

Rusk Extends Its Reach

Building on a Unique, Enduring Legacy, the Rusk Institute of Rehabilitation Medicine Forges a New Chapter in Its History



Dr. Preeti Raghavan, director of the Rusk Institute's Motor Recovery Research Laboratory, uses a high-tech glove studded with sensors to study the complex mechanics of a basic, vital function of the hand: grasping.



Joshua Bright

Only a few research laboratories anywhere study how the human hand interacts with the world around it, and one of them can be found at NYU Langone Medical Center's Rusk Institute of Rehabilitation Medicine. As director of Rusk's newly created Motor Recovery Research Laboratory, Preeti Raghavan, MD, assistant professor of rehabilitation medicine, investigates how brain injury affects motor skills—particularly the essential function of grasping—in patients afflicted by a stroke, traumatic brain injury, or neuromuscular disease. "Much of the improvement in function or dexterity is a result of the brain's compensation strategies rather than true recovery of the impairment," she explains. "We don't understand why some patients recover better than others, or even how therapy actually works. Here,

we dissect the components of physical therapy to develop more efficient strategies to retrain the brain."

The establishment of Dr. Raghavan's highly specialized research program says much about how the institute is advancing rehabilitation medicine, as well as where Rusk—the world's first university-affiliated facility devoted entirely to rehabilitation—is headed. "There is a great need for this type of research," says Steven Flanagan, MD, professor and chair of the Department of Rehabilitation Medicine. "We need to demonstrate not only that rehabilitation works, but which aspects or treatments are most effective."

Long renowned for its know-how, Rusk is increasingly focused on the know-why, as reflected in its expanding research portfolio, directed by Tamara Bushnik, PhD, associate professor of rehabilitation

medicine. Rusk has been named the best rehabilitation hospital in New York State and one of the top 10 in the country since 1989, when *U.S. News & World Report* introduced its annual "best hospitals" rankings. Now, the institute that invented the concept of comprehensive, multidisciplinary rehabilitation is reinventing itself for the 21st century. Rusk's outmoded facility at 400 East 34th Street—headquarters of the institute since 1951—will be demolished in 2012 to make room for the new Helen L. and Martin S. Kimmel Pavilion. Over the next two years, its programs will move to new quarters, both on and off campus. These sites will house modernized equipment and facilities, and many programs will be relocated near related medical specialties.

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John Abbott

Vicki Match Suna, senior vice president and vice dean for real estate development and facilities (second from left), shows architectural renderings of the new Emergency Department to Dr. Maureen Gang, chief of service for the ED (far right), Jessica Kovac, the ED's administrator (far left), and Cathy Cullen, RN, its director of nursing (second from right).

At Tisch Hospital, a New Emergency Department Takes Shape

Enhanced Services, State-of-the-Art Equipment, and a Much Larger Facility Will Better Serve Patients and Caregivers

The physicians of NYU Langone Medical Center have been at the forefront of emergency medical care for nearly a century and a half, having established the nation's first civilian ambulance service at Bellevue Hospital in 1869. That commitment to serve the city's urgent medical needs will reach a new height when a modern, expanded Emergency Department (ED)—the Center for Emergency Services—is built in NYU Langone's Tisch Hospital. A major milestone of the Medical Center's ongoing campus transformation plan, the new ED is a critical component of the most sweeping revitalization in the history of the institution.

The new 22,000-square-foot facility will triple the size of the Emergency Department and more than double the space available to treat patients. It will house an area dedicated to lower-acuity patients, as well as a new dedicated pediatric emergency care center. NYU Langone's Department of Real Estate Development

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From the Dean & CEO

The human hand, noted Walt Whitman, puts to scorn all machinery. But some devices—such as the state-of-the-art electronic glove used at NYU Langone Medical Center’s Rusk Institute of Rehabilitation Medicine to advance rehabilitation for stroke patients and others—can actually serve this marvel of nature. Rusk is embarking on a new chapter in its more than 60-year history as it gradually relocates beyond its flagship facility on East 34th Street to various sites on and off campus.

Despite all its high-tech technology, Rusk practices high-touch medicine, and the same is true for the everyday heroes who staff Tisch Hospital’s Emergency Department, which will be expanding and modernizing over the next three years. When a patient is in distress, let alone in crisis, what could be more comforting and reassuring than the touch of a caregiver?

In this issue, you’ll also read about another hero: vascular surgeon Dr. Thomas Maldonado, who used his skillful hands to save the life of a young woman—and her unborn child. As every nurse knows, human touch can lower a patient’s blood pressure within minutes. But when a long-term solution is needed, Dr. Henry Black, a hypertension specialist, offers advice that will put you in the best of hands.

Bob

Robert I. Grossman, MD



Beneath the street sign bearing the name of her late husband, Dr. Saul Farber, Doris, his widow, is joined by Dr. Martin Blaser, who succeeded Dr. Farber as chair of the Department of Medicine.

The Great White Coat Way

For generations of physicians who trained here, the late Saul Farber, MD, longtime dean of NYU School of Medicine and provost of NYU Langone Medical Center, was part beacon, part compass—an illuminating presence who inspired them intellectually, a force of nature who guided them morally. So when a street sign was recently installed on the northwest corner of 30th Street and First Avenue to honor the man so many relied upon to help them navigate the uncharted waters and vast uncertainties of medicine, it was only fitting that it read: “Dr. Saul J. Farber Way.”

“I’m glad it wasn’t called ‘boulevard,’ ‘avenue,’ or ‘street,’” Martin Blaser, MD, the Frederick H. King Professor of Medicine and Dr. Farber’s successor as chair of the Department of Medicine, told the large group of faculty, friends, and members of the Farber family who gathered in Alumni Hall on November 15 to celebrate the street naming. “Dr. Farber showed us the way in the same manner as Confucius’s elders, the great Zen masters, and the scholars of the Talmud. I’m happy to report that New York City got it right.”

Dr. Farber’s former students, colleagues, friends, and family warmly recalled his lifelong devotion to NYU Langone and Bellevue, whose patients Dr. Farber often described as “our teachers.” Reflecting on Dr. Farber’s reverence for patients, Robert I. Grossman, MD, the Saul J. Farber Dean and CEO of NYU Langone, noted, “Dr. Farber created a generation of patient-centered physicians and educators, and they, in turn, created another generation of patient-centered physicians and educators. That, indeed, is his remarkable legacy, and it is one that distinguishes NYU School of Medicine from all others.”

