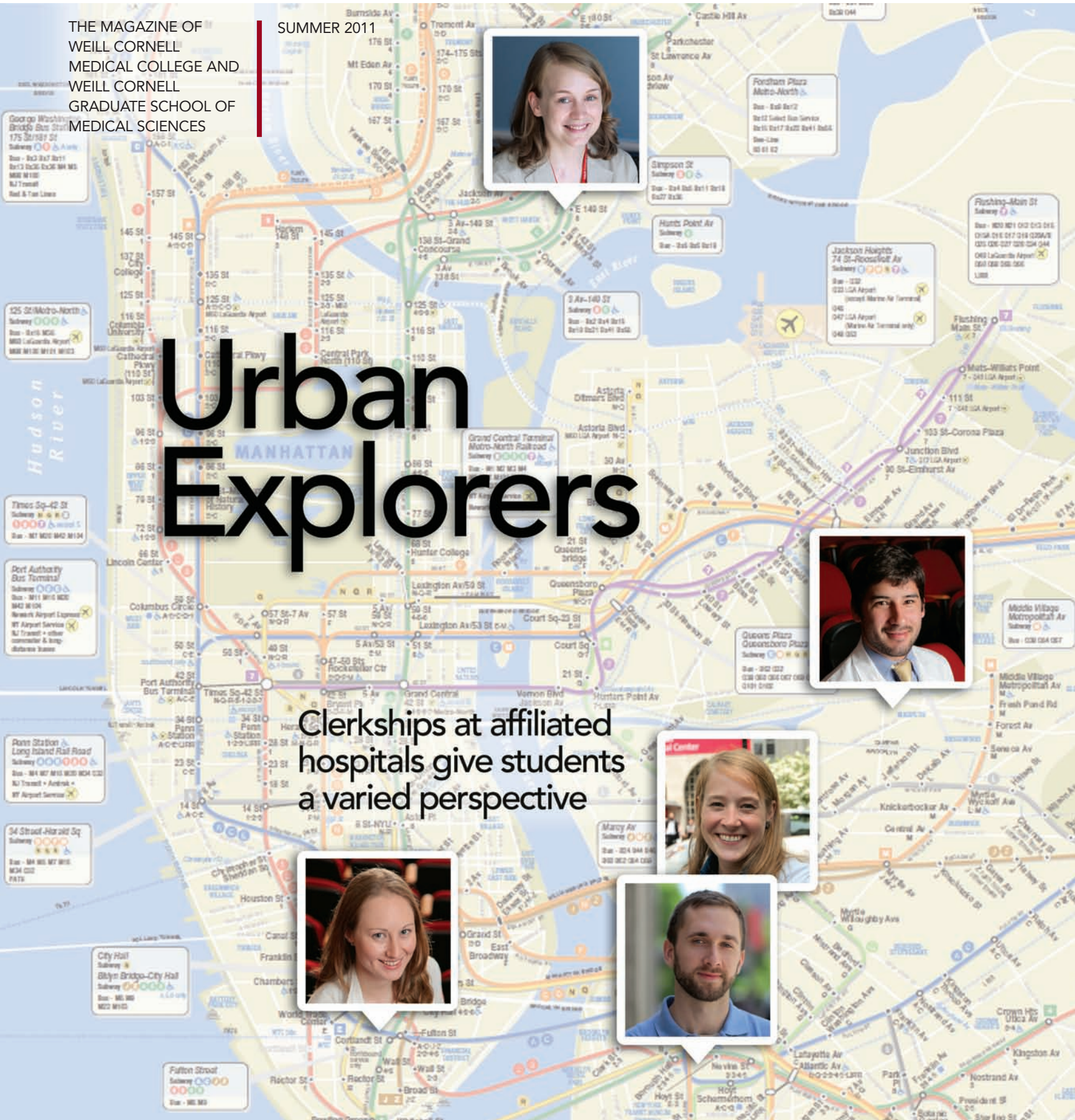
weillcornellmedicine

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

SUMMER 2011



Urban Explorers

Clerkships at affiliated hospitals give students a varied perspective

Research Leads to Cures

One Patient's Story–

How Science Led to a Happy Ending

When Shari Leventhal and her husband, Steve Kauderer, arrived for their first appointment with Orli Etingin, MD, they were not optimistic about what they might hear.

Shari Leventhal and Dr. Orli Etingin

After suffering three miscarriages caused by a recurrent blood clotting disorder and a long search for help, Ms. Leventhal had nearly given up hope that she and her husband would ever be able to have children of their own. But they decided to get yet one more medical opinion.

Now – four healthy children later – Ms. Leventhal still recalls vividly that very first day when she and her husband walked nervously into Dr. Etingin's office on 70th Street and York Avenue.

"Her demeanor was calming and reassuring, and she had considerable knowledge and expertise. She had had experience with patients who had difficult medical histories similar to mine," Ms. Leventhal recalls.

"And she didn't hesitate to reach out to scientists, other doctors – she knows exactly who to call. **Her connections and willingness to seek that kind of advice and collaboration on behalf of her patients is exceptional."**

For Dr. Etingin, Lisa and Sanford B. Ehrenkranz Professor in Women's Health and the director of Weill Cornell's Iris Cantor Women's Health Center, treating each patient successfully comes down to not just her own experience but also to the **"amazing teamwork" between scientists and physicians.** She routinely picks up the phone to reach Weill Cornell's top scientists in their laboratories and consult with them on behalf of a patient.

"Their research benefits my patients every day. They are the experts exploring new causes and treatments of medical conditions. And **by bringing that expertise to our patients, we're able to do a better job of treating them, taking care of them, and offering them cures,**" says Dr. Etingin.

"It is one of the most gratifying parts of my job," she says.

After seeing Ms. Leventhal and her husband, Dr. Etingin – whose own specialties are internal medicine and coagulation disorders – met with vascular biology scientists at Weill Cornell who are among the world leaders in this field.

Ms. Leventhal had a rare combination of blood disorders: her blood could clot too easily in certain circumstances, and she could bleed too easily in other situations because of a specific enzyme deficiency.

Based on Dr. Etingin's experience and the advice of other Weill Cornell specialists, the treatment included an innovative infusion of a clotting factor along with traditional anti-clotting medicine, all in careful coordination with the high-risk pregnancy team at Weill Cornell.

Now, 15 years after giving birth to her first child, Ms. Leventhal says her "whole family goes to Dr. Etingin. And my husband's whole family. We think she's phenomenal."

"In fact," says Ms. Leventhal, "we have found that **the whole physician-scientist interaction, and the expertise of doctors at Weill Cornell Medical Center is fantastic – second to none."**

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DEPARTMENTS

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Light Box

Pomp and circumstance: Graduates in Carnegie Hall for Commencement 2011. For more on the day's festivities, see page 8. AMELIA PANICO

Home of Exciting Breakthroughs

Capital Campaign Update

The **$225 million *Research Leads to Cures* Initiative** (See Scope announcement Page 9), a new phase in Weill Cornell's *Discoveries that Make a Difference* Campaign, will help Weill Cornell attract and retain some of the world's best and brightest scientists who are delivering breakthroughs like those described here. It will build the research programs in the new Medical Research Building that will speed therapies from the lab bench to the patient's bedside.

"As with everything we do at Weill Cornell, the *Research Leads to Cures* Initiative is at its core about people – **the people who make the discoveries, and the rest of us who benefit from their work** through improved health and quality of life."

Antonio M. Gotto, Jr., MD, DPhil
Stephen and Suzanne Weiss Dean
Weill Cornell Medical College

Rising on East 69th Street--Construction of the 5th and 6th floors of the new 480,000 square foot Medical Research Building, which will double our research space. When finished, it will be 14 stories high.

Hear more about the *Research Leads to Cures* Initiative.

Enjoy brief videos of our scientists telling the inside story behind their discoveries.

weill.cornell.edu/campaign/research

A Celebration!

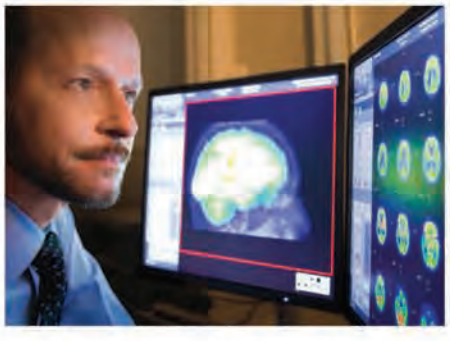
Weill Cornell Medical College is celebrating the dedication of the new Medical Research Building.

Wednesday, November 9th, 2011
413 East 69th Street, between York and First Avenues

RESEARCH AT WEILL CORNELL

CONSIDER ALL WE'VE DONE. THINK OF ALL WE CAN ACCOMPLISH.

- First indication of bone marrow's critical contribution to tumor growth
- Pioneering role in world's first **successful use of deep brain stimulation** to treat a minimally conscious brain-injured patient
- First successful **embryo-biopsy pregnancy** and birth in the U.S.
- Breakthrough in understanding **how neurons in the brain pass chemical signals to another cell,** which should prove useful for understanding the root of Alzheimer's and other diseases



- Pioneer in innovative surgery to **deliver cancer-fighting drugs directly into brain tumors** without exposing the rest of the brain to the drug and its side effects
- First to identify a key molecule involved in the metabolism of the tuberculosis bacterium that can prevent sustained infection
- Breakthrough research that reveals how blood vessel cells program themselves to grow adult stem cells, which has **potential application for regeneration of organs** and inhibition of cancer cell growth
- Pioneer in identifying how a protein transforms its shape to transport substances across cell membranes, which may help in **developing more targeted therapies** for anxiety, depression, schizophrenia, and substance abuse
- Among the **leaders in effective use of larger-than-life 3D imaging of cells,** blood vessels and organs to get a whole new look at disease genesis and progression from cancer to degenerative eye disease

"Scientists at Weill Cornell are on the trail of exciting breakthroughs."

David P. Hajjar, PhD, Dean of Weill Cornell Graduate School of Medical Sciences

Join us in advancing science at Weill Cornell. For more information, please contact Lucille Ferraro, Campaign Director, at 646-317-7387 or luf2003@med.cornell.edu.

From Day One, a Focus on Medicine's Human Side

Antonio M. Gotto Jr., MD, DPhil,
Dean of the Medical College

JOHN ABBOTT

Bedside manner: In the Clinical Skills Center, students get experience working with patients—who are actually trained actors.

A "humanism movement" is gaining momentum in medical education—a belief that by using art, music, and writing in our curricula and by increasing interaction with patients, educators train more empathetic clinicians. Earlier this summer, *Crain's New York Business* discussed the issue in the article "Med Schools Pump Up Empathy Training for Docs," which highlighted current initiatives by many schools, including Weill Cornell.

For well over a decade, the Medical College has led the way in putting a humanistic and empathetic approach to patient care at the center of our pedagogy. Fifteen years ago, the college revised many elements of its curriculum, and, as part of this change, our students encounter patients on their very first day. In their first week, they begin a series of three required courses entitled Medicine, Patients, and Society. In MPS1, first-year students visit doctors' offices with faculty and observe the doctor-patient interaction. They meet patients in class and visit them to learn firsthand how illnesses affect the way they live, how pediatric patients and their families cope at home and at school, and how geriatric patients lead active lives, debunking stereotypes.

In MPS2, second-year students discuss the controversies and ethical issues affecting research and clinical practice from birth to death. And in MPS3, third-years undertake a primary care clerkship, in which they pair with geriatricians and visit patients in their homes.

Fourth-year students take an intensive course on death and dying. They visit hospices and do rounds with pain and palliative care physicians—observing, keeping journals, and making critical evaluations of how physicians interact with dying patients and their families. Students learn the various ways that cultures throughout history have dealt with death and dying and what role pastoral care and religion play today.

Our students put these humanistic lessons to use immediately. Seven years ago, the student-run Weill Cornell Community Clinic—in which more than 70 percent of first-year students participate—began providing free health-care services to uninsured patients in the city. In 2007, Weill Cornell opened the 10,000-square-foot Margaret and Ian Smith Clinical Skills Center where students interact with patient-actors in realistic clinical settings; the sessions are recorded, reviewed, and discussed, and the actors give feedback.

To foster our students' long-standing interest in the arts, in 2009 we started the Music in Medicine Initiative in partnership with the Juilliard School, the 92nd Street Y, and Carnegie Hall. Noting the program's importance, Weill Cornell student Tiffany Peng '14 was quoted in the *Crain's* article: "If you remember the parts of yourself that make you what you are, independent of what you do [professionally], it helps you remember that patients are people independent of the boxes you put them in to understand their illnesses."

Music, art, and writing help hone the communication and observation skills required of good doctors. That is why, for many years, our students have not just taken one course about bedside manner and then returned to their "regular" classes in biochemistry or genetics—they learn a humanistic approach to medicine throughout their education.

Forging a Graduate School Community

David P. Hajjar, PhD,
Dean of the Graduate School of Medical Sciences

Building community among busy graduate students is a challenge that all schools confront. And creating a community at Weill Cornell Graduate School of Medical Sciences—where a unique partnership joins faculty from two institutions, Weill Cornell Medical College and the Sloan-Kettering Institute—presents some unique challenges.

To enter the Graduate School, our students apply directly to one of seven research programs, such as molecular biology or pharmacology. This organizational structure gives students the support of strong communities within their specific programs of study. Each program, for example, has its own recruitment process and an annual retreat, where faculty members and graduate students share their research while socializing away from campus. Our low student-to-faculty ratio further allows for close interaction between the professors and the students working in their labs.

Just as this programmatic structure helps to create close-knit groups, the Graduate School as a whole aims to bring all its students together into a wider community. One of the school's great strengths is that our students have the opportunity to work with faculty from a number of world-class institutions—not only the Medical College and the Sloan-Kettering Institute but also Hospital for Special Surgery. Even though we have faculty and labs spread across these institutions, we are one school, with an active and engaged student body.

The Graduate School provides centralized student infrastructure, including library services, a health service, and a student-faculty club. We subsidize tickets to sporting events, concerts, opera, and theatre, making it easier and more affordable for students to take part in New York City's rich cultural scene. We house students in residences spread across our institutional partners; a student who works in a Sloan-Kettering lab may live in a Cornell building, and vice versa. The physical proximity of our participating institutions, located within a few blocks of each other, creates a rich campus experience.

Students across all programs come together to volunteer for community outreach—for example, teaching science at underserved schools in the city. They provide their own leadership through the Graduate Student Executive Council; among other activities, it runs numerous clubs to help students relax with everything from a knitting club to weekend ski trips. Finally, and perhaps most important, our students work together to help recruit new students, taking an active role in our three-day on-campus interview process. In that way and many others, students and faculty foster the spirit of hard work, professional accomplishment, and strong personal connection that distinguishes Weill Cornell.

ABBOTT

Collegial atmosphere: Students in the Weill Cornell library

Commencements Celebrated on Two Continents

Oath of office: Graduates of the New York and Qatar campuses take the Hippocratic Oath in Carnegie Hall.

AMELIA PANICO

At Commencement in Carnegie Hall in May, President David Skorton, MD, conferred 274 degrees, including 124 MDs, sixty PhDs, and ninety master's. The MDs included thirty-one from the Qatar campus—its largest class ever—which had held its own commencement three weeks earlier. In his address, Skorton urged the graduates to carry a sense of empathy, inquiry, and engagement into their professional lives. "These qualities are exemplified by the teachers and mentors here at Weill Cornell and have been developed by you during your time here," he said. "And they will see you through the challenges and changes that lie ahead in all of your lives."

The Medical College student speaker was Jody Waldron, MD '11. Like Graduate School speaker Jason Gray, PhD '11, he emphasized that all the new degree-holders had ample help on their paths to the Carnegie Hall stage. "The only part of my speech today that I'll ask you to remember is this," Waldron said. "None of today's 200-plus graduates got here alone." Among the other speakers was Kathleen Scotto, MD, PhD '83, a professor of pharmacology and vice president of research at the University of Medicine and Dentistry of New Jersey, who received the Graduate School's Alumni Award of Distinction. "Doing what you love is not a job," she said. "It's a gift."

NYP President and CEO Named

After a national search, the NewYork-Presbyterian Hospital board of trustees has named successors to outgoing president and CEO Herbert Pardes, MD. As of early September, Steven Corwin, MD, will serve as chief executive officer and Robert Kelly, MD, as president. NYP's executive vice president and chief operating officer since 2005, Corwin is a cardiologist and internist; he is an adjunct associate professor of clinical medicine at Weill Cornell. Kelly, a professor of clinical anesthesiology at Weill Cornell, has served as group senior vice president, chief operating officer, and chief medical officer for NYP/Columbia since 2007. Pardes, who led NYP for more than a decade, will become executive vice chairman of the board.

Autism Expert to Lead Brain Institute


UNIVERSITY OF MICHIGAN

Catherine Lord, PhD

Leading autism authority Catherine Lord, PhD, has been named director of the new Institute for Brain Development. Located on NYP's Westchester campus in White Plains, the Institute—a center of excellence for evaluation and treatment of people with autism spectrum disorders and other developmental disorders—is scheduled to open in 2012. Lord, who comes to Weill Cornell from the Autism and Communication Disorders Center at the University of Michigan, has spearheaded the development of tools crucial to autism diagnosis, including the Autism Diagnostic Observation Schedule. "With growing numbers of children affected by autism spectrum disorders, there is an ever increasing need for a comprehensive program dedicated to providing the very best in diagnosis and treatment," said Herbert Pardes, MD, president and CEO of NewYork-Presbyterian Hospital. "There is no one better suited to lead this program than Dr. Catherine Lord."

The New York Center for Autism is collaborating with NYP to develop the Center and recruit key faculty like Dr. Lord. She will head a team of physician-faculty from Weill Cornell and Columbia in pediatrics, psychology, neurology, psychiatry, and other disciplines, as well as specialists in speech and occupational therapies. "My goal is nothing short of transforming the way autism is treated in the New York metro area and beyond," Lord says. "By integrating our services with community organizations and resources, the Institute will offer a wide variety of options, locations, and treatments for families and patients of all ages and needs."

Do Arts Cuts Harm Mental Health?

The role of arts programs in mental health was the subject of a June forum presented by the Cornell Council for the Arts that featured Weill Cornell faculty. Held at the New York Public Library for the Performing Arts, "The Arts + Mental Health: The Impact on the Human Spirit" included a discussion of how cuts in school arts funding can have detrimental effects on behavior and overall well-being. Speakers at the event, which was moderated by President David Skorton, MD, included Richard Kogan, MD, a psychiatrist, a concert pianist, and artistic director of the Weill Cornell Music and Medicine Initiative; Carlyle Miller, MD '75, a published poet and associate dean of student affairs and equal opportunity programs; and David Shapiro, MD, clinical professor of psychiatry and chairman of the Music and Medicine Initiative. "All sorts of behavioral and emotional problems follow the loss of arts programs," Kogan said. "It has an incalculable impact on mental health."

Research Initiative Vital to *Discoveries* Campaign

The *Research Leads to Cures* initiative—which focuses on the scientists and research programs that spearhead medical research leading to tomorrow's cures—marks a new phase in Weill Cornell's *Discoveries that Make a Difference* campaign. Its goal is to raise $225 million to support faculty recruitment for thirty new scientists and related programs in the new Medical Research Building.

Its launch, in April, was a critical step toward completion of the $1.3 billion *Discoveries* campaign. It comes as the new Medical Research Building is rising on East 69th Street, thanks to the generosity of our donors, including many alumni. To date, the overall campaign has raised $1.07 billion, including 106 individual gifts of $1 million or more. "At Weill Cornell, we are poised to take the next leap forward in health-care breakthroughs," says Dean Antonio Gotto, MD. "The *Research Leads to Cures* initiative will leverage these research strengths to speed breakthroughs from the laboratory to patients who are affected by some of today's most tenacious and prevalent diseases and disorders."

TIP OF THE CAP TO...

Olaf Andersen, MD, director of the Tri-Institutional MD-PhD Program, winner of Weill Cornell's Ballard Award for Mentorship.

