

news & views

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John Abbott

Caring for the Human Frame, from Head to Toe

New Center for Musculoskeletal Care Builds on NYU Langone's Firm Foundation in Orthopaedics, Rheumatology, and Rehabilitation

From the moment the elevator doors open, you can tell that this building has, as they say in real estate, "good bones." NYU Langone Medical Center's new Center for Musculoskeletal Care (CMC)—located on the fourth, fifth, and sixth floors of 333 East 38th Street—is dominated by rows of the original concrete columns, 2 feet square and 11 feet high, that punch through the ceiling, their splayed capitals disappearing into recessed panels.

Sandblasted, restored, and revealed in all their gritty glory, these imposing skeletal members of a structure built to last in 1929 send a powerfully subtle message: in every sense, this place is rock solid.

Indeed. More than 100,000 outpatients are expected to visit this state-of-the-art facility annually for the full spectrum of bone and joint care—prevention, diagnosis, treatment, and rehabilitation. When

they choose NYU Langone, it's no doubt because of the Medical Center's long-standing reputation for excellence in orthopaedics, rheumatology, and rehabilitation. In these musculoskeletal specialty areas, *U.S. News & World Report* ranks NYU Langone among the top 10 programs in the country. Moreover, NYU Langone's Rusk Institute of Rehabilitation Medicine, the birthplace of comprehensive care for the disabled,

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Another Kind of Marathon

Lauren Kent Was Young, Healthy, and Fit—until the Stroke That Changed Her Life



Joshua Bright

After a stroke that largely paralyzed her left side, Lauren Kent received "just about everything we could offer," says Dr. Ira Rashbaum, her physiatrist at Rusk. But she made incredible progress. "It was what you'd expect from a marathoner."

A spunky and spirited 28-year-old, Lauren Kent added her own touch of funkiness to the 2010 New York City Marathon: an aquamarine wig, metallic goggles, a hot pink running outfit, and a brown shoulder bag she made herself. It's unlikely that fellow runners paid her much attention, though, cocooned as they were in their own thoughts prior to the start of the grueling 26.2-mile race across the five boroughs. Three days later, Kent drew lots of attention in the Comprehensive Stroke Care Center of Tisch Hospital at NYU Langone Medical Center, where she found herself at the starting line of quite another kind of marathon.

The first signs of a problem showed up partway through the world-famous race. "Around the 10th mile, I began noticing little blind spots in my right eye but didn't think much of it," she recalls. "I was in the best shape I had ever been in, and stroke was the last thing on my mind."

It wasn't until Kent was at work—she's an IT specialist for a global investment firm in midtown Manhattan—that the blind spots returned, with a fury. She blacked out for about 10 minutes at her desk. When she regained consciousness, she had no feeling in her left arm and her speech was slurred. She sent an e-mail

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From the Dean & CEO

In March, our new Center for Musculoskeletal Care opened at 333 East 38th Street, just a few blocks north of NYU Langone Medical Center's main campus, marking another major milestone in our journey to become a world-class, patient-centered, fully integrated academic medical center. The largest freestanding facility of its kind in the country, it's expected to serve some 100,000 patients annually.

Our musculoskeletal specialty areas—orthopaedics, rheumatology, and rehabilitation—are ranked among the top 10 in the country by *U.S. News & World Report*, and the Rusk Institute of Rehabilitation Medicine, the birthplace of comprehensive care for the disabled, has ranked number one in New York State for 22 consecutive years. With this spacious, state-of-the-art facility providing a single gateway to preventive, diagnostic, and therapeutic services, NYU Langone now boasts a clinical environment worthy of its reputation.

Bol

Robert I. Grossman, MD

No longer spread between Rusk and the Hospital for Joint Diseases, outpatient orthopaedic, rheumatology, and rehabilitation services are now housed under a single roof—in the same building that, since 2009, has been home to our Outpatient Surgery Center. In other words, the entire spectrum of musculoskeletal services has been streamlined and consolidated with one goal in mind: putting patients first.