The campaign to co-name the street—another named street sign was already in place—was spearheaded by Medical Center trustee Lola Finkelstein, president of

“Dr. Farber created a generation of patient-centered physicians and educators, and they, in turn, created another generation of patient-centered physicians and educators. That, indeed, is his remarkable legacy.”

the Bellevue Association, who helped garner community support and petition the New York City Council for approval. Following a lengthy, rigorous review process, the legislation was signed into law last year by Mayor Michael Bloomberg.

Councilwoman Rosie Mendez, who championed the legislation, noted at the reception that co-namings require a nexus between the street and the individual to be honored. Finkelstein credited Daniel Roses, MD, the Jules Leonard Whitehill Professor of Surgery and Oncology, for establishing that connection in two “scholarly and passionate” presentations to the community board.

“What could be more appropriate and deserving,” explains Dr. Roses, “than naming the street that leads to our Medical Center—with NYU Langone to the left and Bellevue to the right—after a native New Yorker who was the principal architect in joining these two institutions to form the greatest center of medical care and education in New York?”

NYU Langone and CUNY Partner to Create State-of-the-Art Simulation Center

In the fall, NYU Langone Medical Center’s caregivers will perform some of their most challenging work in a new facility equipped with state-of-the-art life support technology, operating rooms, even a critical care unit—but no patients. The New York Simulation Center for Health Sciences, a 25,000-square-foot medical simulation training facility to be located in Bellevue Hospital, will open in September.

A collaboration with City University of New York (CUNY), the center will be used to train students, residents, and medical staff from NYU School of Medicine, NYU College of Dentistry, NYU School of Nursing, and NYU Langone’s hospitals; students from CUNY’s nursing schools, health professional schools, and emergency medical technician programs; and emergency management workers from various city agencies, community groups, businesses, and volunteer ambulance services. New York Downtown Hospital will also use the center for emergency management training exercises.

CUNY’s lead institution on the project is the Borough of Manhattan Community College, which received \$21 million in state and city funds to construct the facility. NYU Langone is coordinating the design and construction process and will manage and provide funding, provided in part by a gift from the estate of Joseph Schlackman, for the center’s operations. The center’s director will be Thomas Riles, MD, the Frank C. Spencer Professor of Surgery and associate dean for medical education and technology.

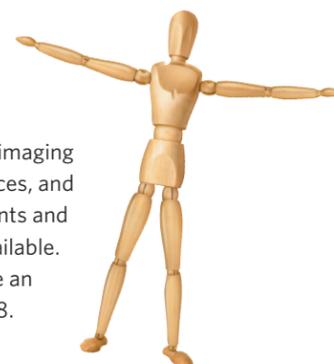
Because simulation training places caregivers in highly realistic medical situations without any risk to a patient, it’s especially well-suited for training individuals and teams to handle high-risk or catastrophic events. In the center’s operating rooms, labor and delivery room, and intensive care units, teams of doctors and nurses will practice complex medical tasks on high-tech mannequins. Learners will also practice professional skills, working with actors specially trained to simulate medical conditions. The center will be capable of replicating a wide range of scenarios from standard patient care and routine procedures to clinical and surgical emergencies and multiple-patient triage in a disaster situation.

New Satellite Orthopaedics Practice Opens in Westchester

NYU Langone Medical Center’s Orthopaedics at Westchester, the newest of our satellite medical practices, opened in October in the Westchester Medical Pavilion at 311 North Street in White Plains. The practice is staffed by seven board-certified orthopaedic specialists, who treat a variety of musculoskeletal conditions. All have faculty appointments at NYU School of Medicine and privileges at NYU Langone Medical Center, including the Hospital for Joint Diseases (HJD). In addition to the head of the practice, Adam Soyer, DO, assistant professor of orthopaedic surgery, who specializes in conditions of the upper extremities, the specialists include Fredrick Jaffe, MD, clinical pro-

fessor of orthopaedic surgery, director of the Joint Replacement Center at HJD, and chief of the Division of Adult Reconstruction, who specializes in hip and knee joint replacement procedures; Ivan Fernandez-Madrid, MD, clinical instructor of orthopaedic surgery, who specializes in sports medicine, conditions of the shoulder, elbow, and knee, and robotic joint surgery; Michael Murray, MD, assistant professor of orthopaedic surgery, who specializes in spinal disorders; Norman Otsuka, MD, director of the Center for Children at HJD, who specializes in pediatric neuromuscular disorders, pediatric orthopaedic trauma, and cerebral palsy; Andrew Rokito, MD, assistant professor of orthopaedic

surgery, who specializes in conditions of the shoulder, elbow, and knee; and Jeffrey Spivak, MD, assistant professor of orthopaedic surgery and director of the Spine Center at HJD, who specializes in spinal disorders in adults and adolescents. The new practice offers on-site imaging services, diagnostic testing, braces, and orthotics. Same-day appointments and weekend pediatric hours are available. For more information or to make an appointment, call 914-681-8808.



news roundup

Finding Mr. Right. Twice.

For Would-Be Mothers, NYU Langone's Fertility Center Makes Dreams Come True

Just four months after having her first baby, Cara (not her real name) contacted Jamie Grifo, MD, PhD, chief of the Division of Reproductive Endocrinology and professor of obstetrics and gynecology, about her hopes of having another. "I loved having siblings, and I love kids," she explains. Three years earlier, when she was 38 and still single, Cara had turned to Dr. Grifo, director of NYU Langone Medical Center's Fertility Center, to discuss how long her fertility would last (another doctor had told her to get pregnant right away if she wanted kids).

Not only did Cara want children, but she wanted lots of them. So when Dr. Grifo showed her a chronological chart detailing how fast her fertility was plummeting, she was shocked. But Dr. Grifo and his team had been having success with egg freezing, medically known as oocyte cryopreservation. Still an experimental procedure, it is commonly recommended to young

During his career as a fertility specialist, Dr. Jamie Grifo has helped couples to conceive more than 10,000 babies.

women with cancer who wish to spare their eggs from toxic treatments. NYU Langone had begun offering the procedure to single women in their mid-30s who hoped to preserve their fertility.

"It's frightening for women to talk about this because it's not the idealized romantic dream of how you thought you'd live your life," notes Dr. Grifo. "Having experienced the heartache, disappointment, and rigors of infertility treatment, my wife, Anne, and I are big proponents of egg freezing. It would have greatly simplified our many years of unsuccessful treatment. We wish that all women choosing to have babies later in life know about this option, so that they won't suffer as we did."

