were asked to consult on a neurosurgery case. The man, in his mid-thirties, had post-surgical bleeding, low blood pressure, and severe shortness of breath. "We ordered a CT scan and saw a huge clot in his pulmonary artery," Sista recalls. "We realized that he needed more than a blood thinner if he was going to survive."

The ICU doctor knew that the IR team was skilled in treating clots in deep veins. Could they do the same in the lungs? Sista, who'd performed such a procedure several times in fellowship, was willing to try. In the IR suite, he entered through a vein in the patient's neck, navigating to the lungs and using a device to clean out the clot. "Within five minutes, he was able to support his own blood pressure," says Sista. "We thought this was a powerful case—and that it was something we needed to tell the hospital about, because it wasn't being done. We also realized that there were a lot of cases in the community that weren't getting recognized and treated quickly enough."

Those insights led to the formation of the Pulmonary Embolism Advanced Care (PEAC) team. The group is led by faculty from the specialties that the disease touches: pulmonology (Oren Friedman, MD, assistant professor of medicine), cardiology (James Horowitz, MD, assistant professor of medicine), cardiothoracic surgery (Arash Salemi, MD '97, associate professor of cardiothoracic surgery), and interventional radiology (Sista and David Madoff, MD, professor of radiology). "PE is a multidisciplinary disease," Horowitz says. "But when someone comes in really sick, the standard ED or medicine person often can't get all the players to see them fast enough before something bad happens, and they could die. So we've created this multidisciplinary approach."

The most dire cases are known as "massive PEs," having a mortality rate between 20 and 50 percent.

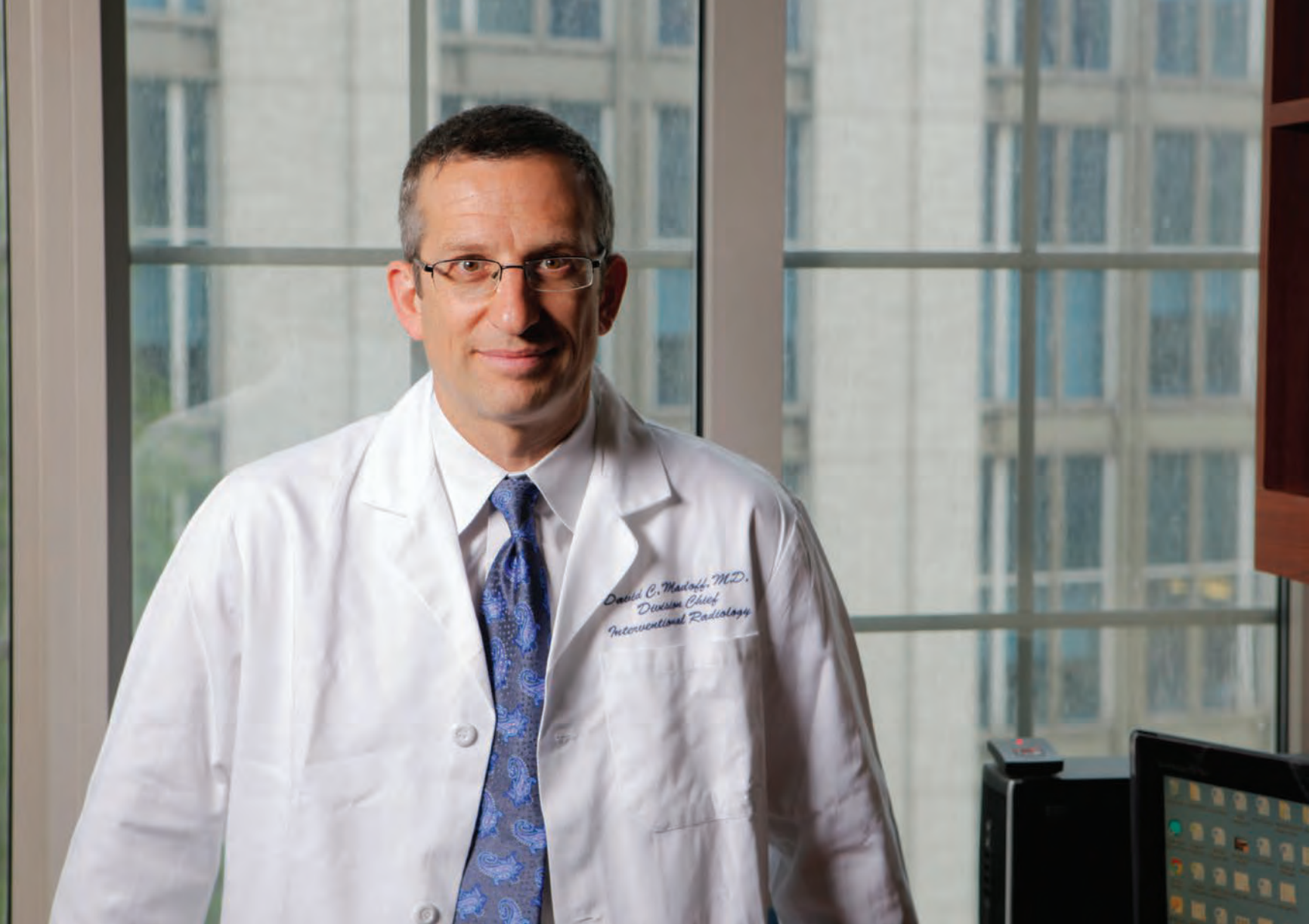


Akhilesh Sista, MD

In “submassive” cases, between 3 and 10 percent of patients perish. So while the condition is challenging to diagnose, the stakes are high—and even though most patients survive, quality of life can be much diminished. “It’s a stress-inducing disease for doctors,” says Friedman. “We believe many patients die while physicians decide whether to do more. Physicians are sometimes so worried that they’ll make the situation worse by escalating treatment that they end up not considering more advanced treatments. A team approach not only allows the combination of experience from different perspectives, but it also leverages our expertise to recommend the best treatment for our patients. And sometimes it’s not just about immediate survival. Aggressive therapy up front can make the difference between having your patient back to their baseline in six months or being unable to walk half a block before stopping to catch their breath.”

It wasn’t until the mid-twentieth century that patients with major PEs even stood a chance, thanks to the blood thinner heparin, improved imaging, and modern surgical techniques. Currently, the standard therapy is to give heparin to help resolve the clot; in urgent cases, surgeons may perform an open procedure called an embolectomy. “For the sickest patients and the most hemodynamically unstable, the safest place is in the operating suite with careful anesthesia and cardiopulmonary support,” says Salemi, noting that surgery remains the gold standard for certain types of PEs.

Patients who have life-threatening PEs but aren’t surgical candidates can get an intravenous dose of the clot-busting drug tPA. FDA approved in 1996, it has saved many stroke patients, whom interventional radiologists treat by delivering it directly to a brain clot. But doctors only give it intravenously when there’s no other option. “It breaks up the clot—but the drug also goes everywhere else,” Sista notes. “You have a high risk of bleeding in bad places, including the brain, and there’s real mortality associated with



David Madoff, MD

that." In short, with the best options—heparin or surgery—dating to the Johnson Administration, PE treatment was ripe for improvement. "You could make a list of a hundred diseases," observes Horowitz, "and I challenge you to find another where the treatment hasn't changed in fifty years."

Horowitz can claim credit for the PEAC team's low-tech secret weapon. It's a ballpoint pen—or, rather, hundreds of them, bearing the pager number 1-CLOT. Designed to spread the word to staff throughout the hospital, the humble pieces of lime-green plastic fill a void left when giveaways from drug reps were disallowed. "There are no more free pens," Friedman says with a chuckle, "so ours are everywhere." In a system that Madoff compares to a tumor board, team members meet monthly to review cases and tweak treatment protocols. They've now had about 150 consults and more than two dozen interventions as well as a number of outside hospital transfers. And they've given talks promoting the team to colleagues from internal medicine, the ED, anesthesiology, and more. Research projects—including a study chronicling the outcomes of all cases treated through the 1-CLOT system—are in the works, and team members have shared their approach with other hospitals, including Hospital for Special Surgery, Brooklyn Hospital, and NYPH Lower Manhattan.

'In the normal way of dealing with PE, the patient is treated arbitrarily based on whoever sees them. Now we have access to all this expertise with one phone call.'

"In the normal way of dealing with PE, the patient is treated arbitrarily based on whoever sees them," Horowitz observes. "We now have access to all this expertise with one phone call. Timing is crucial, and getting all the appropriate studies up front and making decisions fast is absolutely necessary."