Clyde Barker '54, MD '58, a surgery professor at the University of Pennsylvania, elected president of the American Philosophical Society.

Lawrence Casalino, MD, PhD, the Livingston Farrand Associate Professor of Public Health and chief of the Division of Outcomes and Effectiveness Research, whose work on policy recommendations for the British National Health Service was the subject of a June 2011 article in the *British Medical Journal*.

Stanley Goldsmith, MD, professor of radiology and medicine, elected to the scientific/medical advisory council of the Lymphatic Research Foundation.

Madhu Mazumdar, PhD, chief of the Division of Biostatistics and Epidemiology, named a fellow of the Hedwig van Ameringen Executive Leadership in Academic Medicine Program for Women, the nation's most prestigious program of its kind.

MD-PhD students **Jonathan Moreno** and **Suchit Patel**, past executive directors of the Weill Cornell Community Clinic, winners of the Ida Scudder Award for Service, named in honor of one of the Medical College's first female graduates.

NewYork-Presbyterian Hospital, which had the most top-rated doctors in the metro area—191—in *New York Magazine*'s 2011 "Best Doctors" survey.

Assistant professor of public health **Andrew Ryan, PhD**, whose article "Has Pay-for-Performance Decreased Access for Minority Patients?" was named best of 2010 by the journal *Health Services Research*.

Research professor of neuroscience in pediatrics **Susan Vannucci, PhD**, winner of a five-year, $6 million grant from the Fondation Leducq to study inflammatory modulation of neurovascular injury in newborns.

JOHN VECCHIOLLA

Walking tall: About 15,000 people attended a fundraising walk for Autism Speaks, held on the Westchester campus in June. The event raised more than $875,000 for autism awareness, advocacy, and research. Autism Speaks is supporting the new Institute for Brain Development, which is a collaboration among NewYork-Presbyterian Hospital, its affiliated medical schools, and the New York Center for Autism.

New Specialty Clinic for Pediatric OCD

NYP/Weill Cornell has opened a specialty clinic for pediatric patients with OCD, anxiety, and tic disorders. Led by pediatric psychologist Shannon Bennett, PhD, and psychiatrist Justin Mohatt, MD, the program provides relaxation training, cognitive and behavioral therapy, and exposure treatment for children and adolescents. This summer, the clinic also offered an intensive treatment program, modeled after a day camp, on the Westchester campus in White Plains. "Anxiety is a normal part of growing up, but when it interferes with school, friendships, or family life, we recommend that parents seek treatment for their child," Bennett says.

First Health IT Students Graduate

In June, the Health IT Certification Program graduated its first class of seventy-seven students. Run jointly by Weill Cornell and Columbia, it is one of nine of its kind in the nation and the only one in the Northeast. The six-month program combines distance learning and monthly in-person sessions to teach students how to solve problems, develop projects collaboratively, and receive feedback—preparing them for positions in such fields as health information management and software engineering. A job fair held after graduation attracted fourteen employers seeking to fill more than 150 positions.

Gotto Wins Lipid Association's Top Award

Dean Antonio Gotto, MD, has won the Distinguished Achievement Award from the National Lipid Association. The organization's highest honor, it recognizes his long-standing leadership in the field and his major contributions to the study of lipid therapy in cardiovascular disease. Gotto's main research focus is the study of clinical disorders of lipid transport and the structure, metabolism, and function of lipoproteins and apolipoproteins. He has led several landmark clinical trials that illustrate how cholesterol-reducing drugs can lower the risk of heart disease. Association president Michael Davidson, MD, praised Gotto, saying: "Tony's work in clinical lipidology has changed the way we practice medicine."

Psychologist Clarkin Wins Fulbright

PROVIDED BY JOHN CLARKIN

John Clarkin, PhD

Clinical professor of psychology in psychiatry John Clarkin, PhD, has won a Fulbright specialist grant in public/global health. On the Weill Cornell faculty since 1970, Clarkin currently co-directs Weill Cornell's Personality Disorders Institute. His previous positions include the directorship of the Payne-Whitney outpatient department and of the psychology department of the Payne-Whitney and Westchester Divisions. His primary research interest is the phenomenology of personality disorders and the treatment of patients with borderline personality disorder and bipolar disease.

Psychiatrist Arnold Cooper Dies

Arnold Cooper, MD, died of lung cancer on June 9. He was eighty-eight. The Stephen P. Tobin and Dr. Arnold M. Cooper Professor Emeritus in Consultation-Liaison Psychiatry, he was an internationally recognized leader in psychoanalytic theory. Cooper, who joined the Medical College faculty in 1974, was a past president of the American Psychoanalytic Association and vice president of the International Psychoanalytical Association. He served as North American editor of the *International Journal of Psychoanalysis* and deputy editor of the *American Journal of Psychiatry*. In 2005, more than 150 of his papers were published as a volume entitled *The Quiet Revolution in American Psychoanalysis*.

FROM THE BENCH

Blood Test Could Warn of Emphysema Danger

A simple blood test could detect the early development of emphysema well before symptoms emerge—and encourage smokers to quit before the disease progresses. "We know from other studies that smokers who learn from objective evidence that their health is in danger are much more likely to quit," says Ronald Crystal, MD, chief of the Division of Pulmonary and Critical Care Medicine. "That is the only thing that will help them avoid this deadly disorder." The new test, which could someday be offered as part of routine blood work during an annual physical, measures particles known as EMPs, which are shed by the capillaries surrounding the lungs' air sacs when damaged. "For smokers, this is the equivalent of a smoke detector sounding its alarm," says Crystal, the Bruce Webster Professor of Internal Medicine and chairman of the Department of Genetic Medicine. "Elevated levels of EMPs suggest their air sacs are being injured and it is time to act."

A 'Gas Pedal' for Brain Signals?

Biochemistry professor Timothy Ryan, PhD '89, has clocked the speed of brain signals—with unexpected results. In a study published in *Nature Neuroscience*, Ryan found that individual neurons always relay their neural messages at the same speed, regardless of the type of message. When he compared different neurons, he found that each brain cell was regulating the traffic at its synapse to travel at its own internally set rate. "It is as if the neuron is following orders from a cell-wide central gas pedal," Ryan says. Ryan's research—including other work with colleagues at Yale on the role of proteins in the formation of synaptic vesicles, recently published in *Neuron*—could point the way to therapeutic approaches to neurological disorders.

For MDs, a Tough Switch to Electronic Records

A study in the *Journal of General Internal Medicine* finds that electronic health record systems may improve patient care and safety, but making the change could prove to be difficult for some doctors. Senior author Rainu Kaushal, MD, and colleagues tracked the prescription errors of nineteen doctors at an ambulatory clinic before and after the switch from an older system to a newer one. "On the good side, we found that the new system was very effective at reducing certain types of prescribing errors, such as inappropriate abbreviation errors," says Kaushal, chief of the Division of Quality and Medical Informatics. But she cautions that "transitioning between systems, even among providers that are used to electronic health records, can be problematic." Forty percent of doctors surveyed reported being unsatisfied with implementation of the new system. Only one-third thought it was safer than the old one, and two-thirds said that the new system slowed drug orders and refills. The researchers plan to carry out a longer-term study that will evaluate prescription errors two years after the upgrade.

Teen Alcohol Consumption Tied to Computers

Teenagers who consume alcohol spend more time using computers for recreational purposes like social networking and downloading music than peers who do not drink, finds a study published in *Addictive Behaviors*. Assistant professor of public health Jennifer Epstein, PhD, led the study, which linked the non-school-related computer activities of 264 adolescents with their drinking habits. While the specific factors linking teenage drinking and computer use are not yet established, Epstein says, potential contributing factors include online exposure to peers who use alcohol.

A Breakthrough in Hep C

More than 3 million Americans have chronic hepatitis C virus (HCV) infection, which causes liver damage and even total organ failure. Since treatments to eradicate the virus often fail, many patients are left with few options beyond a liver transplant. But a new drug called telaprevir represents a breakthrough in the treatment of hepatitis C, according to an international team of investigators led by Ira Jacobson, MD, the Vincent Astor Distinguished Professor of Medicine and chief of the Division of Gastroenterology and Hepatology. The study, published in the *New England Journal of Medicine*, showed that telaprevir combined with standard HCV therapy cured the virus in 75 percent of patients—a 31 percent increase over standard treatment alone. According to Jacobson, telaprevir represents "a quantum leap forward into a new era of hepatitis C therapy."

Outpatient Safety Risks

Adverse events leading to patient injury or death may be just as common—and as severe—in outpatient settings as in hospitals. In a study published in the *Journal of the American Medical Association*, researchers led by Tara Bishop, MD '02, assistant professor of public health and medicine, found that about half of the almost 11,000 malpractice payments made in 2009 were on behalf of private doctors' offices and other outpatient organizations. They found that while mistakes in surgical procedures accounted for the majority of problems in hospitals, most negative outcomes in doctors' offices resulted from errors in diagnosis—possibly due to fragmentation of care. "Our findings may reflect a lack of coordination within and between doctors' offices," says Bishop. "For example, a primary care physician may refer a patient to a specialist—but the actual appointment may never happen." She notes that the advent of electronic record systems may help alleviate the problem.

Drug Combination Battles Aggressive Leukemia

Investigators at Weill Cornell and the University of California, San Francisco, have used a new pharmaceutical to combat a form of leukemia that was previously drug-resistant. The drug, RI-BPI, shows promise against acute lymphoblastic leukemia by neutralizing the transcription factor that makes cancer cells resistant to targeted treatment with the drug Gleevec. Their work, published in *Nature*, showed that the drug combination virtually shuts down the cancer in cell and animal studies. "From this study and from the others in my lab, I have become very impressed with how reliant tumor cells are on certain proteins for their survival," says co-senior investigator Ari Melnick, MD, associate professor of medicine and director of the Sackler Center for Biomedical and Physical Sciences. "If we can hit several of these brittle and dependent processes, we have the chance to eradicate cancer."

Date Palm Gender in DNA

Date farmers prize female plants—which bear fruit—over males, which serve only as pollinators. But since the palms' gender becomes clear only when seedlings begin to produce fruit, farmers had to wait five to eight years to identify which was which. "A simple and reliable way to distinguish between male and female seedlings has long been sought, not only for agricultural purposes but also to promote basic date palm studies," says Joel Malek, director of the genomics lab at Weill Cornell Medical College-Qatar. Now, work by Malek and his team may make it possible to identify date palm gender through the plant's genome. "Our evidence shows that the date palm employs an XY system of gender inheritance similar to that of humans," says Malek, senior author of a study published in *Nature Biotechnology*.

Baby Steps

After doctors told Dawn Flemming that her daughter was doomed to die at birth, a team of medical professionals collaborated on a daring procedure

Happy ending: Dawn Flemming and Jade

JOHN ABBOTT

When the sonogram technician said they needed to change rooms, Dawn Flemming assumed something was wrong with the machine. But when she entered the second, larger room and found another technician and a physician waiting, she began to grow concerned. As additional staff came in, looked at the screen, and left silently, her suspicions were confirmed. "I decided to wait and hear what the problem was before I started panicking," recalls Flemming, an ICU nurse at Kings County Hospital Center in Brooklyn who was then in the twenty-fourth week of pregnancy. If anything, she thought, perhaps there were missing limbs, fingers, or toes.

In the physician's office some minutes later, however, she received devastating news. The sonogram showed a large mass on the fetus's neck. Most likely a cervical teratoma, the benign, very rare lesion was occluding the airway. "She was sorry, but that meant that on delivery the baby would not survive," Flemming recalls the doctor saying. "It was a very dark moment."

She was offered two options: give birth to a daughter who would immediately suffocate, or go out of state for a late-term abortion. After asking questions and trying to parse the news, the Trinidad-born Flemming says, "those options were not acceptable to me, period." She wanted a second opinion. When the physician asked her where she'd like to be seen, "I thought for a second or two and decided that if there's any place I wanted to go, it would be NewYork-Presbyterian."

Three days later, Flemming and her husband, Jason, were at NYP/Weill Cornell's division of maternal-fetal medicine. There, Stephen Chasen, MD, associate professor of obstetrics and gynecology, and his team confirmed the findings with another

sonogram, ordered an MRI, and scheduled a meeting with the Flemmings for the following week. Then they assembled a group that included experts from pediatric otolaryngology, anesthesiology, radiology, and neonatal intensive care to determine the best plan of action. "I'm a pragmatic person," Flemming says. "I was not in denial. I understood that I may not get the results I wanted. But knowing that there was someone willing to fight along with me—that made all the difference."

The team proposed a procedure that had never before been done at NYP/Weill Cornell. Called EXIT (ex-utero intrapartum treatment), it involves a partial delivery so the baby remains on placental circulation—essentially using the mother as a heart-lung bypass machine—to give surgeons time to establish an airway. The team hoped to let the pregnancy progress to term without risking spontaneous labor or an emergency C-section. Says Flemming: "Delivery had to be in a controlled surgical setting for the baby to have even a chance of survival."

The team monitored fetal development and tumor growth with weekly sonograms. "There was the potential for this baby to get sick *in utero*," Chasen says. "Some of these masses are very vascular. They have a lot of blood flowing through them that can cause heart failure." Meanwhile, everyone prepared for delivery. For a procedure that would take about an hour from start to finish, the team spent many hours in consultation. They even rehearsed it. With a mannequin standing in for Flemming, the team blocked out the operating room, determining where the obstetricians, nurses, otolaryngologists, ultrasonographer, pediatric and maternal anesthesiologists, neonatologists, and neonatal nurses would stand. They prepared for exigencies: if, for example, otolaryngologist Vikash Modi, MD, couldn't establish the baby's airway orally, where would the tracheotomy tray and assisting team be waiting?

After a final MRI and a round of steroid shots to help the baby's lungs expand, Flemming, then almost thirty-four weeks pregnant, arrived for the birth on the Monday before Thanksgiving. "It was a bit disconcerting when I entered the surgical suite," she says. "I was warned, but I still wasn't prepared for the number of people that were in there." Amid the sea of scrubs—more than forty people were in the O.R.—she found Chasen's eyes above his mask and smiled. He asked if she was prepared to go ahead. "Yes, I'm ready," she said.

The C-section differed from standard procedure in a number of ways: the incision was larger so as not to risk rupturing the tumor upon delivery; the uterus was opened with a stapling tool, rather than scissors, to minimize blood loss; and the mother was under general anesthesia and given drugs to keep the uterine muscle from contracting—all of which elevated the risk of hemorrhage. Chasen and his team removed the baby from the chest up, bringing out an arm to attach a pulse oximeter. The rest of her body remained in the womb, and the obstetricians continued to monitor her heart rate by ultrasound, as Modi began to establish an airway. After he successfully inserted an armored endotracheal tube, which could withstand pressure from the tumor, the delivery resumed.

When Flemming woke up, she learned that her daughter, whom the couple named Jade, was alive and doing well. Five days later, Modi and Robert Ward, MD '81, chief of the Section of Pediatric Otolaryngology, removed the mass, which was nearly the size of her face and comprised 20 percent of her body weight. "We were fortunate that the tumor had a nice capsule," Modi says, "which allowed for a clean dissection off the carotid and jugular vein." After two months in the hospital, Jade was discharged, joining her teenage sister and toddler brother at home in South Ozone Park, Queens.

— Andrea Crawford

PROVIDED

Blocked airway: Dawn Flemming's fetus was diagnosed with a large, deadly neck mass.

Standing Out

In a new book of student essays from the Qatar campus, Nadia Merchant, MD '11, describes her efforts to overcome the challenges of dwarfism

In April, the Qatar campus published the second volume of Qira'at (Readings)*, a collection of essays by recent premed and medical students. Chosen by a panel of faculty judges from Qatar and Ithaca, the essays cover topics from poetry and literature to medical issues such as Munchausen syndrome and the ethics of HIV testing without consent. The top prize went to Tasnim Kalife, MD '10, for "A Scrutiny: The Role of the Face on Identity"; Kalife also won first prize in the 2008 contest for an essay on Albert Camus's novel* The Plague.

"Both premedical and medical students write throughout their careers at WCMC-Q," Alan Weber, an assistant professor of English, notes in his introduction to Qira'at. *"As premedical students, they study two semesters of literature and humanities in their first-year writing seminars in order to develop their sensitivity to the hopes, fears, and dreams of their future patients. Students also learn—through poetry, history, literature, and drama—about other cultures. This cultural and interpersonal sensitivity creates physicians who can not only accurately diagnose disease, but who can also serve as consolers, counselors, and comforters to those who must face the uncertainty, fear, and doubt of trauma and illness."*

Among the thirty essays in the new edition is "Standing Out" by Nadia Merchant, MD '11. An American of Pakistani and Indian descent, Merchant describes the challenges of growing up, and pursuing medicine, as a person with a rare genetic disorder that limited her height to three-foot-six.

Nadia Merchant, MD '11

JOHN SAMPLES

I repeatedly told my parents that my fifth birthday present should miraculously make me "normal." This wish was impossible to fulfill; hence, the morning of my fifth birthday became a memorable event—I cried for hours in front of the mirror complaining about the hardships in my life as a five-year-old. As a little girl, I cried over and over again when adults pointed at me in the supermarket and my classmates teased me about being a "dwarf," "midget," or "pygmy." Often, I would be upset due to not being able to play basketball on the ten-foot hoop, ride roller coasters at Six Flags theme parks, or reach the monkey bars at the park behind our home in Sugar Land, Texas. Overcoming the challenge of short stature did not come easily for me as a child.

Due to my rare recessive genetic disorder of acromesomelic dysplasia, medicine seemed to be an impossible field. Can you imagine a doctor who is the height of a five-year-old operating on a patient? Would you trust a lady that stands upright to be only three-foot-six? These questions reverberated in my mind as I searched for a profession. I sought an occupation that would allow me to help people with medical conditions that require willpower to live a normal, satisfying life. When the time came to decide my field of interest, I considered fields such as social worker, special education teacher, or genetic researcher for treatment of disorders. These professions seemed to have less challenging obstacles along the way. But in spite of the numerous options, I continued to believe that my field of passion—medicine—is attainable.

As a "typical American sixteen-year-old," I achieved the impossible by driving a car with pedal extensions while living in Houston, Texas; Saudi Arabia; and now in Doha, Qatar. When attempting to obtain a Qatari driving license, the Qatari Traffic Department hesitated even though I had an American license. After visiting several physicians, making a case to the chief physician by showing proof of my capabil-

ity to drive with my genetic condition, and taking a driving test, I proved I am capable of driving safely on the streets of Doha. Nevertheless, people still stare at me with bewilderment as I drive away from the parking lot at the local mall.

Incidents similar to these have nurtured my optimistic attitude: "I can do anything possible by making certain arrangements." When I decided to start the premedical program at Cornell, I prepared myself for beginning a road with unanticipated obstacles in new surroundings. In the beginning, professors and lab technicians were worried about my maneuvering in lab, but they realized that I was quite independent except for not being able to reach certain chemicals and equipment in the lab on my own. To ensure that I operate comfortably and safely, I make accommodations by placing stools all around the lab, and I ask for assistance whenever needed without hesitation.

Even after beginning at Weill Cornell, I still needed to make sure that patients interacting with me would feel comfortable. Since much of the practice of medicine relies on the patient's trust in the physician's diagnosis and treatment, a person of extremely short stature might well feel challenged to earn the trust of patients. However, after observing a pediatric geneticist while he was visiting patients at Texas Children's Hospital, I felt confident that I would be comfortable treating patients in the hospital environment. At the hospital, the only assistance I needed was a stool to reach the bed while the doctor was explaining and showing to me the patient's condition. Moreover, patients were not reluctant to have me observe and question them. Thus, I believe I will have the capability to operate and diagnose patients by simply making arrangements.

Because I am faced with little obstacles every day, such as reaching the light switch or the vending machine, I have learned to deal with situations gracefully. Hence, I have acquired a level of confidence that overrides my physical challenge. Thus, working with patients in the future should be no different. This has allowed me to strive to achieve beyond my expectations, and often to amaze myself. I believe patients will overcome their biases and trust me for my skills.