Karsten Moran

Fifth Annual Heart Health Fair Draws Hundreds of Visitors

Evelyne Shaw may never look at cheeseburgers the same way again. Holding six test tubes of congealed fat at an exhibit at NYU Langone Medical Center's fifth annual Heart Health Fair, held on February 2, Shaw grimaced when she learned their contents represented the amount of fat in one of her favorite foods. "That's scary, because I didn't realize how much fat is in there, and I love cheeseburgers," said Shaw, 68. "I think this will help me make wiser choices."

Sponsored by NYU Langone's Cardiac & Vascular Institute, the event was held in Alumni Hall as part of American Heart Month. Beginning in 1963, the US Congress designated the month of February to raise awareness about cardiovascular disease, the leading cause of death in America, claiming some 616,000 lives annually. However, while risk factors such as family history, age, and gender are unchangeable, it doesn't take dramatic changes in diet and activity to significantly lower risk.

Stuart Katz, MD, the Helen L. and Martin S. Kimmel Professor of Advanced Cardiac Therapeutics, explained it this way in his presentation, "Simple Steps to Keep Your Heart Healthy for Life": "When people think about being healthy, they think of exercise, but you can have a healthy heart without running marathons. For a healthy heart, you really only need a small amount of regular exercise."

Drawing hundreds of visitors from the Medical Center and its surrounding community, this year's fair featured tables staffed by a variety of Medical Center services and outside organizations related to cardiovascular health. Some exhibits provided advice on disease-prevention measures, such as quitting smoking and controlling fat and sodium intake, while others offered blood pressure screenings and information on stress-busting activities such as yoga and guided imagery.

A series of well-attended lectures inside Farkas Auditorium addressed atherosclerosis, peripheral artery disease, and cardiac rehabilitation and shared little-known details about the cardiovascular system. For example: The human heart beats about 100,000 times a day, pumping some 1,440 gallons of blood—enough to fill an Olympic-size swimming pool.

Make Me a Match

Just as they have every third week in March since 1952, graduating medical students around the country joined their classmates on March 16—Match Day—to learn where they'll spend the next three to seven years of residency training. At NYU School of Medicine, members of the class of 2012 started gathering outside Farkas Auditorium at about 11:30 a.m. When the clock struck 12:00 noon, the envelopes were handed out, and emotions tumbled out. While some students hugged and cried, others texted their family and friends with the news. The National Resident Matching Program uses a computer algorithm to produce favorable results for applicants, aligning their preferences with those of residency programs. Of this year's 173 graduates from the School of Medicine, 75% matched to schools and hospitals ranked in the top 50 by *U.S. News & World Report*. The most popular specialties were internal medicine, pediatrics, radiology, anesthesiology, dermatology, otolaryngology, and ophthalmology. Forty-two students will remain at NYU Langone for their residencies.



Karsten Moran

On Match Day, Laurel Geraghty ('12) celebrated her acceptance to Stanford University Medical Center's residency program in dermatology with her husband, James, and their children, Eleanor and James, both born while she was a student at NYU School of Medicine.

HealthGrades Honors NYU Langone with Distinguished Hospital Award

HealthGrades, an independent provider of comprehensive information for consumers about hospitals and physicians, has named NYU Langone Medical Center a recipient of its Distinguished Hospital Award for Clinical Excellence 2012, based on our quality of care. In addition, HealthGrades awarded NYU Langone nine quality awards for specific services: bariatric surgery, cardiac care, coronary intervention, gastrointestinal care, maternity care, neurosciences, neurosurgery, pulmonary care, and stroke care.

Recipients of the award rank in the top 5% of hospitals nationwide across 26 different medical specialties. Distinguished hospitals had 30.07% lower mortality rates and 1.86% lower complication rates after adjusting for patient severity of illness. According to HealthGrades, if all hospitals performed at this level, 165,704 Medicare lives could have been saved in just three years, and 6,800 in-hospital complications avoided.