At NYP/Weill Cornell, the team effort is complemented by another unorthodox approach: using IR techniques not only to physically remove clots but to administer targeted doses of tPA. Known as catheter-directed lysis, the technique avoids the bleeding risks of intravenous tPA while concentrating the drug where it's needed. Its successful use in more than two dozen cases positions Weill Cornell as a leader in PE treatment. "This procedure is not being done frequently in the country or the world," Sista says. "People have been treating PEs endovascularly for a couple of decades, but it hasn't gained much traction." Sista aims to change that, beginning with a randomized trial for submassive PEs that will compare the efficacy of catheter-directed lysis versus heparin alone. "You want a treatment that gets rid of the clot in a minimally invasive manner," he says. "Catheter-directed work may hit the sweet spot. We have the potential to minimize bleeding but maximize the therapeutic benefit."

Among those successful cases is that of Mary Deberry, a sixty-five-year-old elementary school paraprofessional from Crown Heights, Brooklyn. A breast cancer survivor, Deberry was undergoing treatment for lung cancer when she found she could barely breathe. "She thought she was going to die," Sista says. "And she was possibly en route to that." A CT scan found a massive PE in her right lung—the only one she has, the other lung having been removed. "Ms. Deberry's case was complex and unique, since she only had a single lung," says Madoff. "To our knowledge, catheter-directed lysis had never been used in this setting before." After the treatment, he recalls, "She was literally crying tears of joy, because we'd saved her life." Deberry says that although she hasn't been able to resume work, she's making a steady recovery. "Right now, I don't have any problems breathing or anything," she says. "I know I'm a walking miracle. Through God and the doctors, I'm here."

PEAC team members involved in Deberry's case have written it up to highlight how catheter-directed lysis can save a fragile patient—a massive embolism in one's only lung being an exigent circumstance. They've also submitted the case of Joanna Cis, whose treatment affected two patients: it wasn't just her life in the balance, but her unborn child's as well.

When Joanna came in that Monday, the team leapt into action. She was evaluated and given heparin, with initially positive results. "Tuesday and Wednesday I felt better," she remembers. "I was doing my hair and makeup, and they thought I was going to be good." Then came Thursday morning. "It hit me again," she says. "The pain was back in the left side of my chest. In an hour, it went from a one to a ten." With her case becoming increasingly serious, the various specialists examined her and consulted with each other. "There were about thirty doctors," Marcin recalls. "There was a line outside the door." As Joanna underwent catheter-directed lysis on the clot in her lungs, an ob/gyn was on hand in case fetal distress necessitated a C-section and a speedy transfer to the neonatal ICU. After tPA was dripped to her lung embolus for twenty-four hours, the team repeated the procedure on the clot in her groin area. When it was all over, she says, "There was no more pain. I was so relieved."

But there were still some pitfalls on her path to motherhood. Joanna developed preeclampsia, a serious pregnancy complication. At eight months of gestation, to protect her life and the baby's, doctors induced labor. On New Year's Day, in an otherwise normal vaginal birth, she delivered a son whom she and Marcin named Kacper. "He's a beautiful boy," she says. "Very calm, very quiet. So great."

While Joanna will have to self-administer injections of an anticoagulant drug every twelve hours for the foreseeable future—a process she admits is painful and unpleasant—she knows that her outcome could have been far worse. "I'm happy I'm alive," she says. "So if I have to give myself those shots, that's OK." When asked about the care she received from the PE team and other medical staff, both she and her husband are effusive in their praise. "All the doctors and nurses were like my friends," Joanna says. "They took care of me so well—just outstanding. I never had any second thoughts." Adds Marcin: "With her, there was no book they could refer to—but they did everything right." ●



'BIG DATA' BIG DREAMS



New methods of processing massive amounts of information offer powerful weapons against threats ranging from cancer to bioterror

By Heather Salerno

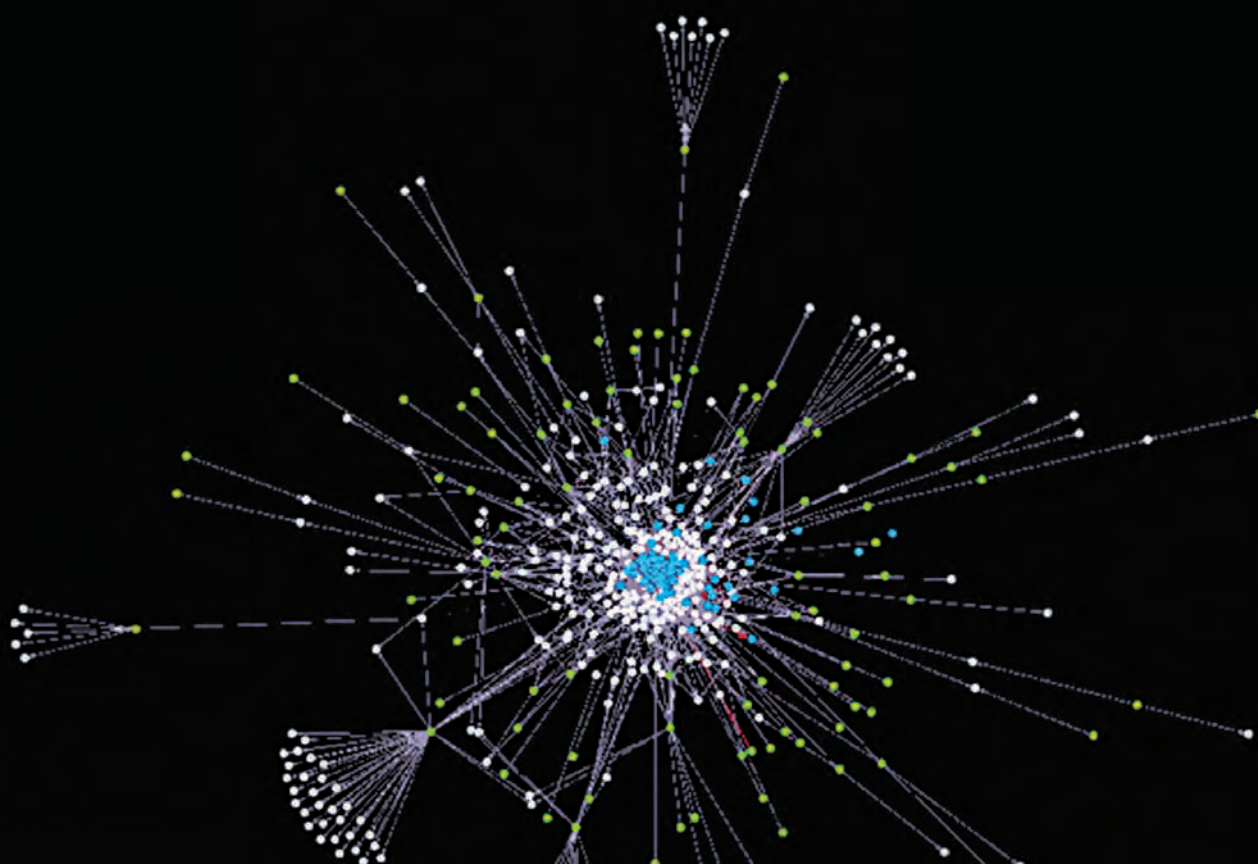
Could the key to curing cancer be hidden deep within the disease itself?

That's a theory proposed by Olivier Elemento, PhD, an associate professor of computational genomics in the Department of Physiology and Biophysics who heads the Laboratory of Cancer Systems Biology in the Prince Alwaleed Bin Talal Bin Abdulaziz Alsaud Institute for Computational Biomedicine at Weill Cornell. His idea: if doctors can identify the specific genomic mutations that made a patient's normal cells become cancerous ones, then perhaps they can devise more effective treatments. "The genome is essentially the blueprint of cells; it contains the instructions, the software code, that makes each cell run," says Elemento. "Thus, cancer cells have an altered blueprint. We want to know how the software code evolves and changes in these cells."

But translating that code is no easy task. Each human genome contains 3.4 billion nucleotides, written out in the language of DNA. If all that information were printed in telephone books, they'd stack nearly to the top of the Washington Monument.

It's a prime example of "big data," a term used to describe information so large and complex that it's difficult to parse with standard software tools. And while the ability to query and examine massive datasets has already revolutionized the business world—Google and Facebook are just two of the major players who profit from customer analytics—big data is now poised to transform the public health sector. The ability to aggregate reams of digital material, along with technological advances that can make sense of it all, is already altering the way physicians and scientists at Weill Cornell are conducting research.

For Christopher Mason, PhD, assistant professor of computational genomics in the Department of Physiology and Biophysics and the Prince Alwaleed Bin Talal Bin Abdulaziz Alsaud Institute for Computational Biomedicine, the impact of big data is "nothing short of revolutionary." He stresses the importance of collaboration, since interpreting such extensive data often requires more resources than any one institution can marshal alone. "In only four or five short years," he says,



'Cancer cells have an altered blueprint. We want to know how the software code evolves and changes in these cells.'