— Nadia Merchant, MD '11

On the paint: A BBIG game in Olin gym

ABBOTT

Hoop Dreams

For students looking to get some exercise and blow off steam, the Basketball Interest Group is a slam dunk

You'll find them in the Olin gym most Tuesday and Sunday nights: ten to twenty medical and graduate students, sweating and guarding and dribbling their way through two raucous hours of pickup basketball. "It's the best way to take a break and relax," says fourth-year med student and avid hoopster Ray Wu. "It's a pretty high level of play for medical school, for sure. People try hard and get a good workout."

The group is called BBIG, for Basketball Interest Group. Members play four-on-four, to seven baskets—which can make for quick, intense games. "If you win, your team gets to play the next one—whereas if you lose, you may have to wait an hour or more to play again," says Wu, who earned an engineering degree from the Ithaca campus in 2006 and an MBA this spring. "So it ends up being pretty competitive."

The group is open to students at all skill levels; only a few have played high school or college ball. "There are players who have more experience, players who are bigger and faster, but the good thing about it is everyone tries hard," says Wu, who captained Cornell's varsity tennis team as an undergrad. "The games are short and the court is a little smaller than regulation, so anything can happen." While BBIG is officially co-ed, organizers say, most players are male. "We do have some girls come out, not all that frequently," says BBIG president Joshua Halpern '12, "but when they do, more often than not, they're better than the guys."

Halpern discovered BBIG his first week of medical school, and he's been playing regularly ever since. "It's a good way to get some exercise," he says. "Things can get a little heated, but at the end of the day everybody realizes this is not the NBA." He and Wu, who helps organize the games, praise BBIG not only as an escape from school but a way to enrich it. "To excel and ultimately be a good doctor, you need to be physically and mentally fit," Halpern says. "Running around keeps you in shape, and letting your mind go and unwind lets you focus when you need to."

Halpern stresses that while members play to win, BBIG is a casual affair; there's no referee, no uniform jerseys, not even "shirts and skins" to denote who's who. "We figure if we're smart enough to have gotten into medical school," Halpern says, "we can remember who's on our team."

— Beth Saulnier

Line of Defense

A biotech company recruits human DNA in the battle against viruses

Inner space: A macrophage capturing a virus coated in antibodies

PROVIDED BY ZIRUS

PROVIDED BY DON RUBIN, MD

Don Rubin, MD '74

As a fellow in infectious disease at Harvard three decades ago, Don Rubin, MD '74, was studying how viruses make people sick when he hit upon a bold idea. Rather than directly attack a virus by altering some aspect that it needs to cause infection, could scientists harness a human cell's own DNA to prevent the pathogen from ever taking hold?

It was the late Seventies, long before scientists had mapped the human genome. While viruses contain only a handful of genes, each human cell has 25,000. Trying to find the genes that might stave off infection seemed daunting, but Rubin couldn't let go of his theory. "You can imagine that if you mutate a human gene to interfere with the way in which these pathogens create a toxic environment, you potentially have come up with a therapy by design," says Rubin, now a professor of medicine and microbiology at Vanderbilt University and chief of research at the affiliated VA Medical Center.

Fast forward to today. Rubin's fourteen-year-old business, Zirus, has patented a technology called "gene trapping" that locates spots in a human cell's genetic code that a pathogen needs to integrate its own genetic material and reproduce. Headquartered in Buford, Georgia, Zirus has patented about 600 of those areas, based on the relationship they have with a given pathogen or toxin. Among them are pathways—called cellular targets because they indicate where and how drugs might be developed to immobilize a disease-causing agent—that HIV, Ebola, and flu all use to invade human cells. "Hopefully," says Rubin, who founded the company and is an executive board member, "this notion that the host could indeed provide durable targets for virus infection is an idea whose time has come."

The dominant way of developing antiviral drugs—by trying to interfere with the activity of virus-made proteins—too often allows pathogens to mutate and become resistant to those therapies. Drugs such as oseltamivir (Tamiflu), for example, have become less effective against influenza. "If you're designing a therapy aimed at a virus-encoded protein, those proteins can have a fair amount of mutation," Rubin says, "so the drugs that you design might have a limited lifespan." But drugs that instead interact with the cellular proteins and non-coding RNAs that a virus needs to successfully produce an infection would, in theory, be less likely to stop working.

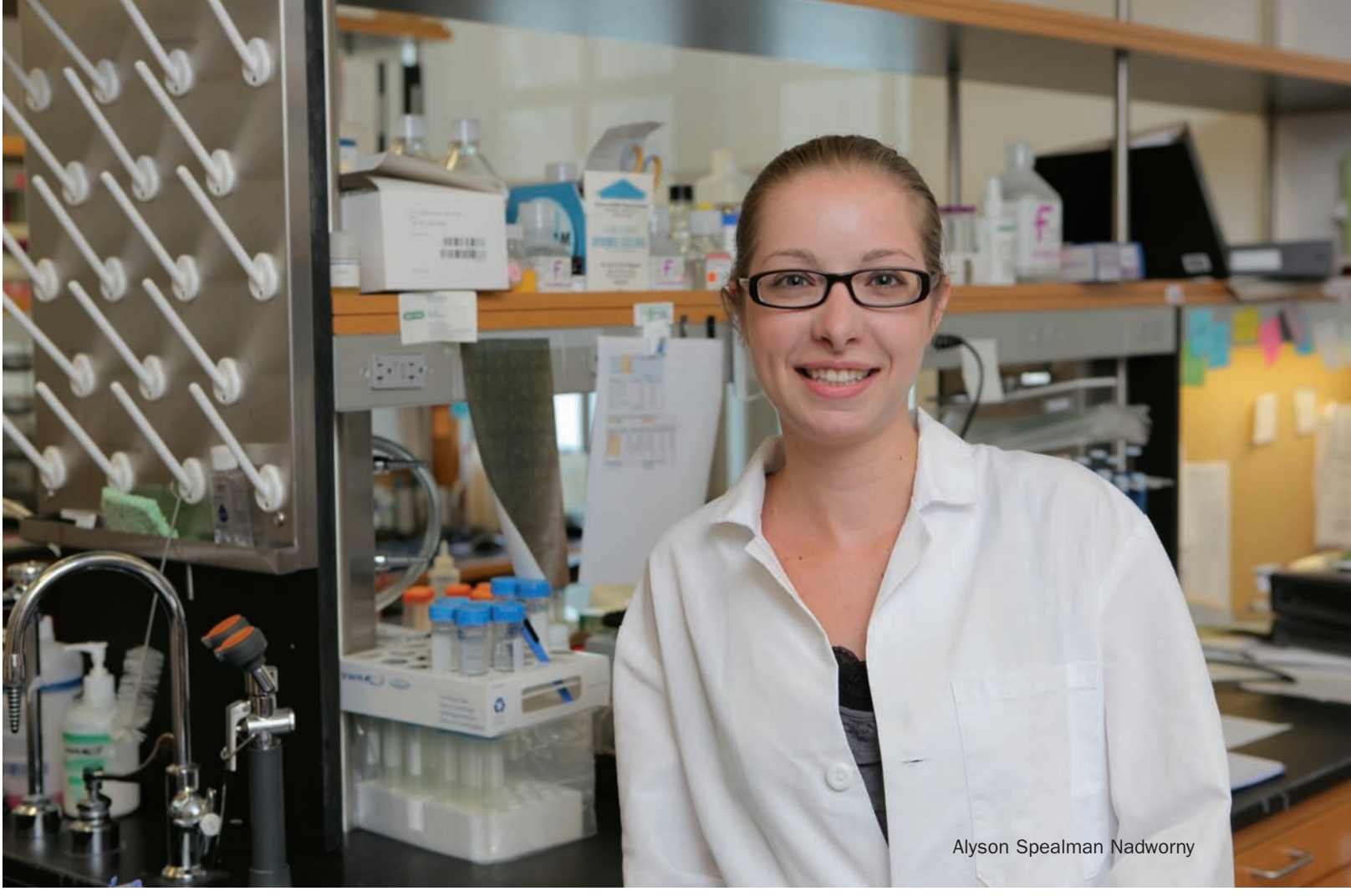
A virus makes us sick when it commandeers a cell's machinery and exploits it so that it can replicate and infect more cells. Certain genes inside a cell need to be "turned on" or "off" for a virus to take hold of it. "Wouldn't it be wonderful if we actually understood which cellular genes participate in virus infections," Rubin says, "and if these could be modified or adapted to serve as the sites for new, targeted therapies?" Conceivably, he says, such drugs would present a defense that viruses are incapable of working around.

Maraviroc, an HIV drug manufactured by Pfizer and sold as Selzentry, proves that this concept works. Maraviroc is based on the idea that inhibiting a protein called CCR5 prevents HIV from entering cells. Zirus, too, has identified between twenty and thirty drug candidates for influenza A, rhinovirus, hepatitis C, respiratory syncytial virus, and HIV. None has been tested in humans, Rubin says, though some have undergone animal testing. While there is concern that drugs that "knock out" cellular genes might make people sick, Rubin notes that experiments in the Eighties showed that secondary pathways allow cells to survive a knockout. Zirus is identifying areas of the cell's genome that the cell doesn't need to survive, and, Rubin says, "are less likely to cause harm if temporarily blocked with antiviral drugs."

The fact that Zirus has discovered that HIV, Ebola, and flu use some of the same pathways inside human cells to cause infection is especially exciting, he adds, because it raises the possibility that scientists could develop drugs that treat all three. It also suggests that such broad-spectrum medications could be used even when doctors are unsure of exactly what kind of pathogen—even a bioweapon—is causing illness. "You could generate broad, reactive therapies that would be useful even if the person's immunity was knocked out," Rubin says.

Zirus has collaborated with the National Institutes of Health, Vanderbilt University, New York University, Emory University, the University of Virginia, and the University of Texas Medical Branch on drug discovery research for influenza A, HIV, and hepatitis C. But its scientists are mostly working solo at the company's headquarters about an hour northeast of Atlanta. "My hope is that we end up being wildly successful in finding some good drug candidates that allow humans to live better," he says, "and that we actually make a difference in terms of human disease."

— Jordan Lite



Alyson Spealman Nadworny

ABBOTT

Personal Growth

Under the mentorship of Medical and Veterinary faculty, graduate student Alyson Spealman Nadworny explores the potential for regenerating heart muscle

An injured starfish can grow new rays to replace those it has lost. A lizard will sprout a fresh tail if its original is removed, while larval salamanders can generate new eyeballs. But mammals don't fare so well in the realm of regeneration—especially in matters of the heart.

When a heart attack blocks blood flow and oxygenation to portions of the organ, the starved cells ultimately die. Absent the capacity to produce fully functioning replacement parts, our bodies substitute inelastic scar tissue. The heart compensates for the scar's constrained pumping capacity with a host of structural changes that boost the risk of future myocardial infarctions—responsible for one in every six deaths in the U.S.

Doctors currently have one treatment option to compensate for the muscle damage associated with a myocardial infarction: transplant a new heart. Graduate student Alyson Spealman Nadworny has dedicated her training to investigating an alternative approach, one that seeks to duplicate the stem cell potential observed in the developing mammalian heart.

In 2010, the American Heart Association saw

'She can take a problem and break it into components and work through them systematically. That skill, combined with her intellect, is very powerful.'

sufficient promise in the work to award Nadworny a two-year $44,000 fellowship to fund her studies under the mentorship of Robin Davisson, PhD, who holds professorships in cell and developmental biology at Weill Cornell and in biomedical sciences at the Veterinary College in Ithaca, and Michael Kotlikoff, DVM, PhD, professor of biomedical sciences and dean of the Veterinary College. "We're trying to understand the mechanisms at work in the cells at the molecular level, so that other people—or even us in the future—can design drugs or therapies that target the things that we find are going wrong," says Nadworny, who expects to finish her doctorate this winter.

Early in the course of fetal development, embryonic cells differentiate to produce, among other varieties, cardiac progenitor cells. Later, those progenitor cells further differentiate into the three types that populate the mature organ: smooth muscle, endothelial, and cardiac. Shortly after birth, progenitor cells in the mammalian heart rapidly decline and can no longer support significant regeneration after injury. Nadworny has focused her investigations on the genetic switches and molecular signals that control the process of differentiation, with an eye to future therapies in which the genetic status of cardiac progenitor cells can be recovered. "It's amazing that we have the potential to figure out how these progenitor cells become the different lineages in the heart," says Nadworny. "If we can understand those pathways, we can offer some pretty amazing cures for people who have suffered a heart attack."

As an undergraduate at the College of William and Mary in Virginia, Nadworny expected to pursue a career in medical sociology. But when a family member introduced her to basic science, she had a change of heart. At William and Mary, she had focused on refining her ability to design and conduct an experiment as a research assistant in cognitive psychology, leaving her with very little molecular biology experience. "When I came to Cornell, I had never used a pipette or centrifuge," she says. "They were foreign to me." Most grad school admission committees were skeptical of Nadworny's plans given her lack of lab experience, but Kotlikoff invited her to join his research group. "We can teach someone lab skills," he says, "but it's hard to teach motivation—that was the key thing. Aly is very enthusiastic, and she's always exquisitely prepared. She looks at things not just from the focus of her own experiments, but also sees the big picture and integrates that into what she's doing."

The infinite possibilities for investigation in the life sciences can make meandering among research questions a constant temptation, says Davisson. Yet Nadworny's mentor notes that she possesses both extraordinary organizational skills and a great capacity to focus. "She's practical about what tools she has at her disposal, what the goals are, and how she's going to bring those tools to bear on the problem at hand," says Davisson. "She can take a problem, a project, or a set of experiments and break it into components and work through them systematically in an organized way. That skill, combined with her intellect, is very powerful."

Davisson credits that drive and intellectual firepower with keeping Nadworny at Cornell. Two years into her program, Nadworny was torn between continuing her studies in Ithaca and sharing a home in Manhattan with her fiancé, then a law student at NYU. Davisson, who has research groups at both the Medical and Veterinary colleges, had a long-standing research collaboration with Kotlikoff. Nadworny approached the two about moving her home base to Manhattan, under Davisson's tutelage. "Aly is a very talented student who wanted to balance her work life and her personal life," says Davisson, who has made promoting work-life balance and mentoring women scientists cornerstones of her service to the University. "When she came to me, I said, 'We're going to do whatever we can to make this happen.'"

Nadworny works on both campuses under Cornell's Graduate Linkage Program, which facilitates the mentorship and research training of graduate students whose mentors have collaborations that span Ithaca and Manhattan. Typically, students spend only a few months at a time away from their home base, working briefly in a lab on the other campus. Nadworny has blazed a trail with her extended stay, working out a range of bureaucratic kinks in the process. She remains enrolled in Ithaca, but spends the bulk of her time at Weill Cornell. Since Davisson splits her time between the campuses, Nadworny submits regular progress reports by e-mail and participates in Davisson's twice-weekly research group teleconferences; she also attends meetings of the research group overseen by Weill Cornell professor of cell and developmental biology Heidi Stuhlmann, PhD. "It's definitely not the normal graduate student situation," says Nadworny. "Robin and Mike would never let me flounder, but I didn't know I was capable of becoming such an independent scientist."

— Sharon Tregaskis

Field Goal

With support from the NFL, a Cornell team tackles back pain in former players—and millions of others

Roger Härtl, MD, is team neurosurgeon for the New York Giants; biomedical engineer Larry Bonassar, PhD, is a devoted New York Jets fan. Still, the two have managed to overcome their team loyalties to collaborate on research that offers hope for the many former pro football players—and millions of other Americans—who suffer from chronic back or neck pain.

With funding that includes a $100,000 grant from NFL Charities, the two are working to develop a bioengineered intervertebral disc to replace those lost to degeneration or herniation from natural aging, seasons on the gridiron, or other factors like obesity or years of manual labor. "This is a common problem among the general population," says Bonassar, an associate professor of biomechanical engineering and mechanical and aerospace engineering on the Ithaca campus. "It's either the leading cause of disability in the country or the second, depending on what statistics you read. It has huge societal impact, hundreds of millions of dollars in treatment costs. And there aren't really any good replacements for degenerated discs that enable long-term motion of the spine."

Most patients with chronic back or neck problems—an estimated 40 to 60 percent of Americans in any given year—are currently treated with pain medication or physical therapy. "That works well in the majority of patients," says Härtl, co-director of the Spine Center at NYP/Weill Cornell and the Leonard and Fleur Harlan Clinical Scholar and associate professor of neurological surgery at the Medical College. "However, about 5 to 10 percent of patients over their lifetime will need more invasive procedures, such as injections or even surgery."

For patients who require surgery, the current options are less than ideal. The most common procedure is spinal fusion, in which a damaged disc is removed and bone is fused into the resulting gap. "We're doing a lot of fusion surgery in patients with degenerative disease," Härtl says, "but there is a high complication rate and a lot of insurance companies don't pay for it anymore, because they feel that the risks are too high, patients don't do that well, and they have problems with discs above and below the point of fusion." While artificial discs made of metal and plastic are available, he says, they can cause damage to adjacent tissue and their longevity is unclear. "If we had better ways of treatment," he says, "there is no doubt in my mind that patients and surgeons alike would choose them."

In an ongoing collaboration—which was sparked by a University-sponsored retreat that brought Weill Cornell surgeons to Ithaca to meet with potential research partners—the two are developing bioengineered discs that have already shown promise in a rat model. Generated from cells harvested from the spines of sheep raised at Cornell for food, the implants (like normal intervertebral discs) consist of two parts: a soft inner nucleus whose consistency resembles Jell-O and a harder outer annulus made of collagen. Bonassar compares the construction to a steel-belted radial. "Air in the tire gets pressurized, and it pulls on the rubber and the steel belts on the outside, transferring that pressure into stress on the solid part of the tire," he explains. "The disc works the same way: when you stand up, when you load your spine, the nucleus pressurizes and pulls on the annulus."

After the discs—which, in rats, measure about 3mm in diameter—are grown in Bonassar's lab under precise conditions of temperature, pressure, and pH, one of his graduate students loads them into a cooler and delivers them to Härtl via

PROVIDED BY ROGER HÄRTL, MD

Back trouble: Degenerated and herniated discs, like the one seen at the bottom of this image, are a major cause of pain—and require health-care expenditures in the hundreds of millions of dollars.

Cornell's Campus-to-Campus bus. The students have had the chance to observe the implantations, offering what Bonassar calls vital insights into the real-world applications of biomedical devices. "One of the critical challenges for biomedical engineers is we often have what we think are great ideas that are interesting technologically, but they end up being completely impractical," he says. "There's no question that our current design of this implant and how we deploy it absolutely has been shaped by Dr. Härtl's experience in the OR."

So far, the team has implanted the devices into more than 150 rats and followed their progress via MRI scans, histology, and biomechanical testing. "All the data looks exciting," Härtl says. "The histology shows that the discs are viable even after ten months, and they integrate with the bone above and below. Biomechanically, if you compare the bone above and below to a healthy segment, it's exactly the same. In terms of mechanical stability and range of motion it's very similar to normal, and the MRI scans look very similar to normal scans."

The next step, the researchers say, will be to test the technology in a larger animal model. With colleagues in the College of Veterinary Medicine, they hope to use the implants to treat dogs, such as beagles and dachshunds, that commonly suffer from spontaneous disc degeneration. If all goes well in continued animal testing, Bonassar says, the discs could move to human use in as little as five years, though a decade is likely more realistic. In addition to treating spinal damage, the technology could be adapted to other parts of the body such as the meniscus of the knee. Says Bonassar: "This has been a great example of how engineers and surgeons can put their heads together and make something happen."

The work is of particular interest to the NFL, the researchers say, because the nature of the game means that players often suffer disc damage over the long term. Their disc isn't intended to treat acute injuries—which often have more extensive physical consequences—but rather the degeneration that accrues from normal play. "Players have gotten bigger and faster," Bonassar notes, "and energy goes as mass times velocity squared." As the Giants' team neurosurgeon, Härtl has watched those physics come to life from the sidelines. "I see what tremendous physical impact the players are exposed to when they collide," says Härtl, whose duties have included developing post-injury protocols for removing protective equipment, assessing concussion, and returning to play. "The forces involved are amazing."