Cara, for one, did not want to risk such disappointment. She didn't want to let life happen to her, but she also didn't want to rush into marriage for the sake of having children. So she decided to freeze her eggs through a procedure similar to that used for in vitro fertilization (IVF). Now, she needed those younger eggs. Though she did eventually marry and have a child without the need for fertility treatment, hers was a case of so-called secondary infertility—the inability to get pregnant a second time. In the first reported instance of its kind, Cara used her own frozen eggs to overcome her secondary infertility. Dr. Grifo and his colleague Nicole Noyes, MD, professor of obstetrics and gynecology and co-director of the Fertility Center's Egg Freezing Program, described the process in the journal *Fertility and Sterility*.

"There is a whole psychology around freezing eggs, how it impacts you, and how it affects the ticking clock," explains Dr. Grifo. For many single women in their 30s and 40s, it's the elephant in the room. Should they wait it out? Should they have children on their own? Should they use an egg donor? Now, there's another question: How many children do they want? With women marrying and starting families later in life, by the time they're ready to have a second child, many are in their 40s, facing secondary infertility because of the rapid decline in the number and quality of their eggs after 40.

To date, more than 500 women have chosen to have their eggs frozen at NYU Langone's Fertility Center, and 24 babies have been born from them. The center

has reported among the highest success rates for egg freezing and thawing in the world. This success is the result of more than a decade of pioneering work by Dr. Grifo's team, which has refined the art and science of making babies. Freezing eggs is more complicated than freezing sperm because the egg cell is large and fragile, and when it's frozen, ice crystals can form and damage organelles in the egg. Dr. Grifo's center uses both a fast-freeze and slow-freeze method for nearly all patients because it's still unclear which one is more effective. His team first tested and perfected these methods in animals; then, they conducted a clinical trial in which they offered the costly

procedures for free. When their success rate equaled that of standard IVF, they made the procedure available for clinical use.

Of Cara's nine frozen eggs, five survived the thaw and were fertilized. Three embryos were implanted in her uterus, and one thrived—a baby girl. She considers her second child "a miracle" and is grateful for having found not one Mr. Right, but two.

Web Extra: for a Q&A with Dr. Jamie Grifo, see "Making Babies—a Labor of Love" at <http://newsandviews.med.nyu.edu/>.

Dr. Jamie Grifo with a few of the more than 10,000 babies he has helped couples to conceive during his career as a fertility specialist.



John Abbott



A New Emergency Department Takes Shape (continued from page 1)

and Facilities worked closely with the ED's leadership to ensure that the physical redesign meets the needs of physicians, nurses, staff, and patients. The result is a truly patient-focused environment, designed to enhance the comfort, convenience, and care of those in need of urgent medical attention.

Like emergency departments across the nation, Tisch's ED has seen a steady increase in patient visits over the last decade. Volume grew 50% from 2000 through 2009, outpacing other New York City hospitals. Meanwhile, Manhattan's population in the 45-and-older age group is growing, as are the number of young families who require pediatric emergency services.

The new facility, designed to handle 45,000 patient visits annually, will feature separate, dedicated sections for adult and pediatric care, with a total of 40 emergency care beds (22 more than are currently available). Its design will also be flexible and scalable to accommodate fluctuations in the number of patients. "The new setting will enhance

the compassionate care that is our hallmark," says Maureen Gang, MD, assistant professor of emergency medicine and chief of service for the Tisch ED.

To make space for the expanded ED, several major architectural changes will be required. A one-story extension will be built to accommodate separate entrances for ambulance and pedestrian traffic, as well as waiting areas. The space previously occupied by the pharmacy will be renovated for pediatrics and a fast-track area. The current ED will be completely renovated, but throughout construction, full emergency medical services will be maintained, and every effort will be made to minimize disruptions. "Completely reshaping the ED—on a tightly restricted site, without ever shutting it down—presents enormous challenges," says Vicki Match Suna, AIA, senior vice president and vice dean for real estate development and facilities. "This will require continual collaboration between our project managers and the ED's physicians, nurses, and staff."



Architectural rendering of Tisch Hospital's new Emergency Department.

Highlights of the New ED

- Separate entrances for walk-in patients and those arriving by ambulance
- A spacious waiting room with connections for laptops
- Roomy patient bays with bedside computers for registration
- A separate pediatric section with its own waiting room, play area, and clinical facilities
- A "fast track" area to expedite care for patients with nonurgent conditions
- An integrated radiology suite to speed diagnosis
- A lounge for patients awaiting test results and discharge instructions
- A private family-consultation room

An Outpouring of Philanthropy for the New ED

The expansion of Tisch Hospital's Emergency Department is made possible by major gifts from John and Barbara Vogelstein (\$2.5 million), The Peter Jay Sharp Foundation (\$2.5 million), trustee Sidney Lapidus and Ruth Lapidus (\$2 million), trustee Thomas Murphy, Sr. (\$1 million), an anonymous gift of \$1 million, and generous support from Robert and Ellen Kapito, trustee Elizabeth Dater Jennings and William M. Jennings, Jr., and The Sephardic Hospital Fund-Medstar. The ED's new pediatric emergency care center is made possible by a \$6 million gift from Trudy Elbaum Gottesman and Robert W. Gottesman and the KIDS of NYU Foundation.

Directions for Over-the-Counter Medicines for Children Often Confound Parents

Giving your child something that's potentially harmful is unthinkable to a parent, but that's exactly what can happen when an over-the-counter (OTC) medication is administered. A study co-led by NYU Langone Medical Center researchers, recently published in the *Journal of the American Medical Association*, found that instructions on boxes and bottles of OTC medicines for children in the US are hard to understand and follow.

"There is an unacceptable amount of inconsistency in labels and measuring devices of OTC liquid medications for children," says H. Shonna Yin, MD, assistant professor of pediatrics, who co-led the study. "These inconsistencies are likely to be a source of confusion for parents and can lead to errors in dosing, placing children at risk."