KATIE GAYVERT

"we've gone from many isolated islands of data to a global effort of interconnected patient and clinical data that lets you do new science really fast." One such effort that Weill Cornell has joined is the 150-member Global Alliance for Genomics and Health, a recently established coalition of healthcare providers, research institutions, and disease advocacy groups dedicated to the secure sharing of genomic information. "More data," Mason says, "is more power."

A newly launched clinical research network in New York City led by Rainu Kaushal, MD, chair of the Department of Healthcare Policy and Research and the Frances and John L. Loeb Professor of Medical Informatics, will, with their permission, share patient information among participating organizations, a move that could potentially advance medical breakthroughs and develop a more personalized approach to patient care. "As we become more wired in healthcare—which, of course, has lagged behind other industries significantly—having access to this data opens up an entire laboratory of information that we didn't have previously," she says.

In Elemento's lab, researchers are using big data techniques to

Network news: The lab of Olivier Elemento, PhD (right), generates a pharmacogenomic network of protein-drug and protein-protein interactions (depicted in the image above).

JOHN ABBOTT



analyze the genomes of tumors from patients with blood, brain, prostate, and other cancers. Using supercomputers, custom software, and algorithms they designed for this purpose, they comb the data for patterns of mutation. The hope is that identifying such anomalies may point the way toward new therapies that target weaknesses in cancer cells. The process has numerous advantages over conventional research methods, including increased efficiency; the data has allowed Elemento's team to build computer models that test the efficacy of various drugs before any are actually administered. "There are potentially hundreds of thousands of ways to combine drugs, at different dosages, and it's hard to simply guess which drug combinations will work," says Elemento. "We think our computer models of tumors will be increasingly used to predict the best ways to treat each patient."

One of the problems with big data is that it's, well . . . *big*. To give a sense of its scope: within eighteen months, Elemento and his colleagues filled a data storage system that could accommodate 300 terabytes of information. Twenty years of observations by NASA's Hubble Space Telescope, by comparison, produced only about forty-five terabytes of data. "Technology is not yet such that you can sequence the genome in one run," explains Elemento. "You have to sequence a genome multiple times—about 100 times, in fact—to get an accurate representation." (Recognizing the data-storage needs at Weill Cornell, the NIH has awarded a grant to establish a petabyte-scale storage facility in the Institute for Computational Biomedicine. A petabyte is 10^{15} bytes of digital information.)

There are other complications, too. Traditionally, scientists form a hypothesis, conduct an experiment, and evaluate the evidence. Big data often works in reverse, with investigators collecting piles of information first and then looking for correlations. With such huge datasets, there is a risk of false—or biased—findings. "Accumulating data is wonderful, but if you don't have a rigorous framework in which queries and explanations can fit, then it's just data," says Harel Weinstein, DSc, the Maxwell M. Upson Professor of Physiology, chair of the Department of Physiology and Biophysics, and director of the Prince Alwaleed Bin Talal Bin Abdulaziz Alsaud Institute for Computational Biomedicine. "If there is no valid conceptual framework, it's not scientific."

One high-profile case of big data getting it wrong is the Google Flu Trends (GFT) project, once touted as a mega-analysis success story. The tool earned high praise for using Internet search queries to monitor flu-related activity, putting Google's real-time updates ahead of findings by organizations like the Centers for Disease Control and Prevention, which bases its estimates on reports from labs nationwide. But as it turned out, in some instances GFT badly miscalculated. Soon after it inferred that nearly 11 percent of the country's population had the flu at its peak in January 2013, *Nature* reported that Google's algorithms had significantly overstated infection rates. Research published recently in *Science* points out other flaws in the flu-tracking system, with the authors concluding that "'big data hubris' is the often implicit assumption that big data are a substitute for, rather than a supplement to, traditional data collection and analysis." They acknowledge that big data offers enormous possibilities for new insights, but only if combined with other types of information gathering.

The bottom line for many experts? Big data is a highly promising strategy, but context must always be applied when crunching numbers. Says Kaushal: "I think it can be—and will be—transformative in the way we think about health."

New York City Clinical Data Research Network

Earlier this year, Weill Cornell received a \$7 million contract for an ambitious initiative with the potential to improve healthcare in the nation's largest, most diverse city. Led by Rainu Kaushal, the New York City Clinical Data Research Network (NYC-CDRN) will create a system that supports data sharing for patients across New York City and facilitates recruitment of patients for clinical trials. "We will better be able to understand, in a comprehensive and longitudinal way, a patient's medical experiences," says Kaushal.

Funding for the network came from the Patient-Centered Outcomes Research Institute (PCORI), an NGO supporting investigations that help people make informed healthcare choices. Over the course of the eighteen-month contract, NYC-CDRN expects to link records for at least a million patients, whose identities will be protected. The consortium—made up of twenty-two regional entities, from Weill Cornell to the New York Genome Center to the new Cornell Tech campus—will initially focus on patients with diabetes, obesity, and cystic fibrosis.

According to Kaushal, one goal is to give patients and providers speedy access to information they can use in making medical decisions. For example, she says, "Every diabetic is not created equal. Some may benefit from drug A, some from drug B." This kind of shared database could also issue automatic notifications that pop up onscreen when a physician accesses electronic health records; such alerts could quickly spread the word about new protocols for certain conditions, as well as a patient's eligibility for research studies. "If we can do this in New York City," Kaushal says, "we will have created a prototype for almost any city across the country."

EMcounter

In 2006, when three residents at NewYork-Presbyterian were chatting about their experiences at overseas medical facilities, they all mentioned the same thing: that many developing nations were teaching emergency medicine using a U.S.-based curriculum that didn't reflect the predominant illnesses in those regions. "There was definitely a difference in the chief complaints that came into emergency rooms in other countries," says Satchit Balsari, MD, a native of Mumbai and assistant professor of medicine and of healthcare policy and research who attended medical school in India. "Chest pain was not necessarily the number one complaint, as it sometimes is here. There were a lot more infectious diseases, so there were more people complaining about things like fever."

So Balsari and his co-residents, Dave Anthony, MD, and Dean Straff, MD—all now emergency attending physician faculty members at NYP/Weill Cornell—designed a user-friendly system, dubbed EMcounter, that allowed staffers at a hospital in Chennai, India, to digitally record patient information. Analysis of the data recorded over the course of a year spurred changes at that hospital; for example, after the program pinpointed the busiest times of day, administrators added more staff to better meet patient needs. A follow-up



IMAGES THIS PAGE PROVIDED BY SATCHIT BALSARI, MD



Crowd sourcing: The Kumbh Mela (top), which draws tens of millions of religious pilgrims, is the world's largest human gathering. Above: Satchit Balsari, MD (second from right), with researchers in India.

program at a South Sudan hospital in 2012 was equally successful, and last year the tool was used at the Kumbh Mela in India, the world's largest human gathering. The Mela is a religious festival drawing tens of millions of pilgrims, who journey every twelve years to bathe in the sacred waters of the Ganges and Yamuna rivers.

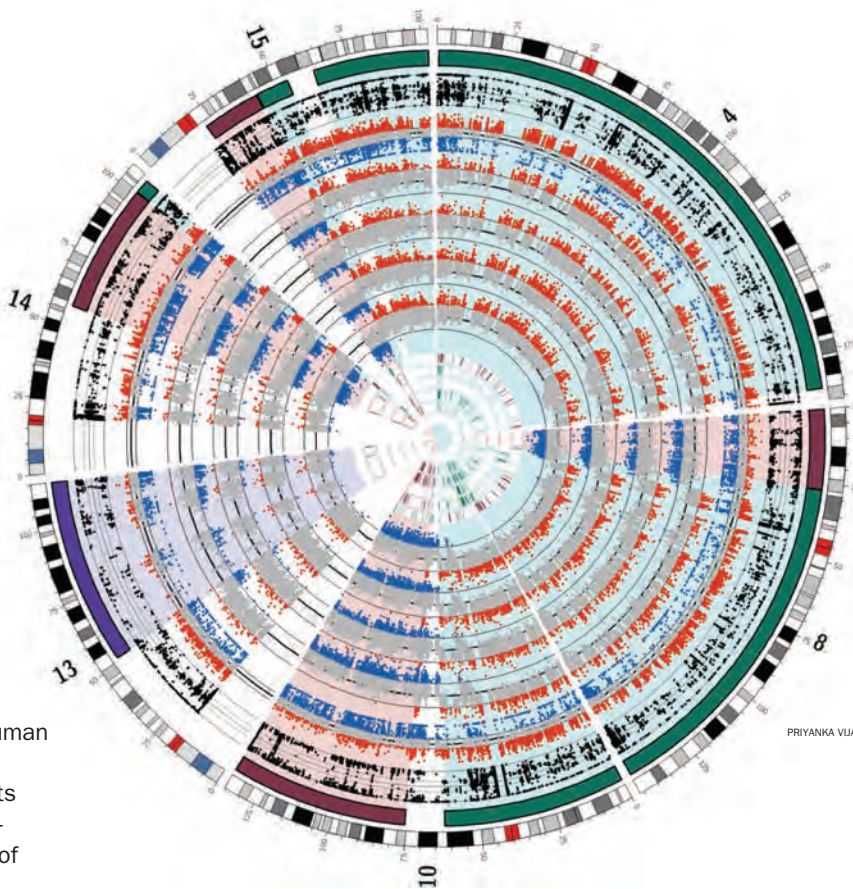
Some thirty researchers, including Balsari, spent more than a month in Allahabad, India, to gather data from a huge, temporary city that hosts the Mela. Balsari's team wanted to see if EMcounter could flag potential epidemics at such a large gathering. The challenge was that the Mela population could fluctuate by millions every few days, making it difficult to tell whether an increase in sickness was simply because of new visitors. But Balsari figured that by studying the data in real time, they'd notice if a single disease rose out of proportion to others. "We

said if we can do it in complete chaos, in the world's largest mass gathering, and still make it work, then the system would be pretty robust for other extreme situations," Balsari says.