For Bonassar, such issues inevitably come to mind as he's enjoying a Sunday afternoon game on TV. "We've all seen collisions on the football field where we hold our breath and hope the player can walk away and everything's fine," he says. "But 'everything's fine' means he can walk away then; what is that person going to be like in twenty years? I'm still rooting for the Jets—but I'm absolutely thinking about this."

— Beth Saulnier

Heal Thyself

In books, lectures, and decades of practice, a surgeon explores the mind-body connection

Bernie Siegel, MD '57, was well into his second decade as a clinical assistant professor of surgery at Yale when he stumbled across the conference announcement that would transform his career. Hosted by radiation-oncologist O. Carl Simonton, MD, the event promised insights into new ways to promote healing among cancer patients such as the use of guided imagery, a meditation technique that employs vivid daydreams. When he arrived, Siegel was stunned to discover that of 125 participants, he was the only doctor. Other than two psychotherapists, everyone else was a cancer patient, many of them people Siegel was treating. During a break in the program, one pulled up a chair beside her physician. "You're a nice guy," she told him, "and I feel better when I'm in the office. But I can't take you home with me, and I need to learn how to live between office visits."

In the intervening thirty-five years, Siegel has devoted his career to addressing her plea. Soon after the conference, he sent a letter to 100 of his cancer patients, inviting them to a meeting at which he promised to reveal how they could live healthier lives. The twelve women who showed up became the first members of Exceptional Cancer Patients (ECaP), a program Siegel developed using the insights he'd gained at Simonton's conference, which incorporates dream analysis and group therapy to promote self-healing and stress reduction. "When people begin to enjoy life and feel empowered," he says, "they don't die when they're supposed to."

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Bernie Siegel, MD '57

Over time, ECaP picked up momentum and Siegel hit the lecture circuit, describing how honoring the mind-body connection can improve quality of life. "You can't separate your life from your health," says Siegel, who began recognizing ways in which his own health had

deteriorated as a young parent with five children born within seven years. Instead of asking patients what was wrong with them, he began asking, "How may I help you?" When they described the advent of major illnesses, he would inquire about such stressful events as job changes and the birth of children. "They'd look at me like, 'How did you know?'" he says. "Their lives played a role in their health."

Now a grandfather and retired from his surgical practice since 1989, Siegel has produced a body of work—including books, CDs, and online lectures—that boils down to a single concept: to combat disease, look inward. "It isn't about blame," he says. "It's about choices, paying attention to emotions and experiences." His first book, *Love, Medicine & Miracles*, a collection of anecdotes about his patients and Siegel's reflections on their cases, was published in 1986. "We must realize the pain most people suffer, and redefine our goals," he writes. "What is healing? Is it a liver transplant or cure of an illness, or is it getting people to have peace of mind and live life to its fullness?" Since then, he has penned eleven additional volumes including *How to Live Between Office Visits* and *Prescriptions for Living*, as well as several illustrated titles for children tackling the subjects of grief and loss. "If I help people live," he says, "I'll have accomplished something."

Weill Cornell medicine professor Sidney Winawer, MD, read several of Siegel's books when his wife, Andrea, was diagnosed with metastatic stomach cancer. "She was very much searching for ways to help herself in addition to embracing conventional medicine," says Winawer, who was chief of gastroenterology and nutrition at Memorial Sloan-Kettering Cancer Center at the time and read the self-help books she brought home. "Bernie's books helped her understand how she could help herself, be an advocate for herself, embrace the medications the doctors were providing, and reduce her stress."

Winawer later authored *Healing Lessons: A Journey of Love and Integrative Medicine*, a memoir of the experience and a tribute to his late wife that credits Siegel's positive influence during that difficult time. "Stress has a powerful effect on the body and creates all sorts of problems," says Winawer, who helped launch Sloan-Kettering's integrative medicine service. "Reducing stress puts patients more at ease, helps them reduce their pain, improves tolerance of side effects, and even helps them in their relationship with doctors, in coming to appointments on time and accepting advice."

In the late Seventies, when Siegel attended that fateful conference, there wasn't much data on how psychology influences disease. Today, most major hospitals and medical colleges acknowledge the role of patient well-being, and a growing number of scientists have devoted their careers to investigating the connections among immune function, stress level, and psychological support. "As it becomes acceptable to do research on the mind-body connection," Siegel says, "suddenly I don't look so crazy."

— Sharon Tregaskis

Fun Facts

With nitro ice cream and homemade slime, a student group gets kids excited about science

CHEMISTRYEQUIPMENT.ORG

If a spoonful of sugar makes the medicine go down, maybe a scoopful of ice cream can make science seem like fun. That's the operating principle for Little Chemists, a Weill Cornell student group that visits elementary schools in underprivileged neighborhoods throughout the metro area, offering science demonstrations that are short on lectures and long on entertainment. "The kids love it," says associate dean for curricular affairs Peter Marzuk, MD, the group's informal adviser. "Often in classrooms, students look the other way and sink down in the chair like they're afraid of being called on, but during these demonstrations many of them get so excited they literally jump up out of their seats."

Little Chemists is the brainchild of Christopher Robinson, a third-year MD-PhD student, and girlfriend Rosa Kim, who started a similar project together as Georgetown undergraduates. Several times a year, Robinson and others from the twenty-member club visit local classrooms, as well as the pediatrics unit at NYP/Weill Cornell. Their signature presentation is making ice cream with liquid nitrogen or dry ice; the students don goggles, help conduct the experiment, then eat the proceeds. "The kids interact with us and we teach them a little chemistry, like the process of going from liquid to solid," says Robinson, the group's president. "They're really amazed. We've had kids writing down the ice cream ingredients because they want to try making it themselves."

While the ice cream act may be the tastiest of the club's presentations, it's just one item in the repertoire; others include using glue and Borax to make a slimy putty called "gak," and flash-freezing (then dramatically shattering) fresh flowers. "It's fun to get them involved in the process and see the applications of science," says Jerard Kneifati-Hayek '13, the club's vice president. "I used to do a lot of experiments when I was in elementary school, and that's how I got on the road to loving science. If we can get kids interested, that's really cool."

While Kneifati-Hayek had the chance to do lots of hands-on science as a child, Robinson wasn't so lucky. "I didn't grow up with such a great science background," Robinson says. "I can relate to what some of these kids may be going through in their educational experiences. But somewhere along the way, I developed a passion for science and filled the gap in my education, so this is my way of giving to the community." By visiting schools in needier neighborhoods, he says, the Little Chemists hope to inspire children who similarly lack access to scientific role models or extracurricular activities. "To them, science may seem difficult and off-putting," Marzuk says. "Anything that can show them that it's fun and exciting—and a way that they can make valuable contributions to society—is really worthwhile."

— Beth Saulnier

Sweet Relief

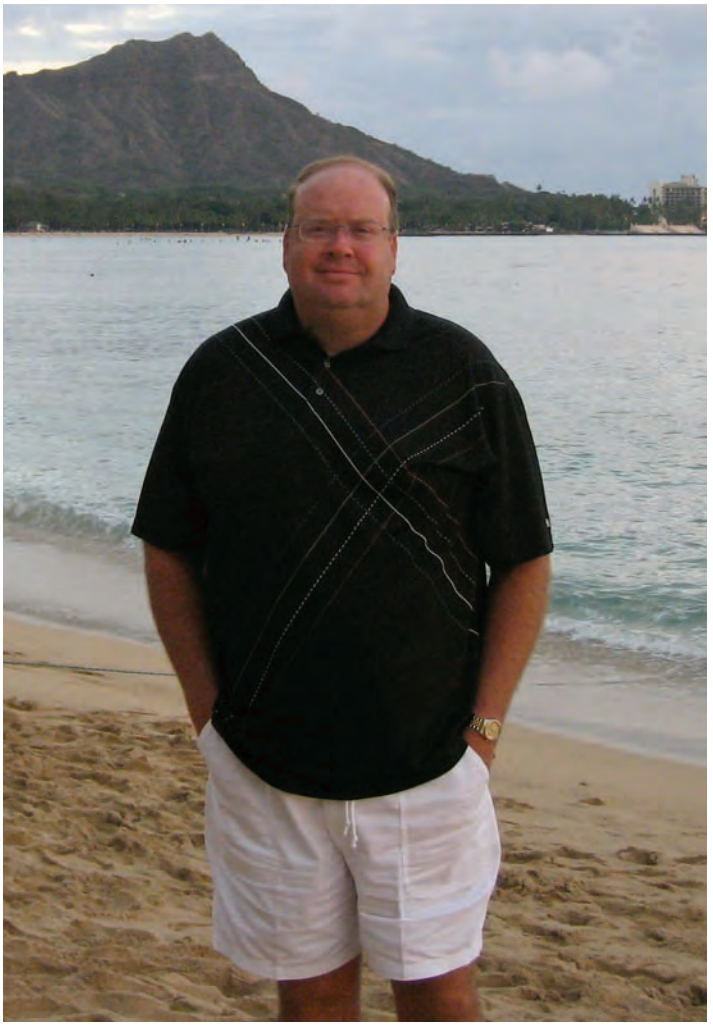
Once a radical concept, surgical treatment for Type 2 diabetes is rapidly gaining acceptance among patients and physicians

By Beth Saulnier

For Jon Diat, the most difficult moment didn't come when he realized that he had gained more than a hundred pounds since college. Nor was it when he was diagnosed with Type 2 diabetes. It wasn't even when he had a cardiac episode that led to the insertion of two stents.

No, the moment Diat knew that his health had spiraled out of control came when, about six months after his diabetes diagnosis, he got his first prescription for injectable insulin. "I don't think it really hit me until then," recalls Diat, then in his mid-forties. "I'd been on some medications before they put me on insulin, to see how I would do. It's so easy to say, 'Take a pill and things will be better.' But looking at those needles—for me, that crossed a line. I thought, My God, I'm still young, and look at where I am. I shouldn't be doing this. That was a sad day."

As an undergraduate, Diat had a passion for ice hockey. He played at the University of Buffalo for four years, and after graduating in 1985 his first job out of school was in PR for the NHL's Buffalo Sabres. Through the late Nineties, he still played twice a week. "I was always in great shape," says Diat, who is now managing director of financial communications for Citigroup. "But it's tough getting ice time. The early game is usually nine p.m. and the late game is eleven-thirty." Because of the demands of his job, then at Morgan Stanley, Diat found that his schedule didn't leave much time or energy for late-night sports. But he kept up his lifelong eating habits—although he didn't have much of a sweet tooth, he was



PROVIDED BY JON DIAT

Then and now: Jon Diat pre-surgery (right), when he weighed more than 300 pounds, and today (opposite) at Citigroup headquarters

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partial to burgers, fries, potato chips, chicken wings, and the like—and his waistline paid the price. "After stopping the exercise, you're not able to get away with stuff you could earlier in life," Diat says. "Eventually, the weight just increased and increased."

When Diat had the stents implanted, he weighed 343 pounds; after being diagnosed with diabetes and going on appropriate medications—for which weight gain is a known (and much lamented) side effect—he added twenty more. On his six-foot-six frame, that gave him a body mass index (BMI) of nearly 42, which put him well into the category of morbidly obese.

'When you look at the chapter on diabetes in any medical textbook, you don't find that surgery has a role at all,' says surgeon Francesco Rubino, MD. 'And now we are rewriting the textbooks.'

Diat knew that something had to change. His cardiologist, assistant professor of medicine and public health William Borden, MD, recommended bariatric surgery. "Several months after my heart incident he basically said, 'There's not much I can do for you—you really need to consider this,'" recalls Diat, whose father had his first heart attack at thirty-seven and passed away ten years later. "He was very concerned. He didn't say, 'You don't have much time to live,' but he implied it. It really scared me."

Borden referred Diat to Francesco Rubino, MD, chief of gastrointestinal metabolic surgery at NYP/Weill Cornell and an associate professor of surgery at the Medical College. Initially, Diat leaned toward lap-band surgery, a less radical procedure than gastric bypass. But as he explored his options, he recalled a "60 Minutes" rerun he and his wife had seen on a plane home from Hawaii the previous year. The episode had detailed Rubino's groundbreaking work with diabetes patients who'd seen their disease vastly improve—or even resolve entirely—after gastric bypass. If all went well, the procedure would not only dramatically reduce Diat's weight and better his cardiac prognosis, it would let him toss those hated syringes. "I realized this could benefit me in so many ways," Diat says. "It was almost a no-brainer. I had to do it."

The choice put Diat in the vanguard of diabetes treatment. What two decades ago would have been all but unthinkable—the idea that surgery can dramatically curb the disease in some patients—has become accepted practice, endorsed last March by the International Diabetes Federation. "When you look at the chapter on diabetes in any medical textbook, you don't find that surgery has a role at all," Rubino says. "And now we are rewriting the textbooks."

Among the factors that have spurred acceptance of surgical treatment for diabetes are advances in the procedures themselves. Thanks to the advent of minimally invasive techniques and other refinements, gastric bypass has become safer, with fewer complications and a mortality rate akin to that of gallbladder or appendix removal. Then there's the fact that Type 2 diabetes has reached epidemic proportions, affecting nearly 300 million people worldwide; it's one of the fastest-growing diseases, estimated to strike 450 million people by 2030. The rise in Type 2 diabetes—distinct from Type 1, the "early onset" form that is autoimmune in nature and for which surgical treatments don't hold the same promise—is intimately intertwined with another negative trend: the worsening obesity epidemic. "Obesity is at an all-time high—a third of the population is obese and another third is overweight," says Louis Aronne, MD, director of the Comprehensive Weight Control Program at NYP/Weill Cornell. "And diabetes and obesity go hand in hand; obesity is the leading cause of Type 2 diabetes. It's a big problem."

As weight goes up, diabetes risk rises precipitously. As Aronne explains, a woman with a BMI of 22—on the low end of normal—has a diabetes risk rated at 1. With a BMI in the "overweight" range of 25 to 27, her risk is 8—meaning it has increased eightfold. At a BMI of 30, the borderline for obesity, her risk is 28. And at 35 and above—morbidly obese—the risk skyrockets to 93. "That shows you why I've gotten so interested in diabetes," Aronne says. "The average patient we see has it or is on the verge of having it." That prevalence has made him and his colleagues—not to mention the people they treat—open to new approaches. "There is no question that there is greater interest in and acceptance of surgery, not only among patients but also among physicians," he says. "There was a time when people would not even think about surgery. You'd bring it up and they'd say, 'Are you kidding?' That is no longer the case. If you look at guidelines from virtually every organization, surgery is considered a rational treatment for Type 2 diabetes."

Diabetologist Naina Sinha, MD, first encountered the concept of surgical treatment for the disease a decade ago, when she came to Weill Cornell as a fellow in endocrinology. She became fascinated by the metabolic effects of gastric bypass—which include unwanted consequences such as deficiencies in vitamin D and calcium as well as desired effects like the amelioration of diabetes. "One of the most powerful things I have seen was a patient who'd been on 200 daily units of insulin," she recalls. "We were giving six injections a day, but still could not control the blood sugar. Immediately postoperatively, before even losing a pound, that insulin resistance had resolved; the dose went down to less than a third of what it had been prior to surgery."

So what's going on in these patients? Why does a rearrangement of their gastrointestinal anatomy curb their diabetes? Experts aren't entirely sure, and research is ongoing. But as Rubino originally suspected (see sidebar), insulin-promoting hormones known as incretins likely play a vital role. "We're finding that the gut is actually a huge endocrine organ—it secretes dozens of hormones," Sinha says. "This has offered a new field of diabetes management; in the past six years, we've seen several new medications that are incretins. Many people with diabetes have lower incretin levels, and after the surgery their levels may go back up to normal or even higher. So a lot of investigation into the mechanisms of the resolutions from these surgeries still needs to be done—but we do know that they restore the ability of the body to produce this normal gut hormone involved in glucose metabolism."

Sinha and Rubino are currently conducting a randomized trial comparing metabolic surgery to intensive medical management of diabetes in a wider variety of patients—exploring whether the surgery benefits those who are merely overweight rather than obese. The trial, which will comprise fifty patients, is open to those with a BMI between 26 and 35. "It's exciting that we're including patients with lower BMIs," says Sinha. "We're studying a population that is very insulin-resistant and has a metabolic disarray that is contributing to diabetes, high cholesterol, and high triglycerides." The topic

New Normal

How Weill Cornell's Francesco Rubino, MD, led the charge to bring metabolic surgery into the mainstream

While a surgical treatment for Type 2 diabetes may be on the cutting edge of twenty-first-century medicine, it can trace its roots to the middle of the twentieth. According to Francesco Rubino, MD, chief of gastrointestinal metabolic surgery at NYP/Weill Cornell and an associate professor of surgery at the Medical College, the first observations that a rearrangement of the anatomy of the stomach and intestines could alter the course of diabetes go back "to the Fifties, or even earlier." But, he notes, they were merely anecdotal. "The observations were based on the results of operations like gastrectomies that were done for cancer or ulcers," he says—and since most of those patients weren't diabetic in the first place, the cases were too few to make much of an impression.

With the advent of bariatric surgery in the Fifties and Sixties and the rise in diabetes among the general population, such observations increased but remained relatively obscure. "It was repeatedly reported in the medical literature in the Seventies and Eighties," Rubino says. "However, with bariatric surgery you are operating on very obese patients, and in light of the link between obesity and diabetes, surgeons considered this a natural outcome of weight loss."

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Francesco Rubino, MD

But there was a major flaw in that logic: even after bariatric surgery, significant weight loss takes time. The remission of diabetes, on the other hand, seems to happen almost immediately.

That conundrum first struck Rubino in June 1999, when he was a research fellow at Mount Sinai. Studying a complex bariatric procedure known as a biliopancreatic diversion, he went to the medical library to review the literature, hoping to explore ways in which current techniques might be modified through the use of staples. "I didn't find the answers to those technical surgical questions," Rubino recalls. "But I found an interesting report that these operations were improving diabetes in 80, 90 percent of cases—even patients who had been on insulin could enjoy the normalization of sugars without medications. To me, that was too striking an effect to be justified by weight loss. And in a substantial number of these patients—at least a third—this effect happened quite rapidly, in a matter of days or weeks. And obviously in that short time there's not much difference in body weight."

Rubino's medical studies at Rome's Catholic University were still fresh in his mind; he recalled the basic lesson that the intestine produces hormones called incretins that spur production of insulin. "Those hormones are signals produced in response to food passage through the bowel," he explains. "They tell the pancreas that food is coming down, and it's time to produce insulin to control blood sugar levels." Those three facts—that the reduction in diabetes symptoms was too dramatic to be produced by weight loss alone; that the effect was happening before much weight was shed; and that there was a long-established connection between the mechanisms of digestion and insulin production—sparked Rubino's

eureka moment. "Putting those together, a striking thought came into my mind," Rubino recalls. "What if the surgery itself influences diabetes directly? After I had that idea, I couldn't sleep that night. Because that would change everything. You don't learn in medical school that diabetes can go away; you learn that it is progressive and irreversible."

Reviewing the literature, Rubino found only one paper—by surgeon Walter Pories, MD, of East Carolina University—that made the same connection. "With that exception," he says, "the concept was completely heretical." He consulted his mentor at Mount Sinai, who agreed that the theory merited a clinical trial. "But it was too early; the times were not ready," Rubino says. "We submitted a protocol to the IRB, but it never made it through approval."

'There was a tremendous consensus that this was an incredible, unprecedented opportunity to fight diabetes. That was a historic moment.'

So Rubino began studying the concept in diabetic rats, with promising results. When his fellowship ended, he continued the work at his new post in Strasbourg, France. "I did a similar operation to gastric bypass but maintained a normal-sized stomach, just created a bypass of the small bowel," he says. "The idea was that if you use an operation that is similar to gastric bypass for the rerouting of food through the intestine but does not create a mechanical restriction to food intake, any effect of the operation must be due to hormonal changes. I found that there was a remarkable effect on blood sugar levels and that this effect could not be justified by weight loss; because of sparing the stomach size, the animals were eating similarly to controls. So that experiment gave the first evidence that there are weight-independent mechanisms of diabetes control when you do this gastrointestinal surgery."