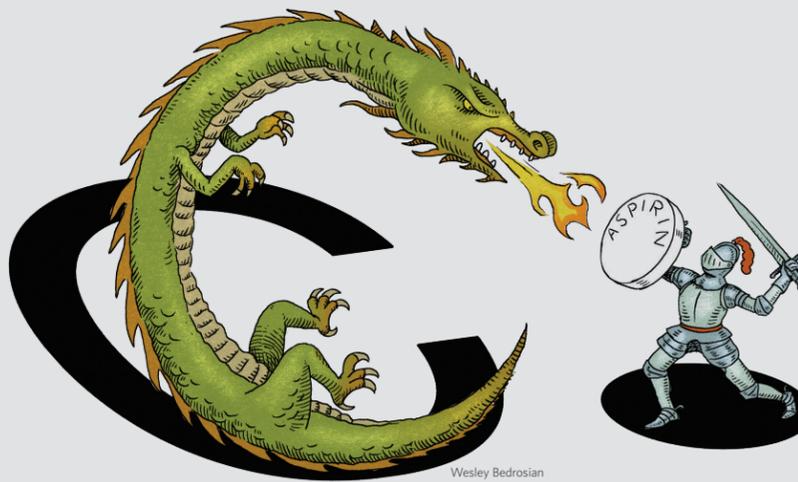
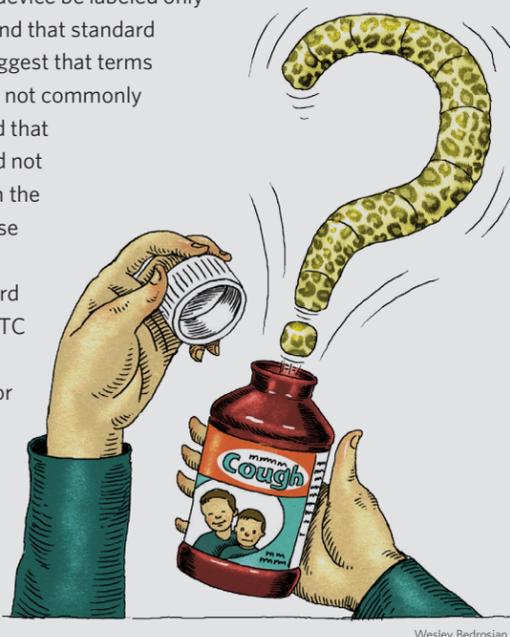
The study was undertaken after the US Food and Drug Administration (FDA) issued voluntary guidelines last year that recommended greater consistency in dosing directions and measuring devices, following numerous reports of accidental overdosing in children, attributed in part to these issues. At around the same time, a guidance was released by the Consumer Health Products Association (CHPA), a group representing manufacturers of OTC medications, with similar recommendations.

The researchers reviewed 200 top-selling pediatric oral liquid OTC medications categorized as analgesics, cough/cold, allergy, or gastrointestinal medicines. The 200 medications represent 99% of the US market for these types of products. They found that 25% of these products did not include dosing devices, such as a cup or dropper, and that 99% had directions on the bottle's label and markings on the dosing device that did not match. In addition, more than half did not use standard abbreviations for measurements such as teaspoon or milliliter.

The researchers believe that when package instructions and dosing devices match and standard abbreviations are used, parents will be less likely to be confused and better able to administer the proper dose. "Devices often have extra markings on them that are not listed on the label, which can lead to confusion," explains Dr. Yin. "Furthermore, some devices are missing doses that are recommended on the label."

The researchers recommended that a measuring device be included with all products, that the device be labeled only with the measurements called for, and that standard abbreviations be used. They also suggest that terms such as "cc" and "drams," which are not commonly understood, should not be used, and that "tablespoon" and "teaspoon" should not be used because confusion between the two can lead to a threefold underdose or overdose.

"There are very straightforward things that can help parents dose OTC medications correctly," explains co-author Benard Dreyer, MD, professor of pediatrics, president-elect of the Academic Pediatric Association. "Making sure that all products follow these guidelines will help parents use OTC medicines more safely and effectively."



Will an Aspirin a Day Keep the Oncologist Away?

When the results of a new study linking aspirin to cancer prevention made headlines around the world in early December, one person who wasn't at all surprised was Alan Arslan, MD, assistant professor of obstetrics and gynecology, and environmental medicine. For more than a decade, Dr. Arslan has been studying the impact of aspirin on cancer, and his results mirror those of a recent paper published in the British medical journal *The Lancet* by scientists at the University of Oxford. They found that people who regularly took a low dose of aspirin for 20 years had a 21% lower risk of dying from lung, esophageal, or colorectal cancers.

In studies published in the *British Journal of Cancer and Preventive Medicine* in 2001 and 2002, Dr. Arslan and his colleagues found that aspirin appears to have a protective effect against both lung cancer and ovarian cancer in women. A new study from his team may answer one big question left unanswered by the *Lancet* study: Could aspirin help protect against breast cancer, too?

"The Oxford study pooled the results of eight clinical trials, involving more than 25,000 patients," explains Dr. Arslan. "It's an excellent and very important study. But one of the limitations was that they had too few women in the trials to look at breast cancer. Using a cohort called the NYU Women's Health Study—a group of women we have continuously followed up with for 25 years—we've been able to determine that aspirin also protects against breast cancer." The full extent of the NYU Women's Health Study findings about the protective effect of aspirin against breast cancer is detailed in a research paper soon to be published.

One possible way aspirin may protect against cancer is by blocking inflammation, a process long associated with its development. Aspirin also induces apoptosis, or programmed cell suicide, in early precancerous cells. Dr. Arslan's research also suggests how aspirin may help prevent breast cancer. "Our team has found that women who were taking aspirin for a prolonged period also had lower levels of circulating estrogen in the blood," he says. "That's important because estrogen may boost the proliferation of cancer cells that are responsive to hormones."

But even with the new evidence from the *Lancet* paper and his own upcoming study, Dr. Arslan feels that there's still not enough data to support taking a daily low-dose aspirin tablet. "The potential side effects of aspirin—internal bleeding and stroke—are very serious," he says. "I wouldn't yet recommend that people start taking aspirin immediately. But if someone is already taking aspirin to prevent heart disease, they may see additional benefits, and if someone is at high risk for developing cancer, they might want to discuss the option with their doctor." Continued research is extremely important, says Dr. Arslan. "There are too few strategies available to reduce the risk of cancer," he adds, "and this is a potentially low-cost, high-benefit option."

Self-Help Program Empowers Teens with Asthma

To help teenagers with asthma recognize how an attack feels, Jean-Marie Bruzzese, PhD, assistant professor of child and adolescent psychiatry, hands them the kind of thin straw used to stir coffee and asks them to breathe through it. Then, she has them pinch the straw and try breathing again. "That's what it's like during an attack, when your airways are inflamed and go into spasm," she explains.