Using iPads, researchers collected health information from more

'More data,' says Mason, 'is more power.'

Ring of power: A figure known as a Circos plot depicts human chromosomes spread out in a circle. At the center is the genetic data of five cancer patients, with orange/blue dots showing increased/decreased levels of DNA. Called copy-number variants, these indicate places where fragments of DNA have been rearranged, possibly driving the tumors.



than 50,000 patients over three weeks, and their hypothesis proved correct. For example, they identified a spike in viral respiratory problems on the busiest bathing day, when an estimated 30 million people attended the Mela. Luckily, those who became ill didn't require significant medical attention. But in the case of a more serious disease with a higher fatality rate—such as measles or cholera—they had the means to notify local authorities to mobilize an immediate response. Now, the team is working on bringing the system to other transient settings like refugee camps and disaster shelters. "It would be extremely useful in a humanitarian crisis," Balsari says. "It could be used on the borders of Syria, in camps where populations are constantly changing. There's a huge flux every day, with hundreds of thousands moving in and out."

PathoMap

Anyone who's ridden on the New York City subway has probably wondered (or maybe tried not to think about) what kind of germs lurk in the crowded, grimy transit system. Now a project called PathoMap is seeking to answer that very question. It examines bacteria, viruses, and other microorganisms present in high-traffic areas New Yorkers encounter every day.

A team of postdocs, graduate students, and student volunteers led by Christopher Mason visited 468 New York City subway stations last summer, collecting 1,404 samples by swabbing turnstiles, railings, kiosks, and benches. Thousands of additional samples were

taken at the same sites last fall and winter, as well as this spring, to establish a seasonal baseline of pathogens. Mason's team then applied advanced sequencing technology to analyze the accumulated pieces of DNA. "But these fragments are like taking an entire library and shredding the pages of all the books," Mason says. "So a large component of the work after the sequencing is complete is to use large-scale computational resources to assign the fragments of DNA to the correct species."

Analysis is ongoing; among the initial discoveries are *staphylococcus* and *streptococcus* bacteria, *shigella boydii* (found in feces and associated with dysentery), and rat DNA. Yet Mason insists those results are not any worse than what can be found in many other public places. "I'd say the subway is no more or less gross than the place where you buy your lunch," he says, "or the bathroom at Grand Central." Also, he points out, the majority of the bacteria they have found are non-pathogenic and even likely beneficial—serving as a layer of "good bacteria" that can out-compete any potential threats.

Once Mason's team builds a database of the pathogens normally found in the subway system, he hopes to develop a way to search for organisms that are out of the ordinary. This could aid in disease prevention by letting the public know which zones are trouble spots. In future stages, government agencies could use the technology to monitor the system, possibly preventing or containing a bioterror attack. "There are technologies where, in one to two hours, you can swab something and completely characterize all the DNA," says Mason. "In the future, this is the world we will likely see—'big data' of every molecule of DNA from almost every surface of a metropolis being monitored." ●

Notebook

News of Medical
College and Graduate
School Alumni



PROVIDED

R. Ernest Sosa, MD '78

Dear fellow alumni:

We have been quite busy since my last report, working hard to serve your interests.

In January, we held the Rogosin Institute Scholars Reception. This annual event affords both the Medical College and the Institute the chance to honor the four Rogosin Institute Scholars and the Albert L. Rubin, MD '50, Scholar. These energetic students from the classes of 2014, 2016, and 2017 boast impressive résumés that include community work helping underprivileged children, international medicine, and uveal melanoma research. We are grateful to the Rogosin Institute for the continued and generous support that has made these scholarships possible.

In early March, Dean Glimcher traveled to Florida for Weill Cornell's annual Palm Beach Symposium at The Breakers. The event was a huge success, with more than 400 guests in attendance. In conjunction with the symposium, the Medical College hosted a breakfast for more than thirty alumni and guests. I would like to extend a special thank-you to Lewis Drusin, MD '64, Richard Lynn, MD '71, and David Dodson, MD '80, for contacting local alumni and encouraging them to attend, as well as for helping to make the event so memorable.

Toward the end of March we held our third Alumni-to-Student Knowledge (ASK) session of the academic year, focusing on careers in surgery. I was honored to participate as a speaker. This program, which began as a way to address requests from medical students for increased interaction with alumni, provides a unique forum to discuss educational, career, and lifestyle decisions in a relaxed, friendly environment.

For many years, the Alumni Association has sponsored an annual Family Day for current students. Relatives and friends travel from across the U.S. and beyond to deepen their understanding of the Weill Cornell educational experience. Once again, two of our well-known alumni, Lew Drusin and Paul Miskovitz, MD '75, helped welcome attendees to this fun event.

Plans for Reunion 2014 are progressing. Its theme, "The Evolution of Medical Education," coincides perfectly with the introduction of the new curriculum. The weekend will not only feature stimulating discussions and class panels, but also fun social events allowing all of us to reconnect. It will take place on October 10 and 11. I hope you can join us.

The Alumni Association board of directors continues to meet quarterly. I am happy to report that at our spring meeting, the board decided to continue its support of the Weill Cornell Community Clinic, a student-run group dedicated to serving underinsured patients in our community.

Finally, we are deeply saddened by the death of our dear friend Kenneth Swan, MD '60. Dr. Swan dedicated more than fifty years of service to his alma mater as an esteemed member and past president of the Alumni Association board, co-founder of the Dean's Circle, and co-chair of the Stimson Society. He will long be remembered for his leadership and generous support of medical education.

Please continue to follow our activities on our website, Twitter, and Facebook. We have many upcoming events planned across the nation this year. Be on the lookout for mailings in the coming months.

Best and warmest wishes,

*R. Ernest Sosa, MD '78
President, WCMC Alumni Association
drsosa@nyurological.com*

1940s

Douglas E. Johnstone, MD '45: "Maxine and I are still living in our Florida condo after 23 years of retirement. My hobby is watercolor painting. We have two gorgeous grandchildren and are expecting our third in June."

Andre S. Capi '44, MD '46: "I've maintained my Florida license to practice. Although I closed my private radiology office some 25 years ago, I continue to over-read X-rays at a walk-in medical facility, as I have for more than 30 years. It takes less than an hour daily, gets me out of the house, and keeps me in touch with other physicians as well as bringing in a small income. Having made some 15 world trips with Club '44, I regret that there won't be any more. We're all over 90 now, but keep going strong. I'm fortunate to have my wife of 52 years, who is active in social and charity work. It keeps us both young. This past week she was honored as a Woman of the Year by the Thousand Plus Club to Benefit Cancer Research."

Gilbert Smith '44, MD '47: "I turned 90 last September. Still going (I think) strong. I find that most of my friends and classmates are gone. This provides a challenge, but also creates many new opportunities. Life is good, particularly if you don't weaken."

1950s

Stanley Birnbaum, MD '51: "I retired from private practice on December 31, 2012. As professor emeritus at WCMC, I still do some teaching and committee work. I live in Manhattan with my wife, Michele, close to my daughters and grandchildren, and enjoy what New York City has to offer."

William L. Craver '49, MD '52: "I'm enjoying retirement in Canandaigua, NY. I practiced cardiothoracic surgery in the Rochester community since completing residency at NYH in 1959 and retired as an associate professor of cardiothoracic surgery from the University of Rochester in June 1997. I also served in the US Army Reserve as a colonel in the Medical Corps for many years. My six children and many grandchildren are scattered all over the country."