HealthGrades hospital quality distinctions are independently created. No hospital can opt in or out of evaluation, and no hospital pays to be evaluated. Mortality and complication rates are risk adjusted, which takes into account differing levels of severity of patient illness at different hospitals and allows for hospitals to be compared equally. For more information, visit www.healthgrades.com.





Dr. Marc Gourevitch, chair of the newly created Department of Population Health, in Grand Central Terminal at morning rush hour.

ciplines and serve as a leader in optimizing the impact of healthcare and policy at the population level. It's an unprecedented opportunity for innovative research to address the challenges of urban health."

"We're essentially transferring the extensive research we're doing from bedside to community, and that means drilling down into areas like behaviors, health disparities, effectiveness of medications, access to healthcare," explains Steven Abramson, MD, vice dean for education, faculty, and academic affairs. "We believe the work of this new academic department will have a great impact on NYU School of Medicine, as well as on the health of communities locally and around the world."

Dr. Gourevitch notes that the diversity of New York City's populations and our faculty's growing collaborations with public health experts, healthcare systems, and community partners offer unparalleled opportunities for innovative research that addresses real-world problems. A case in point: highly effective medications hold the key to dramatically reducing hypertension in our society, yet the disease often goes undetected. Even when it is diagnosed, patients often miss many doses of their medications. "We don't need more basic research into defining this problem," insists Dr. Gourevitch. "What we need are effective interventions across populations that eliminate the bottlenecks."

Dr. Gourevitch was the first director of the Division of General Internal Medicine. He has won widespread praise for integrating medicine with public health research (particularly in providing health services to patients dealing with drug abuse) and for advocating population-level approaches to improving healthcare delivery. Now, at the helm of a multidisciplinary team of some 40 scientists recruited from NYU Langone and other institutions, Dr. Gourevitch hopes that his department will not only influence but shape the direction of population health in this country.

It Takes a Department

Dr. Marc Gourevitch and His Colleagues in Population Health Seek to Make Our World a Healthier Place

"Despite having the costliest medical care delivery system in the world," declared a sobering report from the Institute of Medicine in 2010, "Americans are not particularly healthy." Indeed, chronic diseases such as hypertension, diabetes, and obesity have reached epidemic proportions, explaining why life expectancy in the United States ranks 49th among all nations. "We do not know how to reverse this trend," the report stated candidly. "The US," it concluded, "lacks appropriate measurement tools to track and respond to the social, economic, and environmental factors that affect health outcomes."

Enter the field of population health, an emerging science focused not on treating individual patients, but on promoting health, preventing disease, and more effectively managing illness across entire populations of people. These populations could be an ethnic group,

residents of a specific neighborhood or geographic area, persons cared for by a particular hospital or health system, or patients with a specific disease that afflicts millions.

To help bridge the gulf between impressive advances made in biomedical science in recent decades and disproportionately modest gains in our nation's overall health, NYU School of Medicine has created a new Department of Population Health. Designed to provide a hub for research and training, it brings together investigators in epidemiology, biostatistics, health policy, prevention, and related disciplines.

As the department's first chair, Marc Gourevitch, MD, MPH, professor of population health, medicine, and psychiatry, sees enormous potential. By focusing on translational research, he says, the department "will allow us to merge our strengths across many dis-

A Tale of Two Tumors

Two Young Boys Share the Same Type of Rare Brain Cancer, the Same Neurosurgeon, and the Same Hopeful Future

Police officers are often admired but seldom envied. They have a unique kinship, even when they're not on the same force. When two police families met last year at NYU Langone Medical Center, they learned that they share more than the bond of their blue uniforms. Their solidarity had more to do with their firstborn sons, both afflicted with the same rare brain tumor, a craniopharyngioma. Meeting each other for the first time in the office of Jeffrey Wisoff, MD, director of the Division of Pediatric Neurosurgery, the two families agreed that they trusted their cop's intuition, which told them that they had found just the right surgeon to operate on their children.