Learning to recognize asthma symptoms and understanding that airways narrow because of inflammation and bronchospasm are key components of Asthma Self-Management for Adolescents (ASMA), an eight-week program Dr. Bruzzese has designed to help teenagers better control their asthma and avoid attacks.

The program also includes advice on using medication and avoiding environmental triggers. In a study of 345 New York City high school students with moderate to severe asthma, recently published in the *American Journal of Respiratory and Critical Care Medicine*, those who went through her educational program had 49% fewer visits to the emergency department and 76% fewer hospitalizations over a 12-month period than those receiving no special instruction.

Asthma, a chronic illness that causes the breathing passages to suddenly spasm, leaving the victim wheezing and gasping for air, afflicts some 6.7 million American children age 17 or younger—about 1 in 10 kids. The incidence is even higher in low-income and minority populations. In the South Bronx, one of the neighborhoods included in Dr. Bruzzese's study, asthma rates are three times higher than the national average. While the disease can usually be controlled with daily doses of anti-inflammatory

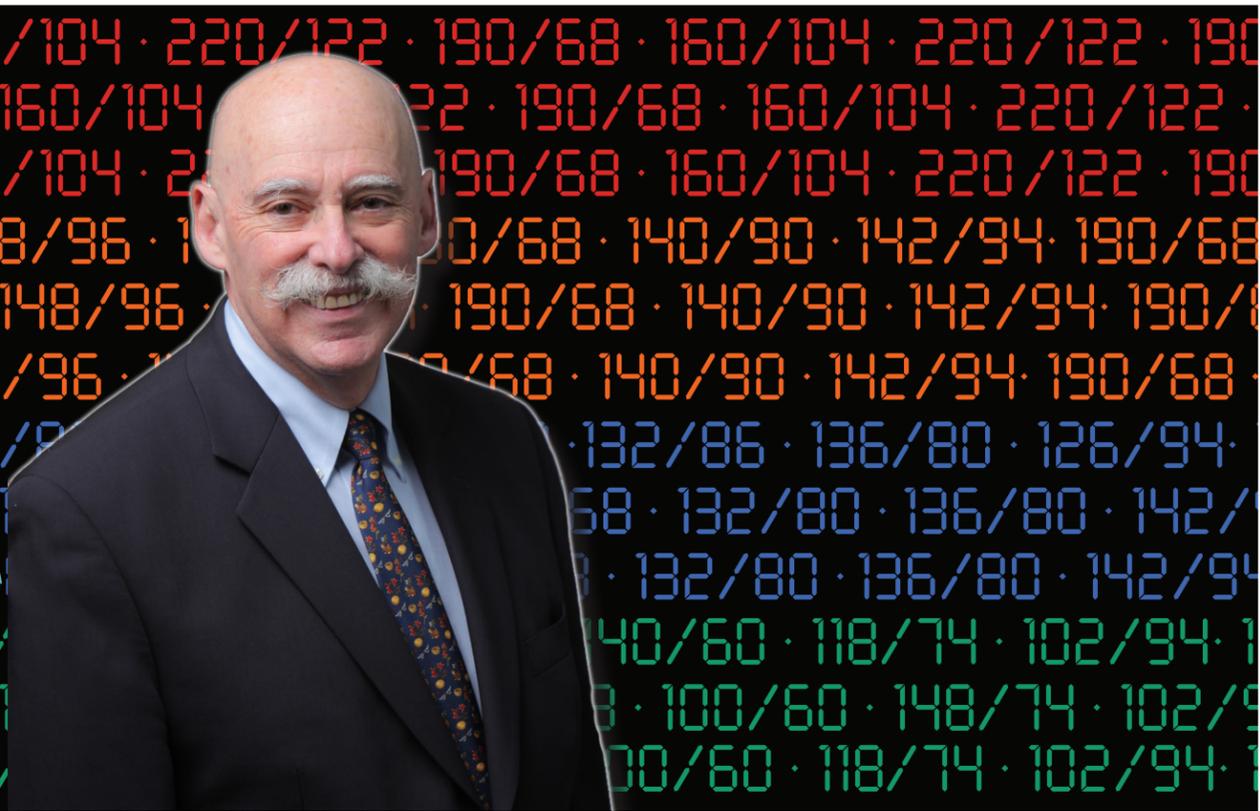
medication, adolescents in particular have difficulty following this regimen. "Over 70% of the teenagers we spoke to weren't taking anti-inflammatory medication, although they were experiencing daily symptoms," notes Dr. Bruzzese.

In the ASMA program, participants attend three group sessions in which they learn about asthma's symptoms and physiology, as well as facts and myths about medications. They also keep a diary of symptoms and medication use, including how often they need to "rescue" themselves with a bronchodilator. Each participant also gets individual coaching on the use of anti-inflammatories,

the importance of self-medicating when symptoms begin in order to head off an attack, and how to communicate effectively with caregivers.

The participants, three-quarters of whom were Latinos or African-Americans, groups at higher risk for developing the disease, also reported fewer awakenings at night, fewer visits for acute care, and less restriction of activity. Perhaps most important, says Dr. Bruzzese, they gained asthma management skills and were more confident about their ability to control their symptoms. "It's a combination effect," she says. "The students were less symptomatic because they were taking preventive medication more consistently. But they also learned that when symptoms do appear, they can take steps to handle the situation, instead of rushing to the emergency department at the first sign of trouble."





Dr. Henry Black, clinical professor of medicine, is the immediate past president of the American Society of Hypertension.

High Blood Pressure: the Not-So-Silent Killer

Q&A with Dr. Henry Black, Director of NYU Langone's Hypertension Program

High blood pressure, or hypertension, afflicts one in three Americans. It can almost always be controlled with proper treatment, but an estimated 30% of those with hypertension don't even know they have it. Many of those who do know are not treated to the recommended goal, putting them at risk for a number of serious health problems, including damage to their kidneys, eyes, and heart, and significantly increasing their likelihood of suffering a stroke or heart attack. High blood pressure contributes to 75% of all strokes and heart attacks, and it is particularly deadly in African-Americans. To mark National Heart Month in February, news & views asked Henry Black, MD, director of the Hypertension Program in the Center for the Prevention of Cardiovascular Disease, a component of the Leon H. Charney Division of Cardiology, to address these and other related issues.

How did hypertension become such an epidemic?

It's a combination of our population growing older and becoming fatter and less active. Our arteries stiffen as we age, causing the systolic blood pressure to rise. If you live long enough, you're almost certain to have hypertension. We also consume much more sodium in the form of salt than we need to be healthy. All of these are contributing factors, in the US and worldwide.