Rubino reported his results in the *Annals of Surgery* in 2004. "It wasn't easy to publish the paper," he recalls. "We sent it to major journals and the skepticism was palpable—you could feel that the idea was still too far away." But once the paper came out, it inspired other surgeons, particularly in South America and India. "They took the idea and ran with it," he says. "They did the same operation in humans, and from there they reported early data showing that these patients could enjoy improvement of diabetes and at times complete resolution."

Feeling that the concept—particularly its potential use in patients who weren't morbidly obese—was still "not ready for prime time," Rubino convened the first meeting on the subject in March 2007. ("So as not to scare people," he says, "we gave the meeting a very academic name: International Consensus Conference on Gastrointestinal Surgery for the Treatment of Type 2 Diabetes.") Held in Rome, the gathering—nicknamed the Diabetes Surgery Summit—drew some fifty experts in such fields as surgery, endocrinology, gastroenterology, and basic science. Rubino called three U.S. experts—David Cummings, MD, Lee Kaplan, MD, PhD, and Philip Schauer, MD—to serve as co-directors. "We called some of the leading diabetologists in the world and said, 'Would you come to discuss this, to brainstorm and see what we could do, including if we could make some clinical recommendations as to when it's legitimate to use surgery and when it's not?' " Rubino says. "Of course, some of them were more conservative, some more optimistic; people judge evidence in different ways. But there was a tremendous consensus that this was an incredible, unprecedented opportunity to fight diabetes. That was a historic moment."

The meeting—which also attracted some 400 attendees, even though it hadn't been meant to be open to the general public—gave rise to a new term: metabolic surgery. "Immediately after that," Rubino notes, "five or six societies changed their name from 'bariatric' to 'metabolic.' " The following year, Rubino—newly recruited to Weill Cornell—organized the First World Congress on Interventional Therapies for Type 2 Diabetes, which brought more than 1,000 experts from forty-six countries to Manhattan's Marriott Marquis Hotel. By March 2011, when NYP and Weill Cornell hosted the Second World Congress, the concept had entered the mainstream. At the conference, the International Diabetes Federation announced its endorsement of metabolic surgery as a treatment for the disease in obese patients. "This is like a tsunami," says surgery chairman Fabrizio Michelassi, MD, who tapped Rubino to head NYP/Weill Cornell's newly created Division of Metabolic and Gastrointestinal Surgery. "What started as an observation by Dr. Rubino and others is growing into a specialty. Now you have several international associations for the care and cure of diabetes embracing it, and surgeons are coming along as well."

To put into perspective how far the concept has come in a relatively short time, Michelassi offers an analogy. "If I told you that I predict that within twenty years, some surgical procedure was going to treat depression, you'd have the same kind of reaction that you would have had twenty years ago for curing diabetes," Michelassi says. "You'd either say 'He's crazy' or 'He's dreaming'—or 'Good luck.' "

is of particular interest to Sinha; diabetes runs in her family, as it does in many people of South Asian descent, who face a higher risk of the disease at lower weights than other populations. "My dad got diabetes in his mid-forties, and he's a thin guy with the tiniest belly," she says. "My mom, sisters, aunts, and uncles have it. It's very prevalent in Indian-Asian households. I'm young—thirty-eight—but I know that it's coming my way." With two parents with diabetes, Sinha is well aware that her risk of the disease is doubled. "So I live my life like I have diabetes," she says. "It's actually a healthy, natural way to live; you're eating lean protein, good fats, whole grains, and lots of fruits and vegetables."

PROVIDED BY NAINA SINHA, MD

Naina Sinha, MD

On the bench science side, Rubino is working with biochemistry professor Timothy McGraw, PhD, to explore the biochemical mechanisms at work in patients whose diabetes resolves after metabolic surgery. Specifically, they're focusing on a glucose transporter called GLUT 4, which McGraw has studied for more than a decade. "Of course, one of the main activities of insulin is to regulate glucose transport," McGraw says, "and it does that by controlling the behavior of GLUT 4." McGraw's lab has developed powerful tools to study the behavior of GLUT 4; when he met Rubino a couple of years ago, he realized that those methods could be used to study insulin activity in diabetic patients. "You have people who are insulin resistant, and after surgery that reverts; they become insulin sensitive again and the diabetes goes into remission," McGraw says. "We know that insulin is working well if it can stimulate GLUT 4 to move to the plasma membranes of fat cells. So maybe we could use these methods to investigate what happens after bariatric surgery."

In theory, such work could lead to a treatment that offers the diabetes-curbing benefits of surgery—but without the surgery. By understanding the biochemical mechanisms at work, researchers could design drugs that mimic their effects. "From a research perspective I think we're going to learn a lot," McGraw says. "Being super optimistic, you could say that information may ultimately lead to the development of therapeutics that can be used to treat insulin resistance. That would be the home run."

Even as Rubino works to spread the word about the efficacy of surgery on diabetes, he counsels caution. He notes that initial media reports touted the techniques as a surgical cure for the disease, but he doesn't go that far. "I'm finding that patients do accept the idea of surgery more willingly, but sometimes I feel afraid that they see surgery as an opportunity to get cured," Rubino says. "I think we have the most effective treatment we have ever seen, but I'm not sure yet it's the final cure."

In Sinha's practice, she currently follows more than 250 diabetic patients who have had the surgery; of those, she says, only five have experienced complications that have prompted them to regret the procedure. The majority, she says, "bounce into the office" sporting healthy blood glucose levels they never could have imagined before the surgery. "As physicians start to see the dramatic impact this has on patients' lives, it will become clearer that we're doing a disservice to people if it is not part of the armamentarium of diabetes management," Sinha says. "I think it is an amazing thing to be able to offer."

Jon Diat underwent gastric bypass on April 9, 2010. In his first surgery of the morning, Rubino performed a Roux-en-Y procedure, in which a pouch is formed from a small portion of the stomach, attaching it directly to the small intestine and bypassing the rest of the stomach and duodenum. Diat spent three days in the hospital and took three weeks off from work. "It seems like such a long time ago," he muses. "But when you come down to it, it wasn't that long ago—and yet it's changed my whole life."

Within a week or so, Diat was off his diabetes medications. As he began to recover and accustom himself to his new digestive anatomy, he found that his eating habits had changed entirely. "I never felt hungry," he says. "You're almost forcing yourself to eat, reminding yourself to eat. For breakfast for the first two months, I lived on protein shakes." Although his wife had worried that his dietary restrictions and lack of appetite might put a dent in their social life, that didn't prove to be a problem. "Shortly after surgery, I went to a restaurant on Long Island with my wife and some friends. I ordered an appetizer and had about half, and that was enough," he recalls. "It was social, and I could eat only as much as I could eat."

Gone are Diat's cravings for fried foods; he finds himself gravitating toward fresh fruit, which he cuts up on Sundays and eats throughout the week. "We do a lot of dinners and lunches in my business, and if I go out I'll have something like broiled fish, no sauce, just with lemon and some vegetables," he says. "I'm being so much smarter about my eating habits. For the first time in my life I'm reading labels and noticing how much fat or sugar are in things." He's also exercising more, walking home most evenings—a two-and-a-half-mile trip from his office at 54th and Park to his apartment at 79th and York. He's back to playing ice hockey, and recently treated himself to a new tennis racket and a set of golf clubs. "It's amazing to turn things around so quickly, where diabetes is no longer a part of my life and my cholesterol is below normal," Diat marvels. "I'm turning fifty in December and this is the perfect present. I couldn't ask for more. In so many ways, I look at it as a second lease on life."

In the first three months after surgery, Diat lost nearly a pound a day. As expected, the reduction slowed and has since stabilized at a total of 140 pounds—putting Diat around 220, his college playing weight. Last spring, he went to the Citigroup security center and asked to have a new I.D. photo taken; he was sick of looking at his old one, and in any event he was all but unrecognizable. "I can't tell you all the clothes I've given away to charity and all the clothes I've had to buy," says Diat, who dropped from a 48-inch waist to a 36. "But that's a good problem to have, and my wife doesn't mind. We've been married seventeen years, and she has a whole new man." ●

Kristin Gilbert '12

Metro Mentors

Through clerkships in affiliate hospitals around the city, students get an up-close look at how medicine is practiced beyond NYP/Weill Cornell

By Beth Saulnier

Photographs by John Abbott

When Oliver Fein, MD, came to the Medical College in 1995 as associate dean for affiliations, his mother asked him to explain just what this newly created job was all about. "I told her, 'We're trying to diversify the clinical educational experience of our students,'" Fein recalls, "'and that means getting them off the Upper East Side and off the island of Manhattan.'" Back then, he notes, students had limited opportunities to work in facilities beyond the "four corners" of New York Hospital, Rockefeller University, Memorial Sloan-Kettering Cancer Center, and Hospital for Special Surgery—and Weill Cornell was the only medical school in New York City without an affiliation with a public hospital. "There was a sense that the Cornell student had a more limited clinical exposure than you could get at other medical schools," says Fein, a professor of clinical medicine and clinical public health. "Whether that was entirely true is another question—but it certainly was true in terms of seeing how medicine is practiced in other urban communities such as Brooklyn, Queens, and the Bronx."

Oliver Fein, MD

Over the past decade and a half, all that has changed. Now, Weill Cornell students get extensive exposure to other care environments, starting with the office-based preceptorships during the first-year Medicine, Patients, and Society course, more than half of which are off the island of Manhattan. Third- and fourth-year students can do part or all of their required clerkships in affiliated hospitals located in communities as diverse as the predominantly Chinese area served by the New York Downtown Hospital to the Hispanic neighborhood of the Bronx's Lincoln Hospital to the New York Hospital Queens, located in one of the world's most ethnically diverse enclaves. "The hospitals in the city vary enormously in terms of their culture, the way medicine is practiced, and the environment that they serve," says Carol Storey-Johnson, MD '77, senior associate dean for education. "It's enriching for students to go to another place, where they see faculty who are committed to the communities they serve, working in an environment that has different resources than NewYork-Presbyterian."

Fein and Storey-Johnson see the affiliations as a win-win. Weill Cornell students—who choose the clerkship sites on a first-come, first-served basis—get to work in a variety of settings, including smaller community hospitals that may not have as much of a subspecialty focus. "It gives them a more diverse menu to see where their talents fit and to think about how they see themselves as practicing physicians," Storey-Johnson says. "It can provide more role models in different ways."

Working in more diverse communities can also offer invaluable lessons in cultural competency, from assessing whether a translator is needed to appreciating how members of different religious and ethnic groups relate to health-care providers. "I went out of my way to choose rotations at the affiliates, because I thought it was important to see a diversity of patients and work with the underserved," says Carlo Canepa '12. "I'm about to apply for residency programs, and I want to include not just big academic centers but also places that have a county hospital affiliated with them, or a mix of both. I enjoy seeing those patients and having that aspect in my practice."

Another advantage of working outside an academic medical center, students and faculty say, is that in the affiliate hospitals the clerks often get more direct exposure to attending physicians. "At Weill Cornell, the residents are our direct mentors," says Marilyn Michelow '12, who spent time in the ED of New York Downtown Hospital. "It was a treat to work directly with an attending, to see how their lives and practices are structured, and to be taught by someone with much more experience." Furthermore, Fein says, the

faculty at affiliate hospitals can offer students a unique perspective compared to the attendings at the academic medical center. "In the academic medical center, you see clinician teachers who are frequently devoted to the in-depth but narrow focus of their specialty," Fein says. "Whereas, in our affiliates, students get exposed to clinicians who have a broader, more primary care perspective, both in their training and how they practice medicine."

Just traveling to and from the clerkships can be an educational experience. The Medical College no longer provides shuttle vans to the affiliate hospitals, except for the farther-flung New York Hospital Queens, so students take the subway. "They use public transportation, so they get a sense of what patients have to deal with," Storey-Johnson says. "The students get a chance to see how long it takes to get from Brooklyn to NewYork-Presbyterian Hospital for an appointment and what patients actually have to go through. They can imagine that if they had chronic disease, multiple illnesses, or bad arthritis, what it would mean to have to go up and down the subway stairs and catch three trains to come here. They get a sense of the implications for a patient, both cost-wise and effort-wise, when you say, 'Could you come back tomorrow?'"

The relationships also have clear benefits for the affiliate hospitals, who Storey-Johnson says are "enormously enthusiastic" about hosting Weill Cornell students. In addition to the prestige of being connected to a top-flight medical school and the inherent advantages in recruiting residents, she says, are the ways in which the presence of students can enrich medical care. "When you have a student as part of your team, they're going to be inquisitive," she says. "In fact, we know that students often improve patient care, because they ask the more basic questions, questions that push the staff and faculty to go the extra step."

Since Fein's arrival, students' clinical opportunities haven't just expanded city-wide, but far beyond as well. Doctors-in-training now have myriad chances to get out of the metro area via third- and fourth-year electives at other institutions, as well as clerkships at Ithaca's Cayuga Medical Center and Houston's Methodist Hospital. And by establishing the Office of Global Health Education, Fein says, "we've expanded the horizons to getting our students not only off the island of Manhattan but off the continent of North America."

For the students, such experiences can be life-changing. Kristin Gilbert '12, who discovered a love for family medicine at Brooklyn Hospital and recently completed a year-long research project in nutrition on the Ithaca campus, is now planning on doing fourth-year electives in Seattle and Southern California. "Weill Cornell is amazing in its specialties and the quality of care that it provides—it's like a well-oiled machine," she says. "But I know that medicine doesn't necessarily look like that everywhere. It's important for me to experience how the dynamics between residents and attendings can be different, how priorities within departments can vary. It opens your eyes to how much you don't know. When I first came to medical school, I didn't realize how much I needed those experiences. I didn't know that's a huge part of how you learn about medicine—how it informs what you want to do and how you want to do it."

The following are profiles of five current and former students who worked at different affiliate hospitals.

Kristin Gilbert '12

The Brooklyn Hospital Center
Fort Greene, Brooklyn
Family medicine

Going into her fourth year of medical school, Kristin Gilbert has zero doubt about her future specialty. "Family medicine," she says. "That's it." Her passion for the field was sparked at the beginning of her third year during her primary care clerkship, when she spent one day a week at the Brooklyn Hospital Center under the mentorship of Dana Spivak, MD. "Dr. Spivak has a large patient load," Gilbert says. "I would get there early in the morning and immediately start seeing patients on my own, do histories and physicals, and present to her. Then we would see the patient and come up with a plan. I had a lot of responsibility. I felt that I was helping her out and that I was able to grow in my knowledge and experience."

Located next to Fort Greene Park, the hospital gets a mix of patients from varying economic and ethnic backgrounds. "A lot of the patients didn't speak English as their primary language, and their cultural beliefs would vary widely," says Gilbert. "You'd have Hasidic Jewish women come in and only want to see a female physician. Education levels also varied." Gilbert, a Vermont native who earned an undergraduate degree in psychology and human physiology from Boston University, says she welcomed the challenge of working with people different from herself. "It's humbling, and you learn a lot about yourself in those interactions," says Gilbert, who is planning to take a Spanish immersion course to broaden her language skills. "You learn what you don't know, and the challenging part is applying your best knowledge and care to them despite any barriers in beliefs, language, or education."

Working under Spivak, an assistant professor of family medicine in clinical medicine at Weill Cornell, Gilbert saw a wide variety of patients and conditions. She recalls a single day that included a woman with severe psychiatric issues, a teenager seeking contraception, and the emergent case of a man whose epiglottis was constricting his airway. "This was the first time I experienced how diverse a day can be," she says, "and how satisfying it could be to treat patients with different needs." In addition to family medicine, Gilbert spent time working in pediatrics at Brooklyn Hospital; she also did clerkships in ob/gyn and surgery at New York Hospital Queens and in emergency medicine at New York Downtown Hospital. She notes that the experiences offered a chance to get to know the city, discovering such gems as dim sum restaurants, yoga studios, and spots to relax with an after-work beer. "This is one of the many pluses of Weill Cornell: you have a prestigious university and hospital, but you also have the option to experience what medicine can be like in the other boroughs," she says. "I think it's important to take that opportunity. It has really added to my passion for medicine—and to my understanding of how physicians can make a difference."

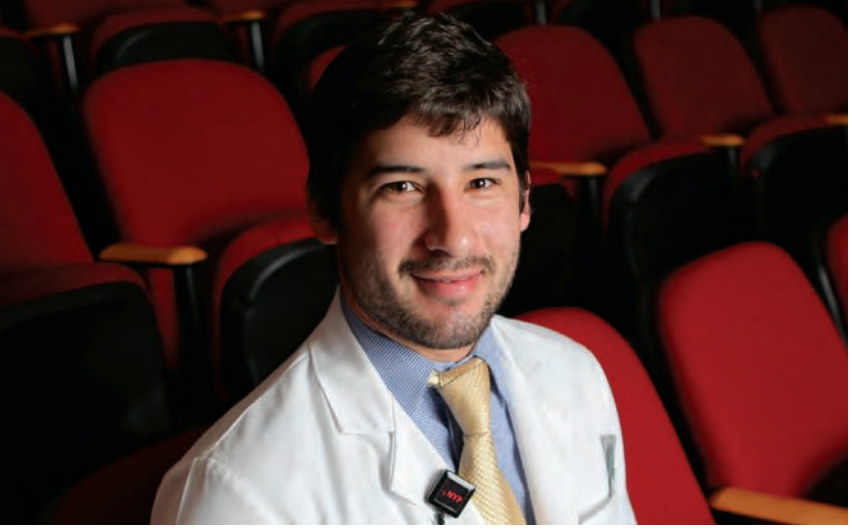
Byron Alex, MD '11

New York Methodist Hospital
Park Slope, Brooklyn
Pediatrics

After his third year of medical school, Byron Alex took a year off to work in a children's hospital in Oaxaca, Mexico. "Interestingly, Oaxaca is a state that's very diverse, so in a way it's similar to New York City," he says. "Sixteen indigenous groups are recognized in Oaxaca, which means there are sixteen individual languages and cultures." The experience was solid preparation for the clerkship he started immediately upon his return, working in pediatrics at New York Methodist Hospital in Park Slope, Brooklyn. "The area it serves includes immigrants from Mexico," Alex says, "but also people who work at investment banks in Manhattan."

Alex's first case at Methodist—a thirteen-year-old Mexican boy who came in with signs of appendicitis—required him to draw on his linguistic and cultural-competency skills. Two years earlier, the youth had been given I.V. antibiotics for similar symptoms; his family was told to follow up for outpatient surgery, but they never did. "I explained the vital importance of surgery, listened to the family's concerns, and answered their questions," says Alex, who is now doing his pediatrics residency at NYP/Weill Cornell. "After a few days, the patient and family members could repeat back to me the causes of the pain, how the surgery would help, and when the surgery would be. For me, that was an example of the skills and strategies that can address the needs of diverse communities."

As a medical student, Alex sought as many affiliate hospital placements as possible. He did parts of his surgery and ob/gyn clerkships at Lincoln Hospital in the Bronx, where he also worked in the ED as part of his primary care clerkship; he spent a month at Brooklyn Hospital during his medicine clerkship; he worked at New York Hospital Queens during his medicine sub-internship; and he did a month-long neurology clerkship at Sloan-Kettering. "When prospective students ask what I think of Weill Cornell, I often tell them that working at the affiliate hospitals is a special opportunity to learn cultural-competency skills in one of the most diverse cities in the world," he says. "That was a huge selling point for me, and I think it's a major draw for students interested in studying medicine here. The experiences I had at affiliate hospitals helped me to grow as a student doctor and will make me a better clinician."



New York Hospital Queens
Flushing, Queens
Obstetrics/gynecology

Carlo Canepa '12

New York's 7 train runs through one of the most ethnically diverse regions on the planet, comprising immigrants from around the world. That remarkable mix is reflected in the patient population of New York Hospital Queens, where Carlo Canepa did his six-week clerkship in ob/gyn—two weeks each in obstetrics, gynecological surgery, and the clinic. For Canepa, the highlight was his time in the obstetrics ward. "You had a mix of seeing C-sections and regular deliveries," he says. "You got a lot of freedom to help with as many C-sections as you wanted; there was a student at every one."