"When we learned that Shane had a tumor, it was a kick in the stomach," says Rich Seta, a member of the Suffolk County Police Department, as is his wife, Laura. "But after meeting Dr. Wisoff, we knew we had found the surgeon for our son." Eight-year-old Shane underwent surgery in July 2010 and was back in school by September, even playing soccer without restrictions.

Four hundred miles upstate, Ed and Audra Carney had faced a similar crisis in 2009 when their son, Deaglan, was diagnosed at age four. "Figuring out who should treat Deaglan was the hardest decision we've ever had to make," recalls Ed Carney, a transit police officer in Buffalo. "We walked away from this office at peace with ourselves." Though a prior procedure to preserve Deaglan's eyesight made the operation more complex, Deaglan was discharged from Tisch Hospital eight days later.

"My father is a retired neurosurgeon," explains Dr. Wisoff, associate professor of neurosurgery and pediatrics. "I learned from him that to be a good neurosurgeon, you have to be an optimist." When it comes to treating craniopharyngiomas in children, Dr. Wisoff believes that optimism is as valuable as a scalpel or

laser. The tumor grows at the base of the skull, cradled among the brain's visual, hormonal, vascular, and neurocognitive centers. Understanding how to access the tumor, let alone remove it, is a rarefied skill. Of the 3,000 pediatric brain tumors diagnosed each year in North America, fewer than 150 are craniopharyngiomas, which makes it difficult for neurosurgeons to gain significant experience in this area. Dr. Wisoff has performed more than 110 such procedures on children.

Removing a craniopharyngioma is considered one of the most daunting challenges in all of neurosurgery. No two cases are quite alike, and even with the benefit of an MRI, the surgeon cannot know precisely what he's up against until he's inside the brain. Using microsurgical techniques, Dr. Wisoff follows natural corridors to the small pocket where the tumor is seated to avoid injuring the healthy part of the brain.

"A brilliant surgery is meaningless unless you have support," notes Dr. Wisoff. "We have a spectacular team. It includes anesthesiologists who stabilize the child through surgery, intensivists who balance fluids and electrolytes afterward, endocrinologists who administer the hormones needed to grow and develop, and neuropsychologists who address issues that might delay learning."

Deaglan's and Shane's families have also relied on ophthalmologists, oncologists, and social workers—even hospitality coordinators to help them find hotel rooms. The concentric rings of support will remain accessible to them for years to come, since chronic conditions and substantial risks, including recurrences, are associated with this benign tumor that impacts so many neurological hubs. Dr. Wisoff follows every pediatric patient for

more than a decade. "The risk assessments are magnified with children," he explains. "I want their families to understand my hopes and concerns, just as I'm trying to understand theirs."

A watchful decade lies ahead for Shane and Deaglan, but the thought that many more decades beyond the next have been preserved—and will be well lived—heartens their parents. "The air is fresher," says Ed Carney. "Everything tastes better, smells better." Adds Rich Seta: "You really find out about character in a crisis."

His son, Shane, described by his parents as wise beyond his years, has been sitting quietly in the waiting room, full of adults. Finally, he breaks his silence, announcing with a smile: "Crisis averted."

"To be a good neurosurgeon," says Dr. Jeffrey Wisoff, shown with patients Deaglan Carney and Shane Seta, "you have to be an optimist."



Caring for the Human Frame, from Head to Toe (continued from page 1)

has ranked number one in New York State for 22 consecutive years.

Located a few blocks north of the Medical Center's main campus, the CMC provides a single gateway to cutting-edge research, advanced clinical practice, and innovative rehabilitation. The largest freestanding facility of its kind in the country, it occupies some 110,000 square feet on three floors. Its services, provided by a diverse team of multidisciplinary specialists, include total joint replacement, spinal care, arthritis and autoimmunity treatment, rehabilitation, diagnostic imaging, sports medicine, comprehensive pain management, and infusion therapy. By consolidating, streamlining, and integrating these services under one roof, the CMC makes it faster, easier, and more convenient for patients hampered by restricted mobility and chronic pain to obtain ongoing care. On the ground floor of the same building, NYU Langone's Outpatient Surgery Center performs specialized orthopaedic procedures that don't require an overnight hospital stay, primarily arthroscopic repairs of the knee, shoulder, foot, and ankle, as well as hand surgery.