Has the definition of high blood pressure changed in recent years?

For decades, we have defined hypertension as a condition in which the blood pressure is 140 systolic, the upper number, or higher or 90 diastolic, the lower number, or higher at least three times under appropriate conditions. At least 72 million Americans (23% of the population) are hypertensive. We coined the term "prehypertension" for those 45 million Americans whose blood pressure is between 120 to 139 systolic and/or 80 to 89 diastolic. We now know that patients with blood pressure measurements in this range are already at increased risk for all of the problems that hypertensive patients have.

How often should people have their blood pressure checked?

Considering how much is known about the risks of being hypertensive, it's very surprising that so many people still ignore it. We now recommend that all adults have their blood pressure measured at least every other year, and annually if their blood pressure was between 120 to 139 over 80 to 89 millimeters of mercury in the past.

How should blood pressure be measured in the doctor's office?

In our program, we measure blood pressure in a quiet room after the patient has been resting for five minutes, having had no coffee or cigarettes for at least 30 minutes. We check it twice in each arm and in three different positions: lying down, sitting, and standing. Once we've established which arm has the higher reading, we use that arm from then on. We use a validated automated machine, and we average all of these numbers to get an accurate assessment. If only one reading is taken, it should be done in a sitting position with both feet on the floor and the machine at heart level, following the same guidelines for rest, coffee, and cigarettes.

Can high blood pressure always be detected this way?

No. Recently, we've learned that some patients have "masked hypertension," meaning that their blood pressure is normal in the doctor's office but high outside. This is the opposite of "white coat hypertension," where blood pressure is high in the doctor's office but normal elsewhere. If I suspect masked hypertension, I'll recommend home monitoring to confirm it. The patient should use a validated home blood pressure monitor and measure their blood pressure twice a day, at the same time each day, regardless of how they feel, for two to three weeks.

Should we all be measuring our blood pressure at home?

Some experts believe that every home should have a blood pressure device, the way every home has a thermometer. I disagree. To best understand out-of-office blood pressure, take it under the same conditions each time and discuss the readings with your doctor.

If you're prehypertensive, what should you be doing about it?

Drug therapy is not recommended. What is helpful is lifestyle modification: losing weight, reducing dietary sodium intake, exercising regularly, and managing stress. The first two are the most important. If you do some or all these things, your blood pressure may drop about 10 points systolic and 5 points diastolic—enough to keep many people who are prehypertensive from becoming hypertensive. For those who are already hypertensive, however, lifestyle modification usually isn't enough, and drugs are usually necessary.

What does this group need to do?

For most hypertensive people, the only way to reach the goal blood pressure of below 140 over 90—and below 130 over 80 for those with diabetes, kidney disease, heart failure, or a previous heart attack—is with medication. In my opinion, there are three primary classes of hypertension drugs: diuretics; so-called RAAS [renin-angiotensin-aldosterone system] blockers, such as ACE [angiotensin-converting enzyme] inhibitors and ARBs [angiotensin receptor blockers]; and calcium channel blockers. There are four other commonly used and approved antihypertensive drug classes and about 150 individual drugs and drug combinations now available. All have proven efficacy and acceptable side effects. So every patient has at least five or six good options. It's recommended that people at 160 over 100 and above start with two drugs, and those at 140 to 159 and/or 90 to 99 start with one.

"Some patients have 'masked hypertension,' meaning that their blood pressure is normal in the doctor's office but high outside. This is the opposite of 'white coat hypertension.'"

What's the biggest misconception about hypertension?

That it's curable. For most people, hypertension is a lifelong condition. If you find a drug combination that works, that you can afford and tolerate, don't stop it.

Can anyone's hypertension be controlled with the right drugs?

Almost anyone. But it requires a partnership between doctor and patient. About 60% of treated Americans with hypertension are at their goal blood pressure.

What will it take to reach 100%?

Fortunately, today's blood pressure medications are much easier to tolerate, and we've learned how to treat with low-dose combinations of drugs instead of the very high doses we used in the past. Everyone who treats hypertension should be familiar with the latest recommendations and how to implement them, and should refer patients who aren't responding to a hypertension specialist. Finally, patients should know their numbers. If a doctor sends you home when your blood pressure is above goal and doesn't do anything about it, you need to ask why. If the answer is unsatisfactory, it might be time to get a new doctor.

For more information about preventing and treating hypertension, call 212-263-7751.



A Model of Diversity

How the Sackler Institute Created One of the Nation's Most Heterogeneous Student Bodies

For Joel Oppenheim, PhD, professor of microbiology and director of the Sackler Institute of Graduate Biomedical Sciences at NYU School of Medicine, the light bulb lit up one day in 1990, several years before he came to the institute. While he and several colleagues were lunching in the Medical Center's cafeteria for graduate students, he recalls, "we looked around the room and realized that there were literally no students of color."

Following that fateful lunch, Dr. Oppenheim launched the Summer Undergraduate Research Program (SURP), which invites promising undergraduate students from underrepresented minorities to spend a subsidized summer doing research at NYU Langone Medical Center. Having incorporated other summer programs aimed at recruiting PhD and MD/PhD candidates a number of years ago, the program is no longer limited to members of minority groups. Last summer, it hosted 32 undergrads, half of them minority students, selected from 1,200 applicants. To date, over 450 participants have gone on to attend medical or dental school or graduate school in the biological sciences.

One of Dr. Oppenheim's goals was to encourage minority applicants to NYU Langone's medical and graduate schools, and some 45 SURP students have pursued advanced degrees here. In 1994, when Dr. Oppenheim was appointed director of the Sackler Institute, a division of the Graduate School of Arts and Science of NYU, he began looking for other ways to increase diversity in the graduate program. "I started visiting lots of undergraduate schools, giving talks on how to prepare for and apply to graduate and professional schools," he says. "It was the first time anyone at the Medical Center had recruited that actively."

This outreach led to sharp increases in both the number and quality of applicants to Sackler's PhD program—not only among minority students, but students of all backgrounds. Attracting a range of highly

qualified applicants is essential for building a diverse student population, Dr. Oppenheim explains, because the admissions process is blind—that is, it doesn't take into account ethnicity, gender, or country of origin.