Most of the patients Canepa saw didn't speak English and were from lower-income families, offering a look at how medicine is practiced in an underserved population. "A lot of them hadn't been in the country for very long, didn't know how the system works, and were delivering for the first time in the U.S.," Canepa says. "Many of them weren't with their husbands, who were working." The area around the hospital is heavily Chinese, but Canepa also saw many Latinas as well as women from India, Bangladesh, and Pakistan. His fluency in Spanish came in handy—as did his ability to empathize with patients who were newly arrived in this country. Canepa emigrated from Peru at age four, growing up in Manhattan's Stuyvesant Town and studying as an undergraduate at Columbia; he plans to stay in the city for residency. "It's important for me, knowing that I want to stay in New York, that I get to see how health care is provided throughout the city and to see the variety of hospitals, pathologies, and patients," he says. "The more you see, the better equipped you are to deal with anything."

In Queens, Canepa encountered a variety of interesting cases. They included a ten-pound baby boy delivered by C-section—"he was the biggest baby I'd ever seen," Canepa says—and a case of placenta accreta, which required a delivery by C-section followed by an immediate hysterectomy. "Queens is a much smaller hospital, and it has a different vibe; it's very much community-based, not so much interested in research," Canepa says. "It's important to see both aspects, because you don't know where you'll end up once you start practicing."

Lincoln Hospital
South Bronx
Surgery

Erica Miller, MD '11

It's a human tendency," Erica Miller muses, "not to think the best of something if you don't know it." Before her surgery clerkship at Lincoln Hospital in the South Bronx, she says, she was unfamiliar with the borough—and, she admits, she had some anxiety about venturing into an inner-city neighborhood that has made its share of headlines for violent crime and civil unrest. But after spending a month there at the beginning of her third year, she says, "I'm not afraid of going into the Bronx and less afraid of so-called 'bad neighborhoods' in New York City." In the area around Lincoln, Miller discovered a farmer's market where she could buy fresh fruits and vegetables and frequented restaurants serving tasty food from South and Central America. Now, she says, "I feel more connected with the people who live there."

On a typical day, Miller and her classmates would arrive before 6 a.m. to go on rounds with the surgical residents, often reporting on patients' vital signs or lab results. The surgeries themselves—during which students would hold retractors, insert Foley catheters, or receive lessons in suturing—were often markedly different from the cases she saw at Weill Cornell. "The general surgery teams cover trauma," she says. "Quite commonly, the cases would be young men with gunshot wounds and stab wounds. I know it happens at Weill Cornell, but on my surgery rotations there I never saw a gunshot wound or a stab wound—whereas if you were on call at Lincoln on a Friday or Saturday night, seven or eight would come in."

Marilyn Michelow '12

New York Downtown Hospital
Lower Manhattan
Emergency medicine

As part of her primary care clerkship, Marilyn Michelow spent one day a week in the emergency department at New York Downtown Hospital. Located near Chinatown, the hospital sees a large number of non-English-speaking patients, many of them elderly. "I saw quite a few rule-out-M.I. cases, where you're not sure if somebody's having an anxiety attack or a heart attack," says Michelow, a Pittsburgh native who was an undergraduate at Princeton. "You need to make a clinical judgment about whether to work them up completely for a heart attack with all the enzymes and the full set of tests, or whether to send them home for an appointment with an outpatient cardiologist." The experience offered lessons in the fine points of ED evaluation, something Michelow appreciated as distinct from what students learn on the hospital floors, where patients already have a diagnosis. "When you're working in the ED the focus is completely different," she says. "It's, 'Am I missing anything that's going to kill this person?' If so, then we need to deal with it right away—and if not, they can go home and see their outpatient doctor in the morning."

Although the hospital is adjacent to the financial district—it's just east of the World Trade Center site—she treated only one person who worked there. "I saw one stockbroker who was having chest pain after a stressful day," she recalls. "That was it." The ED saw many more patients from another near neighbor, the Metropolitan Correctional Center. "We got a lot of arrested people who had a medical problem," she says. "There were always a few patients with police escorts." A fair number of those were homeless alcoholics who'd been arrested for minor offenses like public urination, then gone into withdrawal while awaiting arraignment over the weekend. Such cases, she says, offered insights into some troubling realities of the medical and legal systems. "The sad part is that they're just going to go back to drinking after they get out of jail," she says. "It's not as though, if we put them through detox, they'll get clean and all of their problems will be solved. The way the system works, you wonder whether you're really helping at all."

Michelow praises her mentor at Downtown, emergency medicine chairman Antonio Dajer, MD. "He is constantly teaching," she says. "His dedication to teaching medical students is exceptional." An assistant professor of emergency medicine in clinical medicine at Weill Cornell, Dajer gave Michelow and her fellow students ample opportunities to hone their patient-care skills. "He made sure that when new patients came in, as long as they weren't in critical condition or needing immediate care, we could assess them, do a history and physical exam, and come up with a plan," she says. "We'd present to him, he'd see the patient with us and help fine tune our plan, and put in the orders. So we had a good degree of autonomy, and it was nice to have our work contribute to the patient's care." The experience also gave Michelow a look at hospital logistics that she might encounter in her future practice. "At Weill Cornell we have fully electronic medical records, and the system at Downtown is not as comprehensive," she says. "It's good to be exposed to different systems and practice styles." ●

As a Spanish speaker, Miller—an Ithaca native who majored in the language as a Cornell undergraduate—found her conversational skills in high demand. "If it's a trauma patient and you're waiting for them to be transported, you're just staying with them and guiding them through it," she says. "I'd try to be a friendly face and talk to them. Some of them would want to tell me all about their family and their life." She recalls one patient in particular, a Latina in her sixties who, after a long illness, had been diagnosed with cancer of the biliary tract. "When it came time to make decisions about her medical care, her whole family was there—there were different generations, like ten people in the room," Miller recalls. "Having the family be so involved is positive, but it can also be a bit of a challenge trying to make a decision with so many people. But her family really cared about her; they were so worried, and also so appreciative of what the team was doing. She was someone who will really stick with me."

Now doing a combined residency in internal medicine and pediatrics at the University of Rochester, Miller—who also did a clerkship at Ithaca's Cayuga Medical Center—is grateful for the variety of experiences she has had during her medical training so far. "All hospitals are different," she says. "You want to see and learn as much as you can during medical school. You have to try things, even if you think you're not going to like them. You have to see what it's about, because maybe it will be what you spend your life doing."

In Need of Assistants

By Sharon Tregaskis

Photographs by John Abbott

Practitioners of one of the country's hottest careers, physician assistants play a vital role in health-care delivery. A look at Weill Cornell's program, whose graduates are in high demand nationwide.

As a Cornell undergraduate, Apryl Sarabia took a classic premed track. But the summer after her junior year, an internship in maternal and fetal medicine at Robert Wood Johnson Medical School brought her up short. "As much as I loved medicine, it seemed really grueling," says the twenty-seven-year-old, who emigrated from the Philippines in 1992. "I wasn't sure I was physically capable of doing it." Back on campus, Sarabia opted not to take the MCAT, loading up on business electives. After graduating in 2007, she landed a job at Memorial Sloan-Kettering Cancer Center, where she provided administrative support to the clinical staff of an experimental treatment program and contemplated her next move.

Team players: Rahul Sharma, MD (left), in the Weill Cornell emergency department with physician assistant Jason Ausmus

The following summer, a Cornell student that Sarabia knew was admitted to her unit in the hope that a new chemotherapy cocktail might help him beat metastatic testicular cancer. The two visited often. "I felt like I came full-circle from being an undergrad and taking classes with him, and then seeing him in our unit," she recalls.

At the time, Sarabia was already focused on two career options and had filed applications for master's programs. One was in health-care administration, the other for a career—physician assistant—she'd never even heard of until she started working at a hospital. Unlike an MD, which demands five or more years of training beyond a bachelor's and can burden graduates with a daunting debt load, earning board certification as a PA would require only two more years of education. "After seeing my friend in the hospital, I decided on physician assistant school," she says. "I knew I could have a bigger impact on patients' lives by taking a clinical approach—it's like a mix between being a nurse and a doctor." Sarabia enrolled in Weill Cornell's intensive, twenty-six-month Master of Science in Health Sciences for Physician Assistants Program in March 2009. She graduated this past June and started a new job at NYP/Weill Cornell as a bone marrow transplant physician assistant in the hematology/oncology unit.

This spring, the Department of Labor declared working as a physician assistant among its top ten hot careers, with a predicted 39 percent growth rate in employment opportunities from 2008 to 2018. In 2010, describing a PA's work as "Robin to a doctor's Batman," CNN's *Money* magazine declared the profession second only to software architect among its 100 best jobs in America. "Weill Cornell recognizes the role of the physician assistant as an essential part of the health-care team," says Katherine Hajjar, MD, the Brine Family Professor of Cell and Developmental Biology and the PA program's chair. "PAs are taking on a larger role in health care, doing the things physicians don't have time to do, and it's vital that they be well

Patient visits to emergency departments have risen by 35 percent since 1990. Over the same two decades, 667 U.S. hospitals have shuttered their emergency departments, reducing the number nationwide by more than 25 percent. In New York City alone, six hospital emergency departments stopped seeing patients between 2008 and 2010.

At NYP/Weill Cornell, volume keeps increasing. Last year, 80,000 patients passed through the Emergency Department. To meet this increased demand and improve quality and speed of care, Neal Flomenbaum, MD, emergency physician-in-chief, initiated the ED Physician Assistant program; the department started hiring physician assistants in 2009. "The ED takes all comers, and the demands on emergency departments are greater than ever before," says associate director Anthony Mustalish, MD, an associate professor of emergency medicine and of public health. Rahul Sharma, MD, assistant director for operations in the Department of Emergency Medicine, notes that volumes of visits are rising exponentially. "EDs are pressed to provide the service that the patient population needs and the law requires," Sharma says. "Prior to 2009, we did not have any PAs working in our department, and now we have more than twenty. We have come a very long way."

Under Flomenbaum's direction, Mustalish and Sharma defined the job description, developed guidelines, hired PAs, and integrated them into the ED's clinical operation. Today, PAs—always partnered with an attending physician—assess all incoming patients and treat them immediately. "Even if they don't have a gunshot wound to the chest, if they have a foreign body in their eye, that's an acute situation for that patient," says Mustalish. "Expanding our staff with PAs has allowed us to see more patients much quicker while providing the highest-quality patient care."

Leslie Brooks was one of the first

Anthony Mustalish, MD (left), and Neal Flomenbaum, MD

PAs in the ED

With the number of patient visits rising, emergency departments are increasingly relying on physician assistants to improve quality of care and reduce waiting times

Emergency Department PAs hired in 2009. "If it's something we can take care of quickly, we do it," says Brooks, now the department's co-chief physician assistant. "Sometimes it can be just fifteen minutes. At some emergency departments, you're waiting several hours just to be seen by a provider." Beyond initial assessments, PAs at NYP/Weill Cornell monitor and expedite treatment of patients who spend longer in the department. "Having expanded care—because of the PAs—allows us to provide a patient-centered approach even to those who are very sick," says Mustalish. "The PA is at the bedside, working up treatment, initiating diagnostics and therapeutics."

In October, the Department of Emergency Medicine will launch a new twelve-month residency for physician assistants who aspire to careers in the field, becoming the seventh such program in the nation and the first at NewYork-Presbyterian Hospital. The inaugural class will consist of four physician assistant residents who have completed PA school and are licensed to practice in New York State. "All PAs are trained as generalists," Brooks explains. "As students, we cover all facets of medicine: emergency medicine, geriatrics, pediatrics, and gynecology. After two years and a few months, we go out into the workforce, and everything else we learn on the job."

Brooks had two years in internal medicine and emergency medicine before she started at NYP/Weill Cornell, but landing a post as a physician assistant in emergency medicine without prior experience can be tough. Brooks notes that, similar to other emergency departments, NYP/Weill Cornell tries not to hire new graduates without previous emergency medicine experience. Many emergency departments require at least one to two years of experience—but new PA graduates often struggle to find a position that will give them such exposure. "This is where our new PA residency program comes into play," says Sharma, who serves as program director for the new residency program. "Our goal is to give these PA residents the core skills required to go out and practice as a competent PA in an emergency department." While participants in the new program are employees—and earn a stipend equivalent to roughly half of what they'd make as full-time PAs straight out of school—their experience will be similar to that of resident physicians enrolled in a training program, with educational and procedure requirements during training. "This is a rigorous program," says Sharma, who worked with Mustalish to develop the curriculum. "It's a lot of hours, with overnight call, morning report, continuing medical education credits, and scholarly projects."

Leslie Brooks

In addition to working in the adult and pediatric emergency departments, PA residents will rotate through several services that already employ senior PAs, including cardiothoracic intensive care, internal medicine, and orthopaedics, as well as on several other services including anesthesia, general surgery, ultrasound, and toxicology. "At the completion of the residency program, our PAs will be highly sought after and will be prepared to go out and practice as highly skilled PAs in any emergency department," Sharma says. "The future of education and training is that physician residents will have more and more limits on the number of hours of clinical care they can provide based on the various regulations. Someone has to take care of patients. That's where PAs come in."

For more information on the NYP/Weill Cornell Physician Assistant Residency in Emergency Medicine, go to www.weillcornellparesidency.org.

trained, with critical thinking skills and the ability to read the literature."

Each year, Weill Cornell's Graduate School of Medical Sciences receives between 750 and 1,100 applications for its master of science in health sciences for physician assistants. To be considered, applicants must have accrued extensive clinical experience in addition to having completed a science-heavy bachelor's curriculum. The program enrolls just thirty-two students per class—maximum capacity for its facilities and teaching staff. The three-semester pre-clinical training phase incorporates didactic lectures and problem-based learning as well as the use of standardized patients and resources in the Clinical Skills Center. In the fifteen-month clinical phase, students complete sixteen rotations—including five electives in everything from forensics to pediatric gastroenterology—at locations in the city and around the world. "My classmates rotated in Tanzania, South Africa, Australia, and India," says Sarabia, who credits program faculty with facilitating matches that mesh with each student's career goals. "You basically pick and get what you want, which is amazing. You can't even compare it to other programs."


Margaret Vose, MS '11


Apryl Sarabia '07, MS '11

Washington, D.C., native Margaret Vose, MS '11, began work this summer as a PA on the ob/gyn unit at Mount Sinai. Certain of her long-term interest in obstetrics and gynecology, she used her elective rotations to explore other specialties. She did a stint with the Floating Hospital, which provides primary care for shelter-dwelling adults in New York City, and with Child Family Health International in Durban, South Africa, where she worked with a prenatal care program, promoting prevention of maternal-infant HIV transmission. Many of the youngsters she met in Durban were carried to appointments by their *gogos*, Zulu for grandmother. "There's a lost generation—but because of the prevention of vertical transmission these babies are alive," she says. "That gave me great insight into the crisis of HIV. I had one perspective coming from D.C. to New York City, but being in South Africa really broadened my horizons."

As an undergraduate English major at Georgetown, Vose trained as an EMT, chose electives in science, and agonized over whether to pursue training as a nurse or a doctor. "I was inspired by how much time nurses were able to spend with patients and the relationships they can develop, as well as the physicians' knowledge and the medical mystery of diagnosis," says the twenty-six-year-old. Shadowing a physician assistant at Norwalk Hospital confirmed that for her, work as a PA would offer the best of both worlds. "It was a great combination of being able to spend a lot of time with patients and diagnosing," she says. "It seemed like the perfect path."

To gain the clinical experience required to apply for training, Vose worked for a year as a nursing aide and patient care assistant at Georgetown University Hospital, where she learned to insert IVs, do phlebotomies, and take an EKG. "I was the bottom guy on the totem pole," she says. "It was a great introduction to being on the wards and learning the lingo." This spring, Vose's classmates gave her the Peer Award as the student whose compassion, commitment to learning, and team approach best exemplify the qualities of a PA—someone they'd want as a caregiver if a family member were ill.

The physician assistant profession traces its roots to the vision of Eugene Stead, MD, then on the faculty at Duke's medical school, who launched a two-year program in 1965 to credential former military medics who would work in partnership with MDs, extending the capacity of rural physicians. Weill Cornell launched its two-year surgical assistant program in 1973, becoming the second New York State institution to offer a mid-level health-care curriculum. Most of the students were mature, with a first career as military medics, EMTs, or paramedics.

Since then, Weill Cornell PA students have gotten younger (between twenty-three and twenty-five, on average) and the number of women has increased to between 60 and 70 percent of the class—lower than in many other PA programs because its surgical emphasis attracts more men. Since the Nineties, the curriculum has shifted to enhance students' exposure to primary care and family medicine, in line with the profession's emphasis on training students as

generalists. In 2007, administrators bolstered the program's connection to the Graduate School and augmented the research component, with coursework in biostatistics and research methods, as well as enhanced mentorship on the required thesis, which consists of a literature review and research proposal investigating a problem in health care. "The students design the study, choose appropriate statistical analysis methods, and defend their choices," says senior research coordinator Gary Bouchard. "We have physicians from the students' area of interest come to the oral defense and provide feedback and guidance for the students as they prepare the final draft of their thesis."

Sarabia selected her thesis topic—on the risk of high blood pressure among Asian Americans whose body mass index is lower than the overweight cutoff—because both of her parents have hypertension although neither has a high BMI. Her work, which explores the relationship of BMI to the risk of hypertension among immigrants from different Asian regions, received the program's Outstanding Research Award. Sarabia also co-authored a paper on an experimental treatment for mitochondrial neurogastrointestinal encephalomyopathy with Usama Gergis, MD, assistant professor of medicine in the Division of Hematology and Medical Oncology, who supervised her elective rotation in hematology/oncology at NYP/Weill Cornell. "Our relationship with the Graduate School allows us to impart knowledge to our students about how research is conducted so they can participate themselves, or evaluate what they read to make them better practitioners of medicine," says Gerard Marciano, program director and an instructor of physician assistant studies in clinical surgery. The emphasis on research skills also affects how Weill Cornell-trained PAs partner with their supervising MDs, says Katherine Hajjar. "The research component allows them to begin to function more independently," she says, "and not just do what they're told, but think for themselves and make decisions on their own."

After graduation, about half of Weill Cornell-trained PAs seek employment in New York State. The majority—some 80 percent, on average—land jobs in surgical areas, including orthopaedics and thoracic reconstruction, as well as urologic, breast, and plastic surgery. In July, Brendan Sayers, MS '11, began work at Memorial Sloan-Kettering in thoracic surgery. The twenty-nine-year-old Irishman earned his undergraduate degree at his country's National University.

Brendan Sayers, MS '11

'The thought of spending time in the OR and on the floor was something I was drawn to, and two years of school felt like more of an option for me than an MD and residency.'

After graduation, he got a job doing medical research, but found that without patient contact the work wasn't personally compelling. Training as a physician assistant offered the prospect of pursuing work in surgery and the ability to balance his professional pursuits with his family responsibilities.

"The thought of spending time in the OR and on the floor was something I was drawn to," says Sayers, "and two years of school felt like more of an option for me than an MD and residency." Weill Cornell's emphasis on surgery fit his interests; Sayers completed elective rotations in cardiothoracic surgery at Columbia, orthopaedic surgery at Hospital for Special Surgery, plastic and thoracic surgery at Sloan-Kettering, and emergency medicine at Lincoln Hospital in the Bronx. His thesis, on differential diagnoses of synchronous second primary lung cancer from pulmonary metastases, investigated the promise of genetic profiling to tailor treatment options.