To make the environment comfortable, cheerful, and restorative, NYU Langone's Department of Real Estate Development and Facilities took great care to ensure that the CMC's architecture, design, and materials reflect its spirit and purpose. Each floor comprises three clinical pods organized around a central "interior courtyard" that extends to the exterior facade, providing natural daylight. Centered within each courtyard is a glowing glass core of office spaces, serving to separate the waiting areas to either

side and provide a shared staffing area. From these waiting areas, patient corridors radiate outward to the perimeter, providing exterior views, abundant natural light, and intuitive way-finding for patients.

Highlighting the reception and waiting areas are teak floors, walls of white-gold quartzite, eucalyptus wall paneling, and a multitude of oversize windows, which not only enable daylight to stream in from multiple directions, but afford soothing views of the East River.

Within steps of each other, some 300 orthopaedists, physiatrists, radiologists, therapists, nurses, and support staff work to provide seamless care. At the eastern wall of the building, a subtly curved staircase connects the entire three-story span, linking floors—and people—just as the center itself integrates services.

"Everything was designed around patient comfort and convenience," explains David Dibner, senior vice president for the Musculoskeletal Strategic Area. "People with musculoskeletal problems often bring a good deal of pain and anxiety with them, so our goal was to create an environment that would cater to their emotional needs as well as their physical ones." A patient with a rheumatology problem, for example, might be screened by a physician on the fourth floor, in one of the CMC's more than 50 exam rooms, then walk across the hall to the infusion center, whose eight bays are equipped with comfortable recliners and flat-screen TVs.

On the sixth floor, a patient with a spinal condition could be examined by an orthopaedist, have a digital X-ray taken just down the hall, and then proceed to the physical

therapy center one floor below. "It's a place where joint, spine, and sports medicine specialists can collaborate with therapists to tailor physical and occupational therapy programs to the needs of patients," notes Gail Chorney, MD, assistant professor of orthopaedic surgery, and medical director of the CMC.

What makes such individualized programs possible is the CMC's state-of-the-art exercise, training, and imaging equipment, some of which is not available at any other rehabilitation center in New York City. An antigravity treadmill, for example, employs differential air pressure (the same technology used by NASA to train astronauts) to "unweight" users recovering from lower extremity injuries or surgery. Other patients may get relief from back, leg, or neck pain thanks to a computerized traction device that gently stretches their vertebrae while they're lying prone, or from a machine that uses jump training to put recovering muscles through a quick stretching and contracting cycle. At the center for diagnostic imaging, doctors can obtain 3-D images of a patient's entire skeletal architecture, in standing position, with the aid of an ultra-low-dose X-ray machine in use at only a handful of medical centers in the US. Or they can capture the precise anatomic detail they need from high-powered MRIs and other radiological equipment.

"In terms of its size, expertise, advanced technology, and ability to treat so many different musculoskeletal conditions under one roof," says Dibner, "there's simply no other medical center that can match what we offer."



All photos: René Pérez

The Role of a Lifetime

NYU Langone's Voice Center Not Only Saved Drew Gehling's Soaring Career, but Inspired Him to Forsake It

Having just been cast in the biggest theatrical role of his career—co-starring with Harry Connick, Jr., in the Broadway revival of *On a Clear Day You Can See Forever*—Drew Gehling felt a lump of anxiety in his throat. But while rehearsing one day, the anxiety turned to fear. He suddenly found that he couldn't reach a previously hit-table note. "Being so attuned to my instrument, I knew something was wrong. In those first few moments, I felt helpless," Gehling recalls, his voice cracking with emotion. "I began preparing myself for the possibility that I might never sing professionally again."