Today, the Sackler Institute's doctoral program in the biological sciences is a model of diversity, boasting one of the nation's most heterogeneous student bodies (see sidebar). Some 15% of Sackler's PhD graduates belong to minority groups that historically have been underrepresented in the biological/biomedical sciences—African-Americans, Native Americans, Hispanic-Americans, as well as individuals with disabilities or from economically disadvantaged backgrounds—compared to only 7 to 8% of bioscience PhDs awarded nationwide.

Sackler's admissions staff makes 25 to 30 trips a year, establishing close relationships with a number of universities, including many known for producing talented minority students. "When I started," Dr. Oppenheim recalls, "about 1% of our applicants were underrepresented students. Today, they account for almost 25% of the 400 American students who apply each year."

It was because of one such trip that Andrea Gomez, a fifth-year student in Sackler's developmental genetics program, decided to come here. Gomez, whose father is a Mexican-American and whose mother is a Laguna Pueblo Native American, grew up on a reservation in New Mexico. "I came across NYU Langone's booth at a conference," she recalls, "and knew right away that the woman from Sackler was Native American, like me." The two spoke at length and later corresponded. "NYU Langone had a warmth that really attracted me," says Gomez. "It was the only school I applied to." Today, she is studying how neuromuscular synapses develop in utero, an area that could yield insights into various congenital diseases.

NYU Langone's reputation abroad draws an additional 400 international PhD applicants annually

from over two dozen countries. The institute also has an extensive support system, including multiple levels of mentoring, unlimited tutoring, subsidized housing, grant-writing seminars, and a sophisticated career development program.

This spring, the American Association for the Advancement of Science will honor Dr. Oppenheim with its Lifetime Mentor Award. "Joel has been a national champion for inclusion of minorities in biomedicine for many years," notes Mekbib Gameda, assistant dean for diversity affairs and community health, who works closely with Dr. Oppenheim on recruitment. "His efforts have also helped to increase the number of underrepresented minority students entering the MD program at NYU School of Medicine, which has doubled over the last decade."

"In 25 years, the minority is going to be the majority in this country," notes Dr. Oppenheim. "We have to figure out how to train the workforce of the future, which means not just people from different racial or ethnic groups, but also students from economically disadvantaged backgrounds, students with disabilities, and so on. Most schools haven't really focused on that."

Sackler at a Glance

- The Sackler Institute, responsible for the Medical Center's 240 PhD candidates and 68 MD/PhD students during their PhD training, is the largest full-time PhD-granting division of NYU.
- About 25% of Sackler's doctoral students hail from other parts of the world, including Africa, Central and South America, Europe, and Asia.
- About 60% of Sackler's students are women.
- NYU Langone is a leader among institutions that confer PhDs upon research scientists from minority groups.
- Some 75% of Sackler's PhD graduates go on to postdoctoral research, 10% go directly into industry, and 15% pursue medicine, law, teaching, and policymaking.

Rusk Extends Its Reach *(continued from page 1)*

The inpatient adult rehabilitation program and the inpatient and outpatient pediatric rehabilitation programs will move to 17th Street in the Hospital for Joint Diseases building. Complex adult rehabilitation will be relocated to the ninth floor of the Schwartz Health Care Center, where it will co-reside with cardiac rehabilitation, which is currently housed there. Rusk's administrative offices, educational programs, research, and nonmusculoskeletal outpatient services will move to newly acquired space in the Verizon II building at 38th Street between Second and Third Avenues. Outpatient musculoskeletal rehabilitation programs will be housed in the new Musculoskeletal Institute at 38th Street and First Avenue, providing orthopaedic patients with both treatment and rehabilitation under one roof.

"Ongoing national healthcare reform affords us an opportunity to provide a broader patient population with closer and greater access to our expertise," explains Dr. Flanagan. "We're currently the largest

inpatient rehabilitation facility in New York City, but rehab patients are increasingly going to be treated in a wide range of outpatient settings. We have a robust strategy for expanding our outpatient services." Rusk

will establish clinics in Brooklyn, Queens, and The Bronx, he reports, and will work more closely with home healthcare providers, as well. "Expanding the Rusk name—and the high-quality care that is our hallmark—into more neighborhoods will bring us to patients instead of patients to us," adds Dr. Flanagan, "and allow a greater number of people to access our services."

"More than a location or even our name, what defines Rusk and makes us special is our people—the doctors, nurses, therapists, researchers, and staff—who work tirelessly to improve the lives of our patients and set the standard for rehabilitation medicine," Dr. Flanagan says, as a reminder to those who lament the loss of the institute's historic building. "When patients come to Rusk, we're committed to them for life. Our aim is to be in a position where we can provide Rusk-quality care to all of our patients, wherever they might be and whenever they might need us."



Hero for a Day—and All That Remain

A Young Tourist Finds Herself in the Wrong Place at the Wrong Time, Until Her Life Is Saved by Just the Right Surgeon

For days, Sarah Ingersoll kept asking her family visiting her hospital room at NYU Langone Medical Center, “Who is this nice guy who keeps coming in to see me?” That’s Dr. Thomas Maldonado, they told her, the man who saved you from bleeding to death. A few days earlier, the 28-year-old tourist was exploring Manhattan. She had come to New York from Pawtucket, Rhode Island, with her fiancé, Mark Schupp, for their first overnight visit. On the night of January 24, 2010, as they were crossing the street at 38th Street and Twelfth Avenue, near their hotel, a car came whipping around the corner—too fast to stop. Ingersoll was hit so hard that her body landed 30 feet away. Triaged at a nearby

When the patient came to after surgery, she was greeted by two pieces of good news.

hospital, she was transferred to NYU Langone because of her complex injuries: a fractured pelvis, lacerated spleen, and massive internal bleeding.

“With many motor vehicle accidents, you have what are called ‘deceleration injuries,’ ” explains Dr. Maldonado, associate professor of surgery. “If your body is moving at a high velocity and suddenly comes to a stop, your organs keep moving.” Ingersoll’s aorta was ripped from where it was tethered to the back of her chest with such force that it split open. The blood oozing out was barely contained by the paper-thin membrane that surrounds the aorta. If the tear was not fixed fast, she would not survive.

Normally, a surgeon would crack open the chest and sew the leak shut, but there was one complication. Pre-op blood tests showed that Ingersoll was pregnant. Open surgery would put the fetus at risk. Fortunately, there was an alternative. Dr. Maldonado was called in because of his expertise in vascular and endovascular surgery using minimally invasive techniques. His plan was to reline the area with a special stent, a tube of collapsible wire mesh with fabric sewn onto it. “It functions a little like the inner tube of a bicycle tire,” he says.