At NYP/Weill Cornell, where Sarabia began work in mid-July, the hiring rate has been brisk. "In 2000, there were forty-four of us," says Colleen Kalmbach, the hospital's director of physician assistant services, who today oversees a staff of 300. In several units, PAs work twelve-hour shifts scheduled around the clock, a strategy that enhances patient care. "Historically, physicians come in once a day," says Kalmbach. "But now there are PAs on the floor 24/7, so the physicians have an experienced clinician available to respond to emergencies, answer patient and family questions, and expedite care so the patient doesn't have to wait for the physician to come back to the floor." With reduced availability of residents due to changing work-hour regulations, PAs play a vital role in enhancing continuity of care. "We allow physicians to concentrate on sicker patients and new patients—we hold down the fort while they're doing that," says Kalmbach. "We complement a physician's care." ●

Notebook

News of Medical College and Graduate School Alumni

PROVIDED

Michael Alexiades, MD '83

Dear fellow alumni:

I hope this finds you well and enjoying the summer after a long, hard winter and cool, wet spring here in the Northeast. The rainy weather did little to dampen the spirits of Weill Cornell students, Dean Antonio Gotto, and the Alumni Association. Your Alumni Association has been busy since my last column, including a very successful New Orleans alumni and friends dinner hosted by Dean Gotto. Prior to this, we proudly sponsored Family Day once again. This annual event, enjoyed by all, allowed families to experience a day in the life of WCMC students.

In May, the events calendar revved up as graduation approached. I joined Dean Gotto, President David Skorton, Dean David Hajjar of the Graduate School of Medical Sciences, and other faculty in Doha in the first week of May for the Weill Cornell Medical College-Qatar graduation. Thirty-one students graduated, making it the largest class thus far. Eighty-six percent of the students matched to top-notch residency programs in the United States. Many of these programs have trained or are currently training WCMC-Q alumni, indicating their high satisfaction with the quality of the students from our Qatar campus.

Back in New York, Convocation took place on May 20 in Uris Auditorium with many proud parents, faculty, and alumni present. I was delighted to be presented with a check by Peter Coombs, MD '11, on behalf of the graduating class to establish the Class of 2011 Scholarship Fund. Fifty percent of the ninety-three graduating students made a donation, many giving a symbolic gift of $20.11.

On May 22, we were delighted to honor Anne Gershon, MD '64, as our 2011 Award of Distinction recipient. The Graduate School of Medical Sciences honored Kathleen Scotto, PhD '83. Dean Gotto and Dean Hajjar were present for the event, which for the first time was a luncheon held on a Sunday in Griffis Faculty Club. Commencement was held the following day at Carnegie Hall, where I had the pleasure of formally honoring Dr. Gershon. This year, we also held the first Alumni Association Welcome Reception for the graduating class. Alumni Association board members were present to welcome the students into the WCMC alumni family. We hope you can join us next year!

I'm pleased to report that our graduates matched at many of the finest institutions around the country, exceeding our highest expectations. Several will stay here at NYP/Weill Cornell. Additionally, you can look for our newest batch of alumni at Hospital for Special Surgery, the University of Chicago, Massachusetts General, Brigham & Women's, and the Children's Hospital of Philadelphia, to name a few.

I am especially proud to announce that the Alumni Association has donated $30,000 to establish the WCMCAA International Travel Fellowship and $150,000 to establish an endowed WCMCAA Scholarship Fund. Incidentally, this donation put the Medical College over the top of the $20 million dollar scholarship goal set by Dean Gotto in the *Discoveries that Make a Difference* campaign. This milestone was highlighted at the Salute to Scholarship reception held at the College on May 17.

The last event in a very busy spring was another Alumni to Student Knowledge (ASK) session. ASK, which continues to be a hit, is a forum where students have the opportunity to speak to alumni in a particular specialty. Students ask candid questions about all aspects of the profession, from home life to professional satisfaction. This session focused on ophthalmology and was well attended. Many thanks to Robin Hayworth '75, MD '78, Vincent deLuise, MD '77, and Daniel Rosberger '81, MD '90, for participating.

On June 23, we held the annual Dean's Circle Dinner at the New York Athletic Club, which honored alumni who make commitments to the Medical College of $25,000 or more over five years or who have made an irrevocable bequest provision of at least $50,000. If you would like more information about joining the Dean's Circle, please contact the Office of Alumni Relations at 646-317-7419.

In the coming months, the Alumni Association board will meet to discuss activities for the next academic year. I look forward to updating you again later this year.

Best and warmest wishes,
Michael Alexiades, MD '83
President, WCMC Alumni Association
alexiadesm@hss.edu

1940s

John T. Flynn, MD '42: "Over the years, as is to be expected now at my age of 93, I have observed the steady dwindling of the number of my classmates, an unhappy but inevitable occurrence. At our 50th Reunion in 1992, I had the pleasure of renewing old friendship with **Peg Austin Child, MD '42**, **Sol Blondheim, MD '42**, **John Hooley '38, MD '42**, **Bob Kiskaddon, MD '42**, **Larry Lee, MD '42**, **Art Philson, MD '42**, and **Katherine Swift Almy, MD '42**. Since that time I have had intermittent communication with Peg Austin Child, Bob Kiskaddon, **Bill Dean, MD '42**, and **J. B. Mayes, MD '42**. I spent 2-1/2 years in the military immediately after internship at New York Hospital and subsequently was a resident in internal medicine in the Cornell Division at Bellevue. After ten years of private practice in New York City, I was chief of medicine at Beekman Downtown Hospital (now New York Downtown Hospital) from 1965 to 1979 and thereafter associate chief of medicine. Within the past year, the Dept. of Medicine was named after me, though I still feel that the honor should have gone to a different valuable and respected member of our staff. As the progenitor of three children, six grandchildren, and two great-grandchildren, I am kept busy by their activities. My eldest son, a Navy veteran of the Vietnam War, died in 2002 of non-Hodgkin's lymphoma. My other son is supervising the reclamation of the Colorado River basin at Yuma, AZ. One grandson works for the Truman National Security Project. One granddaughter, having completed nearly 18 years in the Navy, transferred to the Army and recently was assigned to nine months as an Army medic in Afghanistan. Her two children are ages 15 and 2."

David R. Tomlinson, MD '43: "I am now living in a retirement community affiliated with the hospital where I was born (Samaritan) and worked."

Edmund Welch, MD '49: "I am reasonably well although I am driven by a cardiac pacemaker. No more tennis—my knees have told me to stop. It's good to be back in our old hometown of West Hartford. I wish more of my class had been able to attend the last reunion. I correspond by e-mail with **Harold Evans, MD '49**, often. I don't know where he gets so many jokes. Anyway, my e-mail is etwjdw @ yahoo.com. I would love to hear from other classmates."

1950s

William C. Porter Jr., MD '50: "Patti Ann and I recently spent three weeks in Aspen, CO, for the wedding of Patti's elder daughter and a family reunion. We had a great time. What a beautiful state: 'spacious skies,' beautiful mountains, and great plains."

Stanley Birnbaum, MD '51: "After graduation I stayed on as an intern, resident, and chief resident (1956) at New York Hospital. I then joined the full-time ob/gyn staff, ending up as director of gynecology and vice chair. About 15 years ago, as professor emeritus, I went into private practice as a clinical professor at NewYork-Presbyterian. I'm still in active practice at 449 East 68th St. I live in Manhattan with my beautiful wife, Michelle, and enjoy my two grandchildren and three daughters."

Ames L. Filippone '50, MD '53: "It's now 11 years since I retired as chief of surgery at Morristown Memorial in New Jersey, and I miss most the daily multitude and the technical problem-solving in the operating room. But four young granddaughters are a welcome diversion and loads of fun. I've returned to two reunions; considering that it's been 60 years since graduation, most of my classmate are doing well—**Jack Richard '50, MD '53**, **Allen Mead, MD '53**, **Earnest Curtis Jr., MD '53**, and **Ira Kaufman '48, MD '53**, among others."

Calvin Kunin, MD '53, is happily retired as emeritus professor of internal medicine at Ohio State University and remains active as a clinical professor of medicine in the Division of Infectious Diseases at the University of Arizona in Tucson. His major medical activities are reviewing and editing manuscripts, consulting on research, and teaching infectious diseases during annual visits to Taiwan. Calvin and his wife, Ilene, are avid birdwatchers. He considers that he has not identified a new bird unless he has photographed it. Retirement has provided the opportunity for daily walks, swimming, travel, reading in history and literature, and good conversations. He has fond memories of his teachers and classmates and is always delighted to hear from them. He can be reached at ckunin @ columbus.rr.com.

Frederick Abrams '50, MD '54, continues to teach Healthcare Ethics both at Denver University Graduate Level and at the Denver adult education organization, the Academy for Lifelong Learning. Classes are partly based on his bestselling book *Doctors on the Edge: Will Your Doctor Break the Rules for You?*

Howard Feinstein '51, MD '55, PhD '77: "I practice psychopharmacology. My wife, Rosalind, and I met **Mickey Hollenberg, MD '55**, and his wife, Carol, at the Gertrude Stein exhibition in San Francisco in July. Mickey has retired and written a very interesting memoir. We were in

'I correspond by e-mail with Harold Evans, MD '49, often. I don't know where he gets so many jokes.'

Edmund Welch, MD '49

Getting ahead: WCMC-Q graduate Aba Al Kaabi, MD '11, adjusts her cap at Commencement in New York.

AMELIA PANICO

San Francisco briefly on our way to hike in the Sierras with our son, Jonathan, his wife, Meera, and their 2-year-old son, Isaac. We did not attempt to climb El Capitan, but we did make our way (slowly) past rushing streams and falls up to 10,500 feet elevation and enjoyed the spectacular snow-covered peaks."

George C. Schussler, MD '56: "I am retired and living in New York City. I would be happy to hear from classmates."

W. Thomas London, MD '57: "Our wonderful, smart, funny, talented classmate **Edmund O. Rothschild, MD '57**, passed away on March 16, 2011. Ed was my closest friend from our class. I would see him every summer at Martha's Vineyard and once or twice in New York during the winter. He always wanted me to go out on his boat, and when he couldn't get me because I found it boring, he would entice one of my grandchildren by describing the wonders of fishing. One boat ride was usually enough for them, but Ed persisted and sometimes succeeded in getting one of them to go a second time, but never more. It always seemed like Ed knew everyone on Martha's Vineyard and everyone on City Island where he lived the rest of the year. He was doctor, friend, and adviser to untold numbers of people. He kept in touch with many classmates and was a friend when one was needed. His death is a profound loss for me and the surviving members of our class."

Bernie Siegel, MD '57: "I have a new book coming out in the fall. *A Book of Miracles* is filled with amazing stories and personal commentary about what each story teaches us. Our potential is underestimated, and we rarely learn from success in our profession. Self-induced healing is not a spontaneous remission or miracle. The person involved has something to teach us."

Clyde Barker '54, MD '58, was elected president of the American Philosophical Society.

Larry Grolnick '54, MD '58: "My day job is as a psychiatrist. After hours, I play jazz and swing on the bass viol. I'm seeking a local NYC amateur pianist, perhaps one or two others, to jam with. In June, Maureen and I enjoyed a brunch at the Scandinavia House with **Al Attia '55, MD '58**, his wife, Leila, and another couple. It felt good to share and compare our continuing practice experiences with Al. Two of Al and Leila's kids are physicians; one son practices GI with Al, and a daughter has distinguished herself in clinical work with anorexia nervosa, mainly at the Westchester Division of NYP/Weill Cornell."

Ann H. Kazarian, MD '58: "After six years in Frisco, TX, we are returning to Connecticut. Texas just wasn't 'home' to us. I retired from a solo private practice of psychiatry in Hartford, shortly before the move to Texas for medical reasons (babesiosis, for one—I didn't even know what it was until I met with it), and the kids didn't want to leave me here alone after Ed's death in 1999. So I followed our daughter and her family, which increased by one more while we were there, but now we will all be in Connecticut again. I arrived in Texas shortly before Katrina and did my best to volunteer on my Connecticut license, but Texas regulations were complicated. By the time I got all that straightened out, no one knew how to use me despite the continued influx of people who had fled the storm and its consequences."

Jim Shepard, MD '59: "Last year Sally-Jean signed us up for a trip to Tunisia, and then the revolution resulted in travelers being evacuated. After several months they decided to send groups that wanted to chance it. Eight of the original 15 signed on for what turned out to be a fabulous trip. We were the only guests in many of the hotels. Down near the Libyan border, I met an International Red Cross worker who remembered me caring for a colleague of hers. Sally picked the Ukraine trip for next year."

1960s

Charles Flynn, MD '61: "Hope to attend reunion for our class. Have been in contact with other '61 class members including

Dick Chapman and Tom Dailey. We were unexpectedly reunited 44 years ago at a US Army Evacuation Hospital in the Vietnam coastal garden spot of Qui Nhon. We served as surgeons for the US, and I think that we were proud to do so, despite some political differences with the administrations of the day."

John L. Krause Jr., MD '61: "I developed chronic myelogenous leukemia two months after retirement in January 2006. Dr. Ellin Berman at Memorial Sloan-Kettering got me in total remission promptly, and I have remained there since October 2006. I am looking forward to our 50th Reunion in 2012. Best wishes to all."

F. James Rybka, MD '61: "I'm a retired plastic surgeon living in Gold River, CA. I occasionally work as a volunteer plastic surgeon overseas. My biography, *Bohuslav Martinů: The Compulsion to Compose*, was published by Scarecrow Press. Martinů was a prolific Czech composer who had Asperger syndrome, which greatly facilitated his writing music."

Jerry Mandell '58, MD '62: "After med school I did my internship and residency in medicine at New York Hospital-Cornell. I spent two years in the Public Health Service on the Navajo Reservation at Tuba City, AZ (remember Many Farms?). I then finished my infectious disease fellowship at NYH-Cornell and moved to Charlottesville, VA. I was chief of infectious diseases at UVA for 33 years and just became an emeritus professor—I love it. We live in the country just outside of Charlottesville. Come visit us and see Monticello, Ash Lawn, the UVA campus, and more. We have lots of room."

Gus Kappler '61, MD '65: After completing surgical training at the Medical College of Virginia, Gus served as an Army trauma surgeon at the 85th Evacuation Hospital, Phu Bai, Vietnam, from September 1970 to September 1971. He retired from private solo practice in Amsterdam, NY, spanning vascular, thoracic, and general surgery, including endoscopy, in September 1999. Since then, while wintering in Manhattan, he has volunteered as a facilitator in Problem Based Learning (PBL): Human Structure and Function. He says this is a "deeply rewarding endeavor." Gus was honored by Weill Cornell on June 29, 2011, at the Excellence in Teaching Celebration. He is looking forward to PBL in 2012, his 12th year, and many more years to come.

Deborah Pavan Langston, MD '65: "I am 71-plus without the sense to retire. Still working full time at Harvard Medical School (professor of ophthalmology) and Massachusetts Eye & Ear Infirmary (surgeon in ophthalmology). I have one grandchild and another on the way. I saw **Michelle Palmieri Warren, MD '65**, and **Ellie Toaz Neuhauser, MD '65**, at my 50th Harvard Reunion. Michelle is still at Columbia, and Ellie is enjoying retirement. Both look great. I was honored by Phi Beta Kappa at Harvard's 2011 Commencement. It took took me 50 years to do what most do in four. Sorry I missed our reunion."

Hillel I. Swiller '61, MD '65: "I'm clinical professor of psychiatry at the Mount Sinai School of Medicine and director of its Division of Psychotherapy, which I cofounded with Ken Davis in 1988. Our division serves as a counterweight to the over-reliance on psychopharmacology that pervades modern psychiatry. We have a voluntary faculty of about 80 physicians, psychologists, and social workers who provide much of the teaching of all modes of psychotherapy to students and residents. We have substantial interests in group, family, and marital therapy and representatives of various schools including psychoanalysis, CBT, and systems theory. Twice each week we conduct well-attended faculty conferences on both theoretical and clinical issues.

"Willa and I celebrated our 45th wedding anniversary this year. Our oldest son, Ari, and his wife, Martha, have three daughters: Olivia, 9, Annie, 7, and Jane, 3. Josh is a professional writer, and his memoir of his time in Africa with the Peace Corps, *The Unheard*, received rave reviews and was briefly on the *New York Times* extended bestseller list. Zev is preparing for a career as a psychotherapist. Sam, our youngest, is deputy director of real estate development for Gallaudet University. My health has been a bit less than ideal; in the last few years I have had two cancers and needed two cardiac and a few other surgeries—but I am still here, treating patients and teaching and grateful for the wonderful life I have had and continue to enjoy. I have warm memories of my time at the Medical College and especially of my classmates."

R. Steven Singer, MD '69: "I must report that I am dumb enough to still be in the full-time practice of medicine. I'm a neurologist, but I have had a headache clinic for more than 20 years. That translates to 100,000 headache visits—which explains why I didn't retire. I have no idea what to do with all these patients, many of whom I still follow and many of whom nobody else wants. I regret that I did not attend our last reunion, which sounded like fun. I continue to work on some medical projects, particularly daily persistent headache and the use of cytokine testing."

1970s

Francis V. Adams, MD '71: "I published a new edition of my book *Healing Through Empathy: An Expanded Edition* in December, and the reviews have been positive. I am still hosting Doctor Radio on Sirius XM and continue to work for the NYPD while maintaining my pulmonary practice in Manhattan."

Frank Bia, MD '71, and **Peggy Johnson Bia, MD '72**, look forward to a joint 40th Reunion and reconnecting with colleagues in October 2012. Peggy continues her dual roles in transplant nephrology and as director of clinical skills training at Yale Medical School. Frank is now the medical director of AmeriCares, a humanitarian and disaster relief organization, while continuing on the Yale emeritus faculty. Their oldest, Jesse, is a graduate student in social anthropology, concentrating on Japan, at the University of Oxford, and Josh, their younger son, graduates from Tulane University in 2012.

Wynn H. Hemmert, MD '71: "I plan on retiring next summer after 34 years (save three years of full-time church service in SE Florida) of practicing gastroenterology at the Central Utah Clinic. I was the sixth physician to join a group of internists in Provo, UT, and now the clinic has grown to include 130 physicians on several campuses in central and southern Utah, the largest independent multi-specialty group in the state. I served as president of the clinic for several years and am now chairing only a couple of key committees. Joyce and I have been blessed with six wonderful children (and spouses) and 20 grandchildren. We recently had a weeklong family reunion in Keystone, CO. When we're all together, we have a soil scientist, a software licensing attorney, a dentist, a CFO for a large private investment company, an ER physician, a recently graduated MBA, and spouses

around the table—making for lively conversation. Our lives have been full, and our activities rewarding and varied. As we are in the autumn of our years, we look on our time at the Medical College with deep gratitude and a warm smile. God bless."

Barry S. Levy, MD '71, has recently co-edited three books: the sixth edition of the textbook *Occupational and Environmental Health,* the second edition of *Terrorism and Public Health,* and *Mastering Public Health: Essential Skills for Effective Practice*, all of which have been published by Oxford University Press.

David Folland, MD '72: "Since retiring from 32 years of primary care pediatric practice, I have become concerned about the health of the planet I'm leaving for my posterity and the patients I cared for. I'm a volunteer for Citizens Climate Lobby, an organization that is working for a sustainable planet. Similarly concerned alumni can learn about the organization and get involved at http://citizensclimatelobby.org."

Kenneth Kelleher, MD '72: "I have been enjoying life stateside for the past year. I spent six months with a British hospital in Helmand Province, Afghanistan, where I was involved in more than 1,500 operations. This was my third tour (Fallujah '04, Baghdad '07), and the best so far. No sign of retirement. I have too many dependents still living off the dole. Looking forward to the 40th Reunion."

William B. Kleinman, MD '72: "Susie and I are approaching 33 years of marriage, and 33 years at the Indiana Hand to Shoulder Center. We have ten surgeon/partners (I'm now the senior man; all you have to do is hang in there long enough) and six one-year hand fellows. I teach the orthopaedic residents at Indiana University School of Medicine as a clinical professor of orthopaedic surgery. Our organization has been committed to academic hand surgery since I landed in the Midwest. I've now trained more than 200 hand fellows since landing in Indianapolis in 1978. Most of our friends from medical school and residency never thought we'd survive west of the Hudson, but look at us now. We have three kids: Laura, 27, an attorney in Manhattan; Sarah, 26, finishing her Rhodes Scholarship DPhil in Oxford; and Marc, 24, looking for a job following his master's in biomedical engineering from Purdue, with an emphasis in neuroscience. For those who remember (**Dorothy Stein Bisberg, MD '72**, I haven't forgotten our little accident), I still drive a motorcycle regularly. I've also been a private pilot and raced Porsches for ten years. I miss the four outstanding years we had at the Medical College. The 91 of us were fortunate to have had the best experience available at the time."