"I've always been preoccupied with vocal lesions," says Gehling, 28, who recently starred on Broadway in *Jersey Boys*. A self-proclaimed "amateur diagnostician," he acknowledges that most performers do not share his interest in medical matters, especially as it relates to their "mystical" gifts. "Their greatest fear," he explains, "is that they'll wake up one day to discover their vocal cords damaged. So if they don't think about it, maybe nothing bad will happen."

In Gehling's case, there was discernible damage—a thickening of both vocal cords—but the problem wasn't nearly as serious as he had imagined. "When vocal cords are used a lot, the tissue thickens and a sort of callus develops," explains Milan Amin, MD, assistant professor of otolaryngology, director of NYU Langone Medical Center's Voice Center, and chief of the Division of Laryngology. "For Drew, the treatment was relatively simple: rest, medication, and then some tailored vocal exercises."

"A singer's tolerance for subtle changes in their voice is much lower than the rest of us," notes speech pathologist Ryan Branski, PhD, assistant professor

of otolaryngology and the center's associate director. "Being unable to hit a certain note can cost them a job or even jeopardize their career."

As the only center of its kind in the New York metropolitan area, NYU Langone's Voice Center marshals a multidisciplinary team of specialists to treat a wide variety of voice, swallowing, and airway conditions. "Our expertise includes otolaryngology, speech pathology, neurology, gastroenterology, pulmonary medicine, radiology, and psychology," says Dr. Branski. "We even have a lyric tenor who coaches patients on everything from proper technique to nutrition." The center employs state-of-the-art tools for diagnosis and treatment, including acoustic analysis to measure variations in vibrations, aerodynamic analysis to measure air flow from the lungs to the vocal cords, high-speed imaging that shows the vocal cords in slow motion, revealing subtle structural abnormalities, and "smart" lasers used to ablate benign lesions.

"Our mission," explains Dr. Amin, "is threefold: treat, research, and educate." Accordingly, the Voice Center offers seminars not only for performers, but for composers, directors, and producers, all of whom must understand the challenges and risks performers face by routinely pushing the limits. "Despite high-tech amplification, musicals today put much more stress and strain on the vocal cords," notes Dr. Branski. "It used to be stand-and-sing. Now it's run-jump-cartwheel-and-sing. Think of *Rent*, for example. It's too much to ask performers to do that eight times a week." The bulk of the center's patients, however, are not singers, but teachers, lawyers, ministers, cops, phone operators—professional voice users. "We treat them with the same level of care as



His voice fully recovered, Drew Gehling belts out a tune in the Broadway revival of *On a Clear Day You Can See Forever*.

our Grammy or Tony Award winners," says Dr. Branski.

His medical bent kindled his interest, Gehling attended some of the Voice Center's seminars before his show went into rehearsals. His informal discussions with peers led him to develop more than 30 pertinent questions, which he posed to some 150 fellow performers. The findings of this survey drew a rave review from Dr. Amin. "It's the most comprehensive study of its kind," he notes. "We now have data on every single active adult performer on Broadway. This wide range of information, from sleep habits to steroid usage, will prove invaluable to us as clinicians. Dr. Branski and I are honored to co-author the paper with Drew."

Gehling now has his sights set on the role of a lifetime. Inspired by the virtuoso performances of Dr. Amin and his colleagues, he has enrolled in Columbia University's premed program. If his dream comes true, he'll one day be on the other side of the scope, as an otolaryngologist. Who knows? He may even become Dr. Amin's understudy.

The Patient May Be Made of Plastic, but He's No Dummy

NYU Langone and CUNY Partner to Create the Largest Urban Health Training Facility of Its Kind in the US

Bellevue Hospital Center is no stranger to emergencies, but on this particular day, the drama is taking place not in the ground-floor Emergency Department, but up on the third floor. Survivors of a terrorist attack—many in shock and some with life-threatening burns and wounds—are being triaged and treated by a team of residents, nurses, and medical students from NYU Langone Medical Center. Meanwhile, just down the hall, a more intimate crisis is unfolding, as physicians huddle over the body of an infant suffering from septic shock. Their eyes fixed upon a monitor flashing vital signs, the doctors make their way through a series of lifesaving steps: administering oxygen and medications, intubating the child's airway, and so on.