John Lanman '48, MD '52: "Nancy and I are essentially well. We still read the papers, watch TV, move about, have cocktails, and go to fitness three times a week. We are losing our peers such as **Pete Fennel, MD '52**, who died recently. I work at the free clinic one day a week. It is still fun, although not as much as it was 30 years ago. My best to

all our classmates."

Aaron Ganz, MD '53: "While not in perfect health, I'm enjoying the wonderful weather of southern Florida and am pleased to witness the progress of my family. Roz and I celebrated 61 years of marriage this past winter, attended the marriage of my eldest grandchild, Elisabeth, and enjoyed the celebration of Julie's engagement this past month. With children and grandchildren all around the country, the visits are many from my three children and six grandchildren. I'm sorry I'm not able to attend the reunion this coming fall, but extend my best wishes to all my classmates of the Class of 1953."

Fredrick Abrams '50, MD '54: After retiring from the adjunct faculty of University College of Denver, Iliff School of Theology, and Colorado University Medical College, Fred continues to teach an adult education class based on his

head of orthopedics and chief of hand surgery at USC), Glenn (who presents national conference programs for industries), and Hal (who created a national radio program about household pets as well as a general community radio program), as well as their three grandsons and three granddaughters. Among many honors, he has received the Isaac Bell and John Hayes Award For Leadership In Medical Ethics and Professionalism from the American Medical Association, a Lifetime Achievement Award from the Center for Bioethics and Humanities at University of Colorado Health Sciences Center, and the Trusted Care Award for Excellence in Clinical Ethics from the Board of Governors of the HealthOne Hospital System and from the Life Quality Palliative Care Institute for his service in advancing palliative care. As former chair of the ethics committee of the American College of Obstetricians and Gynecologists, he helped write the ethical guidelines for its



Group shot: Celebrants pose at WCMC-Q's Commencement 2014

book of true stories from his medical practice (*Doctors on the Edge*), all of which involved ethical dilemmas. He is known in Colorado as the father of biomedical ethics (although now, a few months short of 86, he believes "grandfather" would be more appropriate), having initiated and taught virtually all of the original Colorado hospitals' ethics committees, beginning in the Eighties. He just became a great-grandfather, and he and his wife, Alice, will soon celebrate their 65th wedding anniversary. They are proud of their three sons, Reid (associate

members. Dr. Abrams was founding executive director of the Colorado Governor's Commission on Life and the Law and served on the national advisory board of the Institutional Ethics Committees of the American Society of Law and Medicine, the National Advisory Board on Ethics in Reproduction, the ethics committee of the Denver Medical Society, and the Colorado Medical Society.

William S. Augerson, MD '55: "I have retired from practice and ended my time as president of the county board of health. Along the way, I had some exotic experi-

'Along the way, I had some exotic experiences: putting monkeys and men into space, riding centrifuges to 22G, freefall parachuting from five or six miles, and getting shot at a lot—but thankfully never hit.'

**William S. Augerson,
MD '55**

ences: putting monkeys and men into space, riding centrifuges to 22G, freefall parachuting from five or six miles, treating a lot of malaria, seeing some of the last cases of smallpox, helping start a medical school, and getting shot at a lot—but thankfully never hit. I hope I did more good than harm."

Donald P. Goldstein, MD '57: "I am scheduled to retire from active gyn oncology practice at Brigham and Women's Hospital on June 20, 2015, after 50 years. I will, however, remain in the Division of Gyn Oncology in an editorial capacity, working on a number of projects relating to our work on molar pregnancy and gestational trophoblastic disease. Next year will mark the 50th anniversary of my founding of the New England Trophoblastic Disease Center, one of two such centers in the United States. It's been a long and rewarding career and I step down with mixed emotions, but with confidence that I am leaving this program in excellent hands. Connie and I are looking toward the future. Though in good health, we're planning to move to North Hill, a long-term care facility in Needham, MA, not far from our daughter who lives in Weston."

Donald A. Taylor, MD '57: "I'm semi-retired and do some consultations over the Internet."

Ann Huston Kazarian, MD '58: "After spending six years in north-central Texas with my daughter and her family, I returned to Connecticut with them in 2011 and am happy to be home. I retired from the private practice of psychiatry before moving. I was active for decades in national, state, and county medical and psychiatry associations. We have settled now in central Connecticut (Southington), half an hour from our longtime home in West Hartford. Unfortunately, I am no longer able to travel and so cannot get to NYC to attend reunions and meetings. Ed and I had two children. Our son has his PhD in philosophy from Villanova and is teaching and writing. Our daughter is an RN, and she and her husband have three children. It is so rewarding to be with the 'little ones' almost daily. Sadly, my husband died in 1999."

Harry G. Preuss, MD '59: "I am finishing my third term as president of the American College of Nutrition and busy planning its upcoming annual meeting. The meeting, to be held in San Antonio in October, will touch upon many controversial topics such as GMO foods and the benefits of using various vitamins and minerals for general health. In September, I will be receiving an Emord Award at a special meeting in Washington, DC, for research contributions in general and integrative (nutrition) medicine. Currently, I am co-editing a book on dietary supplements and functional foods for CRC Press."

James E. Shepard, MD '59: "Sally-Jean select-

ed a trip to the Balkans this year. We were in Kiev last fall. The trip before was to Tunisia. We arrived there shortly after the revolution was succeeding. Marrying a Skidmore nurse continues to be an exciting adventure."

1960s

Lonnie Hanauer '56, MD '60: "After 49 years of daily office rheumatology (half time), then two days a week, then one day a week, then two a month, then one day a month for the past year, in April I stopped. I'm still chief of rheumatology at East Orange VA every morning. It's more fun than an office, with residents and students to teach. After 49 years of civil service, my salary is just a little less than it would be if I retired. My family is still well, with grandchildren beginning college."

David Robbins, MD '60: "I recently moved to Highland Beach, FL, after retiring from psychiatric practice last November."

Clay Alexander, MD '61: "I have published my second book, *Time to Die*, on Amazon and other e-publishers. Underneath the thrilling and provocative storyline, end-of-life issues are a constant theme. Physicians are supposed to 'do no harm,' but does this include adding to and prolonging the suffering of terminally ill patients who are not in hospice care? The central issue is timely and important, not only for patients but for the physicians who care for them."

Roger Soloway '57, MD '61, is full-time at the University of Texas Medical Branch. "I spend much of my time treating prisoners with end-stage liver disease by telemedicine over the eastern two-thirds of Texas, to keep them healthy and out of our prison hospital. I was honored at UTMB's annual dinner for my work in this regard."

William Chaffee, MD '62: "I have been retired for 15 years. Grace and I have enjoyed traveling, especially to Southeast Asia. We've been to Bali nine times. Photography is my primary interest. It's sad to see medicine becoming more technical and less personal. I hope to be around for our 55th Reunion."

Robert A. MacLean, MD '62: "After graduation, I spent four years of residency at Bellevue in internal medicine, infectious disease, and chest medicine, followed by two years with CDC in the tuberculosis division, stationed at the Houston City Health Dept.; 11 more years in various positions with the department, including chief of communicable disease, deputy director, and director; and 13 years with the Texas Department of Health as deputy commissioner and commissioner. I've been retired since 1994. I have four children and six grandchildren. We spend summers at our lake home in Canaan, NH. I credit Tom Almy '35, MD '39, chief of the Cornell medical service at Bellevue, and Dr.

Walsh McDermott with developing my interest in public health. In my four years at Bellevue, it was obvious that prevention was the best solution to many health problems. This was strengthened by my work in inner-city schools and clinics in Houston and surrounding counties, where access to basic primary care was difficult for the poor in those days. In the Sixties and Seventies, many county health officers were retired private practitioners with no special training or interest in public health. Fortunately, the University of Texas started a school of public health in Houston in the late Sixties. This produced graduates with MPH degrees, who had the skills needed to run programs and health departments; they are now in many local health departments all over Texas and in top positions at the Texas Health Department. I was an associate clinical professor from the start of the school until several years after my retirement. I also held a clinical faculty appointment at the Osteopathic Medical School in Fort Worth and was a clinical assistant professor at Baylor Medical School in Houston. I served on three advisory committees for CDC: tuberculosis control, lead poisoning prevention, and HIV. I was also on the board of the Health Policy Institute at the University of Houston Law School and received two awards for excellence in public health from the Texas Public Health Association."

Rachel Naomi Remen '58, MD '62, was awarded the Gold Cane 2013 at the University of California School of Medicine for her innovations in medical education. Her course, *The Healer's Art*, originated at UCSF in 1991 and is now taught at 89 American medical schools and in eight countries abroad. Dr. Remen is a pioneer in relationship-centered medicine and relationship-centered medical education. She is the author of two *New York Times* best-sellers: *Kitchen Table Wisdom* and *My Grandfather's Blessings*. She is clinical professor of family and community medicine at UCSF and lives in Mill Valley, CA.