Allan Lee Kayne, MD '73: "After 27 years of clinical practice in dermatology and more than six as US medical director for Schering/Bayer Dermatology, Melanie and I have moved to Boca Raton, FL, with our youngest son, Sam. I hope to keep working as a consultant, but look forward to plenty of R&R. I won't miss the rain of Seattle or the snow of the Northeast."

John P. Mitchell '69, MD '73: "I was honored that my play *Map Boule: Love in the Time of War* was selected for the 'A' list at the biannual National Black Theatre Festival in Winston-Salem, NC, for a reading by professional actors. The play is about love and conflict that surrounded the president of Haiti in 1915. Events eventually led to a massacre of 168 political prisoners and the invasion of US Marines. I'm the moderator in neuro-ophthalmology, Section of Ophthalmology, National Medical Association; attending surgeon, St. Luke's-Roosevelt Hospital; attending, Edward S. Harkness Eye Institute, NewYork-Presbyterian Hospital; assistant professor of clinical ophthalmology, Columbia University, College of Physicians & Surgeons."

Thomas M. Anger, MD '75: "My latest CD, *Local Honey*, will be out soon—14 original songs. The proceeds from sales support One-Step-At-A-Time Camp for children with cancer. If you would like a copy, shoot me an e-mail: anger1 thomas @ comcast.net."

J. Ronald Rowes, MD '76, is medical director of medical management/utilization of managed care for the North Shore Long Island Jewish Healthcare System and has been appointed assis-

'Most of our friends from medical school and residency never thought we'd survive west of the Hudson, but look at us now.'

William B. Kleinman, MD '72

To a degree: Carol Storey-Johnson, MD '77, senior associate dean for education, hands out diplomas.

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tant professor of population health at the Hofstra-NSLIJ School of Medicine.

Ralph C. Budd '73, MD '77: "I have been on the faculty at the University of Vermont for the past 22 years and am now professor of medicine and director of the Vermont Center for Immunology and Infectious Diseases. We have 23 faculty and are funded by an NIH Center of Biomedical Research Excellence Award. I also still see rheumatology patients one afternoon a week, am a senior editor for Kelley's *Textbook of Rheumatology*, and run a laboratory studying cell death in the immune system and the immune response in Lyme arthritis. In my little bit of free time, I swim, kayak, bike, and am trying to teach myself jazz piano."

Mark Kris, MD '77: The American Society of Clinical Oncology honored Dr. Kris with the inaugural ASCO Humanitarian Award for his dedication and compassion. He is the chief of the thoracic oncology service and the William and Joy Ruane Chair in Thoracic Oncology at Memorial Sloan-Kettering Cancer Center and serves as professor of medicine at Weill Cornell. Dr. Kris is a pioneer in lung cancer research and treatment. He has also assisted with humanitarian aid in poor and disaster-stricken areas of the US and overseas.

Ted Li, MD '77: "I'm practicing general internal medicine in Washington, DC. I was a director of the American Board of Internal Medicine from 1996 to 2000 and continue to serve on a committee that develops questions for the certifying team. We have two daughters and two sons ages 18 to 29. I see **Fred Gordin, MD '73**, who is chief of infectious disease at the VAMC in DC and whose son, **Jonathan Gordin, MD '10**, graduated from Weill Cornell last year."

William J. Burtis, MD '79, has been named Community Clinician of the Year by the Middlesex Central District Medical Society. The Massachusetts Medical Society established the award in 1998 to recognize a physician from each of its 20 district medical societies who has made significant contributions to the community and who stands out as a caregiver. Dr. Burtis is board certified in internal medicine and endocrinology and specializes in treating diabetes, thyroid disease, and osteoporosis. He is affiliated with Emerson Hospital in Concord, where he chaired the diabetes care committee. He is a former member of the Concord Board of Health.

1980s

James Bauman, MD '80, was named one of the state's best physicians by *Connecticut Magazine* in its annual "Top Docs" feature in the April 2011 issue. Dr. Bauman is a radiologist at Norwalk Radiology & Mammography Center. He trained as a resident in radiology at New York Hospital-Cornell Medical Center and served as chief resident in 1984. In 1985, he completed a postgraduate program in body imaging at NYU Medical Center. Dr. Bauman has served on the staff at Norwalk Hospital since 1985.

Robert Naparstek, MD '80: "Lisa and I have moved to Providence and love it. After more than 20 years of clinical occupational and environmental medicine, I'm developing a public health advisory practice for government and employers. I can still get excited about work."

Douglas F. Buxton, MD '82, was appointed president of the Jorge N. Buxton Microsurgical Education Foundation at the New York Eye and Ear Infirmary.

Paul N. Casale, MD '82, has been appointed by Kathleen Sebelius, secretary of health and human services, to the National Advisory Council for Healthcare Research and Quality. The council provides advice to the secretary of health and human services and the director of the Agency for Healthcare Research and Quality on actions to enhance the quality, improve the outcomes, and reduce the costs of health-care services, as well as to improve access to care. As a member of the council, Dr. Casale—chief of cardiology at Lancaster General Health and clinical professor of medicine at Temple University School of Medicine—will recommend priorities for a national health-services research agenda and strategies to promote improvements in clinical practice and in the organization, financing, and delivery of health-care services.

Frederick J. Barnes, MD '86: "I am chief of orthopaedic surgery at Pocono Health System and enjoying my time with my wife, Virginia (also a doctor), and children, Charles and Lillian Rose. I can't believe it has actually been 25 years since graduation. All the best to my fellow alumni."

Judith Rovno Peterson, MD '86: "My book *Dance Medicine Head to Toe: A Dancer's Guide to Health* has been published by Princeton Book Co. and released nationally."

Sven Berg, MD '87: "I am the chief of medical staff at Wilford Hall Medical Center. I'm finally 'retiring' from the Air Force in December and am actively seeking my next opportunity as a physician executive. My wife, A'Lynn, and I are proud parents of five children and have two grandsons. Our oldest son, Patrick, decided to follow in my footsteps and will begin medical school in Texas later this year."

Theresa Rohr-Kirchgraber, MD '88: "I'm the executive director of the Indiana University National Center of Excellence in Women's Health and an associate clinical professor of medicine and pediatrics in the section of adolescent medicine. I'll be working to improve the health of women in Indiana. Look for a rebuttal to the doctor shortage in "The Way I See It" in *Medical Economics*: http://digital.healthcaregroup.advanstar.com/nxtbooks/advanstar/medec_20110725/index.php#/64."

1990s

John L'Insalata, MD '90: "I currently practice orthopaedic surgery/sports medicine in Brooklyn and Staten Island. Donna (whom I married while at Cornell) and I have three children ages 10, 14, and 16. I coach both boys' and girls' youth travel soccer on Staten Island. This past spring, I took my boys' team along with a girls' team to Italy to participate in the Agropoli Cup, a FIFA-sponsored international tournament. Both teams performed very well, with the girls' only loss coming in the final against a professional club from Padula."

Daniel B. Jones '86, MD '90: "With the American College of Surgeons and Association for Surgical Education, I am directing the ACS-ASE Skills-Based Simulation Curriculum for Medical Students Years 1-3. This goes along nicely with my latest book, *Textbook of Simulation: Skills and Team Training*. With SAGES I am developing a high stakes certification for surgeons for the Fundamental Use of Surgical Energy (FUSE). I call out to all surgeons to attend SAGES in San Diego in 2012. As the program chair, I predict this will be the best surgical meeting ever, with topics on NOTES, POEM, and robotic surgery."

Abraham Leung, MD '91: "I am leading

Thumbs up: WCMC-Q graduate Grigori Ostrovsky, MD '11, celebrates before the Carnegie Hall ceremony.

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the efforts in moving into Phase 3 development for market approval of a novel 'hybrid biologic property like targeted topoisomerase-1 inhibitor chemotherapeutic' drug for the treatment of patients with advanced platinum-resistant ovarian cancer demonstrating impressive anti-tumor activity and significant improvement in PK/PD and safety profile."

Jeff Kauffman, MD '93: "After nine years at Sacramento Knee and Sports Medicine, where I had an orthopaedic practice that specialized in shoulder and knee surgery, I have moved back to New York. I joined a practice called the Orthopedic Associates of Dutchess County and am living in Cold Spring, NY, with my wife, Uschi, and daughter, Heidi."

Chris Hidaka, MBA '91, MD '94: "In late 2009 I started the Dolphin Dance Project. Our debut film, *Together: Dancing with Spinner Dolphins* (3 min., 33 sec.), depicting the tender relationship between a human and a wild spinner dolphin, won Best Experimental Film at the Big Apple Film Festival last year and has been playing at numerous film festivals and cetacean conservation events in the US and around the world. We've now started work on a second film that will not only feature the human-dolphin underwater dance but also have commentary from scientists and dancers that contextualizes the interspecies dance-making. Ultimately our ambition is to inspire viewers to have greater respect for and interest in dolphins, their habitats, and the planet we share with these amazing, intelligent, creative creatures."

Sharon Margulies Stoch, MD '95: "For the last ten years I have been working as a primary care provider at Paramount Medical Group in Warren, NJ. We are soon going to become part of Summit Medical Group, a large multispecialty group in the area. I'm married, with three lovely kids, and living in Livingston, NJ."

Michael S. Suzman, MD '96: "I live in Scarsdale, NY, with my wife, Leesa, and three daughters: Chloe, Maisie, and Brooke. I'm director of plastic surgery at Westmed Medical Group, a multi-specialty group practice."

Eric Burdge, MD '98: "I just returned from a six-month deployment to Qatar. (This world surely is a small place. I had no idea I would ever see Weill Cornell Medical College-Qatar in person.) I read the latest edition of *Weill Cornell Medicine* upon arrival home. Great work! I completed general surgery residency at the Long Island Jewish Medical Center in 2005. I was in New York City (rounding) on that despicable day, September 11, 2001. After watching the Twin Towers crumble from the 8th floor of LIJ Hospital, I immediately recruited myself to serve our great nation and joined the US Air Force. I have since been deployed in support of multiple contingency operations, performing numerous surgeries for acute combat trauma conducted in the forward austere operative milieu of war. I most recently served at Al Udeid AB, Qatar, as the sole general surgeon. What a wonderful campus we have in Qatar. It's totally awesome to see and feel Weill Cornell's presence and watch the next generation of physicians being educated.

I am married to a wonderful woman, Tally, and we have three lovely daughters: Elena, 6, Juliana, 4, and Angelina, 18 months. They are a joy to behold and to guide, and they certainly have taught me a great deal about life and what truly should be important. In 2010 I was promoted to the rank of lieutenant colonel, and I'm currently stationed at the Kessler Medical Center in Biloxi, MS, working as a board-certified attending general surgeon and also as teaching faculty for the Air Force's largest general surgery residency program. This July marked the complete resumption of their residency program here at Kessler since Katrina in 2005. We now have a full cadre of residents to include PGY 1-5. Now that Osama bin Laden has been apprehended, I have decided to separate from the USAF and move on with my family life and career. It was his dastardly deed that precipitated my enlistment, and I now feel that I can continue with my career goals given that that task has been accomplished. I am applying for a surgical oncology breast fellowship—fun times around the corner. I hope to match in NYC, perhaps close to Weill Cornell. I would love for my family to see and experience the wonders of NYC and the Upper East Side. At any rate, thanks for supporting the troops and for serving our alumni so well. Above all, thank you, Weill Cornell Medical College, for the wonderful education that you provided me, which in turn has benefited the many wounded soldiers to whom I have rendered aid."

2000s

Michael S. Irwig, MD '00, published a study in the *Journal of Sexual Medicine* about a group of otherwise healthy men who developed persistent sexual side effects associated with the hair loss medication finasteride, despite the discontinuation of the medication. Most of these men reported problems in multiple arenas (libido, arousal,

erectile function, and orgasm), and sexual dysfunction lasting more than five years was reported by 20 percent of the subjects. The research has gathered national and international coverage on TV (CBS in New York, Chicago, and Philadelphia), on the radio (CBS Radio), online (MSNBC.com, AOL.com, ABCNews.com), and in print.

Jodi Accaria Chitwood, MD '01: "We recently celebrated our son Connor's first birthday. His sister, Allison, turned four years old in February. I'm continuing to practice outpatient internal medicine at Piedmont Hospital in Atlanta, GA."

Daniel Goldin, MD '01: "I am in private practice of internal medicine/primary care on the Upper East Side. I saw **Andria Cardinalli-Stein, MD '01**, at this year's American College of Physicians meeting in San Diego. I see **Michael Stern, MD '01**, in the NYP ED from time to time, and I read radiology reports written by **Hilary Hochberg, MD '02**. Hilary and I also commute together occasionally.

Peter Stahl '99, MD '04, and **Eddie Nejat, MD '04, MBA '05**, WCMC classmates and former roommates, are in fellowships for male reproductive medicine and microsurgery (Weill Cornell) and infertility (Albert Einstein College of Medicine), respectively. They recently co-authored a manuscript entitled "Successful Treatment of Post-chemotherapy Azoospermia with Microsurgical Testicular Sperm Extraction: The Weill Cornell Experience" that appeared in the April 2011 issue of the *Journal of Clinical Oncology*. In addition to being colleagues, they remain close friends.

Alice Chen, MD '05: "I'm taking a position as the executive director of Doctors for America, a national movement of 15,000 physicians and medical students who are working together to improve the health of the nation and to ensure that everyone has access to affordable, high-quality health care. I'll be splitting my time between Washington and my clinical practice as a hospitalist at UCLA. If anyone is interested in learning more or getting involved, I'd love to have more Weill Cornellians join the movement."

Katharine Lampen-Sachar, MD '07: "I am a fourth-year radiology resident at NYP/Weill Cornell and planning on doing a fellowship in breast and body imaging at Memorial Sloan-Kettering Cancer Center starting in July 2012. I have ten-month-old twin girls named Sophia and Isabelle. My e-mail is Kate.Lampensachar @ gmail.com."

In Memoriam

'40, '43 MD—Irving B. Harrison of Los Angeles, CA, February 14, 2011; psychiatrist; author.

'40, '43 MD—I. Robert Wood of Clifton Springs, NY, April 1, 2011; retired pediatrician; assistant professor, U. of Rochester Medical Center; lead pediatrician, Monroe County Health Dept.; co-founder and medical director of a camp for handicapped children; US Army paratrooper; track and cross country coach; active in civic, community, professional, and alumni affairs.

'50 MD—John A. Crago of Gainesville, FL, April 28, 2011; practiced internal medicine; US Army veteran; taught high school history; active in community and alumni affairs.

'50, '53 MD—Gerald M. Silverman of New York City, May 30, 2011; specialist in internal medicine and neurology; clinical professor, Weill Cornell Medical College; officer in the Epidemic Intelligence Service, US Public Health Service; Indian reservation medical officer; chief resident, Bellevue Hospital.

'50, '54 MD—Robert P. Singer of Richmond, VA, March 29, 2011; neurosurgeon; founding partner, Neurosurgical Associates; active in community affairs.

'54 MD—Louis J. Dougherty of Woodcliff Lake, NJ, September 19, 2010; urologist; associate professor, Dept. of Urology, Columbia Presbyterian Hospital; affiliated with Valley Hospital, Ridgewood, NJ.

'55 MD—Robert Engisch of Williston, VT, July 3, 2011; neurologist; practiced at Fletcher Allen Hospital, Kerbs Memorial Hospital, and at his office in Plattsburgh, NY; veteran; skier.

'57 MD—Edmund O. Rothschild of Bronx, NY, March 16, 2011; medical director, St. Joseph's Hospital and Medical Center, Paterson, NJ. Wife, **Kathleen Lonergan '75**.

'58 MD—J. Thomas McKnight of Syracuse, NY, May 31, 2011; practiced surgery at Crouse Hospital, with affiliation at community and university hospitals; woodworker; active in community and religious affairs.

'64 MD—Robert J. Capone of Clifton Park, NY, June 29, 2011; professor of medicine at Brown University; cardiologist, Rhode Island Hospital; worked at Albany College of Medicine before retirement.

'66 MD—O. Scott Hume of Houston, TX, April 27, 2011; obstetrician and gynecologist; worked in the ob/gyn department, University of Texas Medical School; trained nursing students in the Retired Physicians program; member, Harris County Medical Society, Texas Medical Assn., and the American College of Ob/Gyn; US Army veteran; master gardener.

'70 MD—Henry E. Streitfeld of Berkeley, CA, April 26, 2011; obstetrician and gynecologist; trained surgical residents at Alta Bates Summit Medical Center; US Air Force surgeon.

Faculty

Martin Sonenberg, MD, PhD, of New York City, June 27, 2011; professor of medicine and biochemistry, Weill Cornell Medical College; chief of endocrinology, Memorial Sloan-Kettering Cancer Center; developed treatments for thyroid cancer and growth disorders; chair, National Institutes of Health Endocrine Study Section; US Navy veteran.

Post Doc

3-D Classes

Two surgeons travel the world to spread the word about their high-tech, minimally invasive approach to tumor removal

In February, two Weill Cornell surgeons flew 7,800 miles to bring the latest endoscopic techniques to India—performing the nation's first-ever 3-D skull base and pituitary surgeries for an eager audience of sixty colleagues. The two-day workshop, at Dr. Balabhai Nanavati Hospital in Mumbai, included morning lectures and a cadaver dissection. It culminated in the live procedures, in which Theodore Schwartz, MD, professor of neurological surgery, and Vijay Anand, MD, clinical professor of otolaryngology-head and neck surgery, operated on two patients: a woman losing her vision due to a pituitary tumor compressing her optic nerve and a teenage boy with a baseball-sized juvenile nasopharyngeal angiofibroma growing into his skull base. "The tumors were both benign," Schwartz notes, "so when we took them out, the patients were cured."

The minimally invasive technique allows for an approach through the nostrils; the teenager, for example, was spared the significant facial scarring that would have resulted from conventional surgery. "It's a great approach," says Anand, a native of India who arrived two weeks early to spend time with family. "It gives phenomenal access to areas that in the past were thought of as inaccessible." The technique also shortens surgery times, cuts costs, and reduces the likelihood of complications. "These patients can usually go home in one to two days, rather than staying in a hospital for four or five days and then coming back for suture removal and having a more prolonged recovery," says Schwartz. "They bounce back much more quickly."

Schwartz and Anand have been successfully performing the minimally invasive technique for many years. But soon after they began using it, Schwartz says, "we realized that one of its limitations was that an endoscope is two-dimensional—it has a single eye and it projects an image onto a flat screen." The 3-D endoscope, which the surgeons designed in collaboration with equipment manufacturers, still has one lens, but it employs digital processing to create a three-dimensional image, greatly enhancing the depth of field. The surgeons wear 3-D glasses, viewing the proceedings on a widescreen monitor. "Worldwide, these techniques are newly proliferating," Schwartz says. "People in India are very interested in learning them. They were very excited and appreciative."

PROVIDED BY THEODORE SCHWARTZ, MD

Teaching case: In Mumbai, Theodore Schwartz, MD (center), performs endonasal surgery to remove a pituitary tumor compressing a woman's optic nerve. Vijay Anand, MD (right), looks on after performing the opening.

Schwartz and Anand authored a textbook on minimally invasive neurosurgery, *Practical Endoscopic Skull Base Surgery*, published in 2007; four years later, they followed up with *Practical Endoscopic Pituitary Surgery*, scheduled for publication early next year. They've traveled the world to spread the word about the technique; they've visited Turkey, France, Austria, Brazil, and Dubai, among other locales, and invitations continue to pour in from China to South America. They also host international fellows who come to New York to view the program firsthand. "We have taken this message to different parts of the world," Anand says. "They're all amazed at the quality of our outcomes—and the fact that this is even possible."

— Beth Saulnier

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