Originally, these stents were used to repair aneurysms, the bulging or ballooning of an artery. Working with colleagues, including Charles Schwartz, MD, assistant professor of cardiothoracic surgery, Dr. Maldonado has seen this technology revolutionize vascular surgery. “I’d say 70% of vascular surgery is now done endovascularly,” he explains. “It’s less traumatic for the patient. There is less blood loss, a shorter operative time, less anesthesia, and a shorter hospital stay.”

Over time, specialists like Dr. Maldonado came to realize it could also be used for other kinds of situations. “As a vascular surgeon who sees a lot of trauma, I’m sorry to say that I do this pretty regularly. Fortunately, I’m familiar with the technology. I use it practically every day.”

After making an incision in the groin, Dr. Maldonado studied the overhead video monitor as he slid a guide wire up the aorta. Markings at 1-centimeter

intervals visible on X-rays gave him a precise measure of the size of the tear and how long a stent would be needed. Next, he took what looked like a large straw—the collapsed stent in a special sheath. Dr. Maldonado eased it up to the tear, then slightly beyond it. He delicately drew it back to bring it into the precise position needed to bridge the torn blood vessel. As he pulled the release, a ghostly lace image of the metal mesh popped onto the screen. The radial pressure from the expanded mesh held it in place, blocking the tear. The leak was sealed.

When the patient came to after surgery, she was greeted by two pieces of good news: she would be fine, and she was in the early days of pregnancy, which thrilled her and her fiancé. After she returned home, Ingersoll, curious about her injury and her surgery, read about it on the Internet. It was then that she realized what a close call she had had. “I sat in front of my computer crying,” she recalls. “That’s when I realized that Dr. Maldonado had saved my life.”

Every so often, she would get a call from her surgeon to check on her progress. He was among the first to learn that she was expecting a boy. “I gave my son, Cameron, ‘Thomas’ as his middle name,” Ingersoll confides. “I think it’s appropriate. Dr. Maldonado is my hero—for the rest of my life.”



Ten months after Sarah’s nearly fatal accident, she and her husband, Mark, introduced their son, Cameron Thomas Schupp, to Dr. Thomas Maldonado, the vascular surgeon who saved the lives of both mother and unborn child. In Dr. Maldonado’s honor, Sarah chose Thomas as her son’s middle name.

HJD Founders Gala

NYU Langone Medical Center’s Hospital for Joint Diseases (HJD) held its annual Founders Gala on November 9, raising over \$1.85 million—76% more than last year’s event. This year’s gala, held at the American Museum of Natural History, honored James Riley, retired partner and managing director of Goldman Sachs. The seven members of NYU Langone’s Haitian Effort and Relief Team (HEART) were also recognized for their humanitarian efforts. Over 600 people attended the event. Joining Gala Chair, HJD Advisory Board Chair, and Medical Center trustee Gary Cohn were Physician Co-chairs Robert I. Grossman, MD, dean and CEO of NYU Langone; Joseph Zuckerman, MD, the Walter A. L. Thompson Professor of Orthopaedic Surgery and chair of the Department of Orthopaedic Surgery; Steven Abramson, MD, vice dean for education, faculty, and academic affairs; and Andrew Rosenberg, MD, professor of anesthesiology. Medical Center trustee Robin Smith, MD, MBA, was journal chair.

Web Extra: for photos of the HJD Founders Gala, visit www.nyuhsjd.org.



Dr. Joseph Bosco, Dr. Kenneth Mroczek, Dr. Robert I. Grossman, Dr. David Feldman, Dr. Fritz Francois, and Dr. Joseph Zuckerman.



James Riley and Dr. Steven Abramson.

Adults in Toyland Casino Night

NYU Langone Medical Center’s Stephen D. Hassenfeld Children’s Center for Cancer and Blood Disorders and the KiDS of NYU Foundation Associates Committee held *Adults in Toyland Casino Night* on November 4 at the Edison Ballroom. Some 640 people attended the event, where they and presenting sponsor Caesars Atlantic City helped raise over \$700,000, a record, to support integrative care programs at the Hassenfeld Center and new pediatric initiatives. Co-chair Susan Block Casdin was joined by nine other co-chairs, as well as Physician Co-chairs Linda Granowetter, MD, director of the Hassenfeld Center, and Bret Rudy, MD, vice chair of the Department of Pediatrics.

Web Extra: for photos of Adults in Toyland Casino Night, visit www.hassenfeldcenter.org.



Co-chairs Keri Glassman, Kimberly Goodwin, Susan Block Casdin, Morgan Hertzan, Harlan Saroken, Michael Weaver, Patti Kim, Kelly Mack, and Steven Jaffe.



Kenneth G. Langone, chair of NYU Langone’s Board of Trustees; Catherine Manno, MD, chair of the Department of Pediatrics; event co-chair Susan Block Casdin; and Robert I. Grossman, MD, dean and CEO of NYU Langone Medical Center.

Inside This Issue



Rusk Extends Its Reach “The disabled produce their own miracles,” Dr. Howard Rusk was fond of saying. Six decades after its creation, the institute that bears his name is still helping patients do just that. But it’s also embarking on a new chapter in its venerable history, branching out far beyond its original home. [page 1](#)



Finding Mr. Right. Twice. For more than a decade, Dr. Jamie Grifo and his team of experts at NYU Langone’s Fertility Center have been performing pioneering work in egg freezing, refining the art and science of making babies, and making dreams come true for countless hopeful couples. [page 3](#)



The Not-So-Silent Killer High blood pressure afflicts one in three Americans. It can almost always be controlled with proper treatment, but an estimated 30% of those with hypertension don’t even know they have it, and many of those who do know are not adequately treated. Dr. Henry Black offers some advice. [page 5](#)



A Model of Diversity The Sackler Institute, NYU Langone’s doctoral program in the biological sciences, is a model of diversity, boasting one of the nation’s most heterogeneous student bodies. Some 15% of its doctoral students belong to an underrepresented minority group, 25% hail from another country, and 60% are women. [page 6](#)



Hero for a Day—and All That Remain During a visit to New York with her fiancé, Sarah Ingersoll was struck by a car and thrown 30 feet. Her hard landing caused her aorta to split open. Dr. Thomas Maldonado used minimally invasive endovascular techniques to save Sarah—and the baby she didn’t know she was carrying inside. [page 7](#)

NEWS & VIEWS

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Helping Hands, Caring Hearts

(See “Rusk Extends Its Reach” on page 1)