Barry D. Smith, MD '62: "I recently returned from Kosovo, where Dartmouth College and Dartmouth Medical School have been working to help this new country re-establish an effective healthcare system and medical school. Their present effort is to provide a much-needed service line in obstetrics, gynecology, and neonatal healthcare because of a high rate of premature births, maternal deaths, and neonatal complications. Preventive healthcare in women's health is fragmented although they have



Getting to Carnegie Hall: Dean Laurie Glimcher, MD (center), and faculty prepare to enter the concert hall for Weill Cornell's Commencement 2014.

excellent immunization services. This is an interesting project for a retired obstetrician and gynecologist."

Michael G. Zeigler, MD '62: Ann F. Zeigler, BS Nurs '62, writes:

"My husband, Michael, is currently living in an Alzheimer's facility close to our home. I spend much of each day with him. Most days are good ones. He communicates only a little and is in a wheelchair much of the time, but I do walk with him. He smiles a lot and is happy and content. The facility is small and family-oriented, which provides the families of the residents great support. The residents are amazing: two doctors, a musician, two artists, a choreographer, two professors—each with their own story. Mike is known there as 'Dr. Z.' This is a difficult journey for us all and more research is vital. Prayers enable us to meet each new challenge in this 'yo-yo' kind of life."

Don Catino, MD '64: "I am doing a six-month locum tenens job as a geriatrician and rehabilitation director at the base hospital in Cairns, Australia. The job is a challenge, as I am not trained in rehab of brain injury, spinal cord injury, and amputees. However, the patients are fascinating, and I am learning a lot. We are right on the Great Barrier Reef and on the edge of the rainforests of northeast Australia. We flew out to Ayer's Rock last weekend. The aboriginal culture is fascinating. Life continues to be exciting."

Larry Raymond, MD '64: "I'm still enjoying the mix of activities in my 20th year with Carolinas Health System and UNC Chapel Hill's branch medical school in Charlotte, NC. The house staff and students keep me on my toes. Only two hours from our mountain retreat with a great view of the national forest below. I'm trying to be half the teacher that Aaron Feder was, as he led Feder's Raiders on early morning rounds on his private patients at NYH. My only news is being appointed by Gov. McCrory to our state's environmental management commission—hoping to keep our air and water healthy for Carolinians to come. I'm looking forward to our 50th anniversary celebration in October."

Samuel H. Greenblatt '61, MD '66: "I'm slowing down some. In Fall 2013 I became professor emeritus of neurosurgery at Brown. In April 2014 I finished a five-year term as historian of the American Association of Neurological Surgeons. But after nine years of working on a biography of the British neurologist John Hughlings Jackson (remember Jacksonian seizures?), I still have probably four or five years to finish it. I'll be OK as long as they keep making replacement parts—knees, hips, lenses, etc."

Irving Olender '62, MD '66: "After 40 years, I have finally retired from practicing ob/gyn in the San Jose/Los Gatos area. I was a member of the rapidly dwindling category of male gynecologists. I have enjoyed a tremendously satisfying career. I have delivered nearly 6,000 babies and am proud

that I never lost a mother. Now I'm embarking in another direction, with a focus on volunteer activities, mentoring academically at-risk students and guiding them through life and career choices. My wife, Irena, and I are blessed that our children and grandchildren live locally, and we get to spend time with the youngest Olender generation on a weekly basis. We continue to travel, especially as Irena has family in the Netherlands. I have become an avid travel photographer, family genealogist, and novice gardener. I still make sure I read fiction every day and have time now to exercise. Life is good."

Orlo H. Clark '63, MD '67: "I have retired from clinical practice in endocrine surgery at UCSE, but am still teaching and doing research. Carol's and my book *The Remarkables: Endocrine Abnormalities in Art* (University of California Press) is in its second printing, and the third edition of our *Textbook of Endocrine Surgery* is nearing completion."

Robert Bedford, MD '68, and his wife, Faith, recently celebrated their 50th wedding anniversary on the island of St. John, along with their three children, three children-in-law, and seven grandchildren. "I'm now five years into retirement and enjoying it greatly. I teach medicine-related courses for Osher Life-Long Learning Institute, both in Charlottesville and at our winter home in St. Petersburg, FL. I also do volunteer work for the University of Virginia Medical Center when we're in summer residence. We'd love to host any classmates who are planning a visit to Monticello during the May–September timeframe. We've got some respectable wineries in the neighborhood that are worth checking out."

Steve R. Pieczenik '64, MD '68: "After 36 *New York Times* bestsellers, I've written another Tom Clancy Op Center book called *Out of the Ashes* about the Syrian war. Another new book will be a continuation of the Tom Clancy Net Force series that

foretold cyber attacks and cyber terrorism. Thousands of people follow my political/psychological blogs. In two years, I have done about 1,500 blog entries. I serve the Department of Defense as a consultant, working on national security matters that involve Russia, China, the EU, etc. I am a member of the Association of Former Intelligence Officers, a former member of the Council on Foreign Relations, and a member of the Academy of Motion Picture Arts and Sciences, the Writers Guild of America East, and the Producers Guild of America. I created and produced two TV miniseries with Tom Clancy. See stevepieczenik.com."

1970s

Eric Thomas, MD '70: "I just finished successful attestation to Stage I Electronic Health Records meaningful use. Otherwise, I'm going strong in solo private practice, and I'm division chief of Middlesex Hospital."

Allan Ropper '70, MD '74, has written a book of dramatic stories based on his patients with brain disease. St. Martin's Press will publish it in September. He is the Raymond D. Adams Master Clinician at Brigham and Women's Hospital and a professor of neurology at Harvard Medical School.

Milagros Gonzalez, MD '75: "My husband, Keith Bracht, and I went to Cuba in February for eight days and had a fabulous time. You can travel to Cuba on a people-to-people encounter and not as a tourist. We visited Camaguey, a beautiful colonial city; Trinidad, a quaint city; Cienfuegos (which means 100 fires), another beautiful colonial city; and Havana, the capital. The people were quite gracious, talkative, and friendly. Hope that one day we can travel to Cuba as tourists and will be allowed access to other cities."

William J. Powers, MD '75: "In

February 2014 I received the William Feinberg Award for Excellence in Stroke from the American Heart Association/American Stroke Association and delivered the William Feinberg lecture—"Hemodynamics and Stroke Risk in Carotid Artery Occlusion"—at the International Stroke Conference in San Diego. The Feinberg Award is named for Dr. William Feinberg (1952–1997), a prominent stroke clinician-researcher and American Heart Association volunteer who contributed to a fuller understanding of the causes of stroke. The award recognizes a Stroke Council Fellow actively involved in patient-based research who has made significant contributions to clinical stroke research."

Vincent de Luise, MD '77: "I spent a transformative 2013 at Harvard University in a fellowship developing a rubric for humanities pedagogy in medical schools, seeking ways to bring this to a national initiative. I am still on the clinical faculty in ophthalmology at WCMC and Yale and am an assistant editor for two ophthalmology journals. I also keep busy with running a small nonprofit opera foundation whose mission is to support conservatory-trained vocalists and bring operatic education to elementary schoolers."

Ellen Ebert, MD '77: "I retired from my job as professor of medicine (gastroenterology) at Rutgers Robert Wood Johnson Medical School in New Jersey a year ago. I am now entering private practice in Union, NJ. I have two children and a grandchild on the way."

Matt Mauro '73, MD '77, was awarded the 2014 Society of Interventional Radiology's Gold Medal in San Diego in March.

Harley A. Rotbart, MD '79: "After 30 years on the full-time academic faculty in pediatrics (infectious diseases), I retired from the University of Colorado School of Medicine and Children's Hospital Colorado in January 2014. Just as I was beginning to bond to the title 'emeritus,' my wife, Sara, texted me a picture of the Emeritus Nursing Home not far from where we live—a gentle reminder that when she married me 28 years ago, it was for better or worse, but not for lunch. All three of our kids have now graduated from Cornell in Ithaca. Matt '10 and his wife, Nurit, both finished grad school at NYU, he in law, she in social work; both are working in NYC. Emily '12 is in the psychology doctoral program at George Washington University. Sam '14 is applying his public policy major to front office work for minor-league baseball teams,

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living out his fantasy career and mine. My follow-up book to *No Regrets Parenting* (Andrews McMeel Publishing, 2012) is called *940 Saturdays* (Random House, 2014); it was recently released and the next two are in the pipeline. Sara fixes leaks and does minor electrical in her property management business. She also navigates all the travel websites and freebie miles offers so we can afford to visit our kids. To see how gracefully I've aged, check out www.harleyrotbart.com."

Paul Skudder, MD '79: "The major news from my end is the birth of our first grandchild, Paul Gabriel Skudder, in Houston, TX, on March 22, 2014."

Jeff Wallis, MD '79, is enjoying his second year as president of the Citrus County Medical Society. He and his wife, Mary, invite all fellow Cornellians to visit the manatees and whooping cranes of the Nature Coast of Florida, recently highlighted in *National Geographic*. "We are proud to be surviving under Obamacare and recently agreed to keep the GI practice open at least another year."

1980s

Ann L. Engelland, MD '81: "I am now one of the full-time physicians in the student health service at Barnard College. I also had the honor this winter of being a preceptor for the Healer's Art course for first-year medical students at Einstein Med School. It's a great program that allows students to process the psychological and personal adjustments to the culture of medical education."

Steven Wexner, MD '82, is director of the Digestive Disease Center and chairman of the Department of Colorectal Surgery at Cleveland Clinic Florida, and has been awarded the SAGES Distinguished Service Award for 2014 by the Society of American Gastrointestinal and Endoscopic Surgeons for his significant, long-term educational, research, clinical, and technological contributions to the field of surgical endoscopy and the advancement of the mission of SAGES. SAGES is a leading surgical society representing a worldwide community of more than 7,000 surgeons. Dr. Wexner is the past president of the Society of American Gastrointestinal and Endoscopic Surgeons, the American Society of Colon and Rectal Surgeons, the American Board of Colon and Rectal Surgeons, the Florida Gastroenterologic Society, and the South Florida Chapter of the American College of Surgeons.

Benjamin Eng, MD '83, is completing 15 years at Pfizer Inc., currently as the lead for medical strategy and innovation in North America. In June he was scheduled to deploy on a four-month assignment in Indonesia as part of Pfizer's corporate responsibility initiatives. Ben will support a program to strengthen healthcare systems

in developing countries, with a specific aim to reduce maternal and neonatal mortality. The program is funded by the US Agency for International Development and implemented by a consortium of NGOs, with which Pfizer partners by providing visiting fellows with complementary skills to support the work.

Mary Nolan Hall, MD '83: "This has been a big year for me with a new job and a new national role. As of March 18, 2014, I am the senior vice president and chief academic officer of Carolinas HealthCare System in Charlotte, NC. I'm responsible for the 19 ACGME residency programs, the Colleges of Allied Health, and CME, and I'm the associate dean of the regional campus of the University of North Carolina School of Medicine. I was recently named president-elect of the Society of Teachers of Family Medicine. My husband, David Hall, continues as a practicing family physician. My daughter, Katherine, will graduate with her master's in education this year, and my son, Andrew, is in his junior year at Duke University. We take lots of great vacations."

Lawrence Robinson, MD '84: "I have taken on the position of COO for the faculty practice of the Albany Medical College. It was a great chance to grow those MBA skills, but, unfortunately, it meant I had to resign as chief of surgery at St. Peter's Hospital, where I will finish up my duties in September. I hope to see all of you at reunion this October. Enjoy the summer—personally, I hope to do more sailboat racing on Lake Champlain."

Scott Wolfe, MD '84: "I ran the New York City Marathon November 3, 2013. I'm president-elect of the New York Society for Surgery of the Hand, director of the Center for Brachial Plexus and Traumatic Nerve Injury, and editor-in-chief, *Green's Operative Hand Surgery*, Ed. VII. My wife, Missy, is the author of *Insubordinate Spirit: A True Story of Life and Loss in Earliest America 1610–1665*, historical nonfiction. Our 30th anniversary was this May. Our son Will matriculates at Georgetown Law School this year, daughter Liz graduated from William and Mary and will be a research associate at Hospital for Special Surgery Women's Sports Center, and son Chris graduated from the University of Richmond and is a marketing associate at Fortune."

Lisa Dixon, MD '85: "I am back in NYC after 23 years at the University of Maryland. I'm a professor of psychiatry at Columbia University Medical Center and director of the Center for Practice Innovations at the New York State Psychiatric Institute. I'm glad to be back."

Bruce Clurman, PhD '88, MD '89, has been named as the second recipient of the José Carreras/E. Donnell Thomas Endowed Chair for

'Just as I was beginning to bond to the title "emeritus," my wife texted me a picture of the Emeritus Nursing Home not far from where we live—a gentle reminder that when she married me 28 years ago, it was for better or worse, but not for lunch.'

Harley A. Rotbart,
MD '79



PANICO

Good call: Graduates backstage at Commencement

Cancer Research at the Fred Hutchinson Cancer Research Center in Seattle, WA. He is a full member in the divisions of clinical research and human biology at Fred Hutchinson, and a professor of medicine and pathology at the University of Washington School of Medicine. His research focuses on the cell cycle and ubiquitin-proteasome system in cancer, and his clinical practice remains centered on hematopoietic stem cell transplantation.

Suzanne Rothe Magherini, MD '88: "I am currently director of outpatient services in ob/gyn at Monmouth Medical Center in Long Branch, NJ, and an OB hospitalist at Christ Hospital in Jersey City."

Theresa Rohr-Kirchgraber, MD '88, and Paul Kirchgraber, MD '88: Theresa was elected president of the American Medical Women's Association and will serve her presidential year in 2015, the 100th anniversary of the organization. Please join in the celebration of both momentous occasions at the AMWA annual meeting in Chicago, April 2015. Listen for her on National Public Radio Sound Medicine as the health and wellness expert. Paul won the sales prize from Covance, which includes an all-expense-paid trip to Colombia. They will travel to Italy for their 25th wedding anniversary this year. Anyone interested in the Indy 500 this year, look them up.

Bill Bernstein, MD '89: "I have received the 2014 Saint Peter's Healthcare System

Excellence Award, 'in grateful appreciation and distinguished recognition of commitment to excellence and leadership in quality improvement efforts.' I am working as medical director of the Saint Peter's Pediatric Faculty Group, chief of the Division of General Pediatrics and Pediatric Education, and director of the pediatric residency program at the Children's Hospital at Saint Peter's University Hospital in New Brunswick, NJ."

1990s

Daniel B. Jones '86, MD '90, was elected president of the Association for Surgical Education and presented with the 2014 ASE Distinguished Master Educator Award. ASE meets next year in Seattle, April 23–25. Dan invites all ASE surgeons and ASE anesthesiologists to attend Education Week. The theme will be "Simulation."

Adam Dicker, PhD '91, MD '92: "I continue to chair a department and have a focus on prostate cancer and drug development, currently involved in a prostate SPOR application. I serve as co-chair of the translational science committee for the NCI cooperative group, NRG Oncology, which was recently awarded a U10 for an Integrated Translational Genoproteomics Center at Washington University. On a personal note, my daughter, Michal, recently got married to Josh Halpern. She was born during my ob/gyn clerkship (1991),

which got me out of presenting to the chair. We moved to Merion Station and welcome any students and alumni who are in the Philadelphia region to be in touch."

Abraham Leung, MD '91: "I'm pleased to announce that the manuscript describing the primary results from TH3RESA, a global Phase 3 study of T-DEM1 (a first-in-class antibody-drug conjugate successful against solid tumor), has been accepted for publication by *Lancet Oncology*. The manuscript was granted fast-track status. I am honored to be among the authors, having led this study as the Roche-Genentech medical director."

Jim Reichheld, MD '92: "All's well here in Concord, MA. Three teenagers are leaving Julia and me somewhere between busy and befuddled, but happy at the day's end. Work in Lowell is great overall, serving an incredibly diverse population with an array of clinical challenges. Meeting these needs at a second-to-none level of care has been the focus of our practice, which I share with two Weill Cornell alumni, **Geetanjali Akerkar '88, MD '93,** and **Win Travassos, MD '99.** Our 20th Reunion in NYC was really, really nice. We have the greatest class ever (and kinder, gentler, yes), and thanks to **Karin Berger Sadow '88, MD '92,** who led the way there for us all. I have been running again (sprint tri's and those dolt-laden mud races) and was just thinking this morning that it was 25 years ago that a bunch of us ran New York. Good days. Tom, Walt, Perry, and all in '92—plan ahead to make the 25th."

Geetanjali Akerkar '88, MD '93: "I live in Carlisle, MA, with my husband and three sons and am in practice with **Jim Reichheld, MD '92,** and **Win Travassos, MD '99.** I was chosen as one of 13 women nationally to participate in the American Gastroenterology Leadership Conference. I am looking forward to connecting with classmates at our 20th Reunion this October."

Jeff Kauffman, MD '93: "I am an orthopedic surgeon and recently relocated my practice (and family) to Franconia, NH, where I joined the Alpine Clinic."

Louise Greenspan, MD '95: "I have written a book for the lay audience called *The New Puberty*, which will be released in September."

Paul E. Li, MD '95: "I am practicing urology in Oakland, CA. My wife and daughter are healthy and happy. This summer I will be traveling to Ulan Baatar, Mongolia, to help in the conservation efforts for Lake Hovsgol, a major tourist destination and primary source of drinking water for more than

70 percent of Mongolians. We will ride dirt bikes over 1,000 miles from UB to the lake and donate our motorcycles to the rangers, who have been requesting them for years from the government to no avail."

Anne Fung, MD '99: "This has been a busy year. Our second child, Charlie, was born in August. Big sister Sophie is adjusting to the even higher level of activity at home. In March, I made a tough decision to leave full-time private retina practice and take a medical director position at Genentech—handling the investigator-sponsored trial program and continuing research with Lucentis. I continue to see patients on Fridays. The move has been a fascinating change of pace and culture, and I now understand what it means to have a full e-mail in-box."

Melissa Goldstein '94, MD '99, is a pediatrician and adoption medicine specialist at Carnegie Hill Pediatrics in New York City.

2000s

Michael S. Irwig, MD '00: "I co-authored an article in *Nature Reviews Urology* about modern-day eunuchs, men who desire voluntary surgical or chemical castration. I hope the medical community will become more aware of the hidden community and the ethical issues associated with castration."

C. Anthony Lim, MD '05: "While I'm still at my faculty position in pediatric emergency medicine at Jacobi Medical Center, the big news is from our family: we're looking to adopt a child and are pursuing a private adoption. Anyone who might know an expectant family considering adoption can contact us via KenAndAnthony.squarespace.com. We hope to be sharing good news in the upcoming issues."

Paul Menzel, MD '09: "I am completing a fellowship in the Department of Radiation Oncology at Stanford University. The fellowship will focus on brachytherapy and stereotactic body radiation therapy (SBRT) for prostate cancer."

2010s

Michael Day, MD '13: "Rachel Day, MD '13, and I had our daughter Penelope Olivia on December 23, 2013."

In Memoriam

'44, '46 MD—Louis A. Farchione of Syracuse, NY, April 3, 2014; director of clinical trials and medical services, Bristol Laboratories; pediatrician; commissioner of education, Syracuse City School Board; editor, county medical society bulletin; Eucharistic minister; skier; active in community, professional, and religious affairs.

'46 MD—George W. Wood of Orono, ME, March 27, 2014; physician; director, Cutler Health Center; former city councilman, Bangor, ME; trustee, University of Maine System; founding member, Maine Thoracic Society; veteran; addressed the GOP National Convention twice; active in civic, community, professional, and alumni affairs.

'47 MD—John J. Meyerdierks IV of Newport News, VA, February 23, 2013; general surgeon; chief of staff, House of the Good Samaritan Hospital; veteran; active in community affairs.

'52 MD—Peter J. Fennel Sr. of Las Vegas, NV, April 9, 2014; anesthesiologist; chairman of the anesthesia department at Valley Hospital and Desert Springs Hospital; in retirement, a part-time staff physician for 21st Century Oncology; veteran; owned a retail store catering to square and round dance needs; trained Boxers and Rottweilers.

'53 MD—William Grattan of Waterford, NY, February 15, 2014; pediatrician; Albany County health commissioner; chief medical officer, Seton Health; championed the preservation of the 1830 Hugh White Homestead; active in civic and community affairs.

'54 MD—Harold T. Brew of Somers, NY, February 6, 2011; chief of surgery, Northern Westchester Hospital; practiced surgery at Mt. Kisco Medical Group; veteran.

'54 MD—Nicholas M. Nelson of Topsham, ME, January 26, 2014; founding chairman of pediatrics, Penn State University College of Medicine, Hershey, PA; senior pediatrician and associate director, Laboratory for Neonatal Research, Boston Hospital for Women; fellow, Boston Lying-In Hospital; co-wrote a textbook on neonatology with his mentor, Dr. Clement Smith; veteran; author; editor.

'56, '60 MD—Elliot Goldstein of Davis, CA, March 31, 2014; professor and chief of infectious disease at UC Davis School of Medicine; professor and director of infectious disease at Kansas University Medical College; Fulbright research scholar in the Netherlands; Vietnam veteran; established the Susan & Elliot Goldstein Scholarship at Weill Cornell Medical College; active in alumni affairs.

'60 MD—Kenneth G. Swan of South Orange, NJ, March 22, 2014; general, trauma, vascular, and thoracic surgeon; professor of surgery, University of Medicine and Dentistry of New Jersey; US Army combat surgeon in Vietnam and Desert Storm; retired colonel; awarded the Bronze Star and the Legion of Merit; developed the Trauma Center in Newark, NJ; published more than 300 articles on trauma, shock, physiology, and medical history; active in professional and religious affairs; president of WCMC Alumni Association (2004–06).

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'Kampai!'

An epidemiologist raises his glass to *shochu*, a traditional Japanese spirit little known in the U.S.

On a Tuesday night in late February, the bar at the upscale Japanese bistro SakaMai is bathed in golden candlelight. Outside, the city is in the grip of one of the most miserable winters in recent memory. But here, a convivial happy hour crowd is enjoying the warming glow of fine spirits, along with tidbits like lotus root chips, truffle-infused snap peas, and shrimp dumplings.

Many are regulars, flocking to the Lower East Side nightspot because of the man behind the bar: Stephen Lyman, PhD. By day, Lyman is a busy epidemiologist—an associate professor of healthcare policy and research at Weill Cornell and director of the Healthcare Research Institute at Hospital for Special Surgery. But in his off hours, he's one of the country's foremost experts on a beverage that most Americans have never even heard of.

It's *shochu*, a distilled, low-alcohol spirit often referred to as Japanese vodka (though Lyman is quick to say that the nickname does it a disservice). Generally made from sweet potato, barley, or rice, it's ubiquitous in Japan, particularly on the island of Kyushu. Since Lyman encountered it in 2008 after happening into a Chelsea *izakaya*—a Japanese establishment popular for after-work drinks paired with food—he was hooked. “My friends and I went back almost every Tuesday for nearly a year,” he says. “I got more and more curious. As a scientist I like to investigate things, so I started to do research.” When he realized there was little English-language information available online, Lyman became a man on a mission. “You could say I have an obsessive personality,” he admits. “When I find something I’m interested in, I dive deep. I have a voracious appetite for knowledge. And once I discovered shochu, I wanted to share it.”

Lyman started a tasting-notes blog that evolved into a website, *kampai.us*, named for the traditional Japanese toast. Within three months of the site going live, he was featured on NHK, Japan's version of the BBC. “They called me ‘New York’s shochu expert,’ ” he recalls with a laugh. “That made me realize I needed to learn a lot



BETH SAULNIER

Shochu-ologist: Stephen Lyman, PhD, behind the bar at SakaMai

more about it. I didn't know anything.” So he went on a distillery tour of Kyushu—and has returned three more times since. He started studying Japanese. He acquired his regular Tuesday gig at SakaMai (7 to 9 p.m.), where he pours shochu and educates customers about its many forms and flavors. He was a finalist in a shochu-tasting contest, one of only eight entrants out of 1,000 who got a perfect score in the first round. (A measure of his prowess: he was eliminated at the same time as the sommelier for the vaunted sushi restaurant Nobu.)

Last year, Lyman interned at one of the smallest family-owned distilleries in Kyushu, learning to make shochu by hand. This fall he's going back to help his new-found family with their seasonal sweet potato shochu production. “Shochu is the best of both worlds,” he says. “It's distilled like a whiskey, but it has an alcohol content closer to beer or wine, so it has lighter flavors and aromas. It's just much easier to drink.”

— Beth Saulnier



Margaret and Ian Smith A Lasting Legacy at Weill Cornell

Margaret and Overseer Ian Smith wanted to make a gift that would have a lasting impact not only on the medical students at Weill Cornell, but also on the patients those students will one day treat. Their hope, to help students become more compassionate and sensitive physicians, was realized when the Smiths established the **Margaret and Ian Smith Clinical Skills Center** in 2007, in part through a planned gift.

The Margaret and Ian Smith Clinical Skills Center, endowed with a gift that included a bequest from the Smith's estate, is a state-of-the-art teaching facility that allows students to hone their clinical skills in a safe and controlled environment. The 10,500 square-foot facility, located in the Weill Greenberg Center, provides an opportunity for students to learn through simulated clinical scenarios, standardized "actor-patients," and high-tech mannequins that respond to procedures and treatments like real patients.

"It has been incredibly gratifying to see our gift play a central role in educating these future doctors," says Mr. Smith, co-chairman of the Lewis Atterbury Stimson Society, an elite group that recognizes those who have included Weill Cornell in their deferred giving.

"The beauty of planned giving is that you can give the Medical College the confidence to plan for tomorrow, while still having a significant impact today."

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