In both locations, the adrenaline is flowing for real, but the patients—thank goodness—are made of plastic. Yet these are no dummies. They're state-of-the-art mannequins, some costing as much as much as a quarter of a million dollars each. Not only can they simulate seizures, heart attacks, and other health crises, but they can even be programmed to cough, cry, blink, sweat, and do other things. More than a dozen of them reside at the New York Simulation Center for Health Sciences, a 25,000-square-foot learning laboratory housed in Old Bellevue. The largest urban health training facility of its kind in the US, the center opened last September—10 years to the week after 9/11. In the decade since the worst terrorist attack on American soil, the center represents one of the most concrete steps taken by public and private institutions to improve the city's capabilities to respond to large-scale disasters.

The \$21 million center was created through a partnership between NYU Langone and the City University of New York (CUNY). Thanks to its roll-up-your-sleeves realism, it's popular with students and teachers alike. The center serves a wide range of caregivers: medical students, residents, and staff physicians from NYU Langone; students from NYU College of

Dentistry, NYU School of Nursing, and CUNY's nursing schools; students from health professional schools; and emergency medical technicians. In look and feel, it's a veritable hospital within a hospital, equipped with a large disaster training room, a five-bed intensive care unit, two operating rooms, trauma rooms, a labor and delivery room, and 14 exam rooms, where learners can practice their professional skills on actors specially trained to behave like patients. More than 100 cameras capture video of every training movement, which can be played back for students in sessions with their instructors.

"Trainees learn how to communicate by briefing and debriefing each other, and by identifying threats to patient safety," notes Demian Szyld, MD, assistant professor of emergency medicine, the center's associate

medical director. "They truly learn from their mistakes—without putting patients at risk."

Like the back lot of a Hollywood studio, the center can stage virtually any mock exercise—from a mass casualty triage situation to a single-patient clinical emergency—that tests medical, surgical, and diagnostic skills. "One of our goals was to set up these rooms like an actual hospital so that people train in the same environment they'll be working in," explains the center's executive director, Thomas Riles, MD, the Frank C. Spencer Professor of Surgery and associate dean for medical education and technology. "Pilots are trained on flight simulators, so there's no reason we shouldn't expect our doctors, nurses, paramedics, and other healthcare professionals to be fully trained for any situation."



Dr. Sujata Chakravarti (foreground), director of the Pediatric Cardiac Intensive Care Unit, leads a training session at the New York Simulation Center for Health Sciences, located at Bellevue Hospital.

Joshua Bright

Giving Plaque-Man the Boot

About a decade ago, Edward Fisher, MD, PhD, saw something inexplicable: immune cells marching out of plaque in a heart artery. It was a stunning observation. Scientists knew that plaque is full of such macrophages—cells that gobble up toxic fat deposited along artery walls by low-density lipoprotein (LDL)—and they believed these fat-gorged immune cells got trapped in the quicksand of plaque, never to escape. Plaque builds up over years, and when a piece suddenly breaks off and causes a blood clot to form, clogging an artery, a heart attack can ensue. One million of them occur every year in America, and half are fatal. But in a mouse study exploring ways to attack plaque, Dr. Fisher saw, to his surprise, that under certain circumstances, the bloated macrophages began moving out of plaque the same way they normally leave other tissues once they devour a cellular threat.

It was a eureka moment, suggesting a way to shrink plaque to protect against cardiovascular disease as well as stroke. Nevertheless, it took years for the biomedical science community to discard dogma and believe in what Dr. Fisher calls “the plasticity of plaque.” It came only after a succession of high-profile publications and numerous federal grants. “We’re getting a lot of credit these days in the rearview mirror,” he says with a laugh.

Now Dr. Fisher, the Leon H. Charney Professor of Cardiovascular Medicine and director of the Marc and Ruti Bell Vascular Biology Program at NYU Langone Medical Center, has made another discovery. He and his collaborator, Michael Garabedian, PhD, professor of microbiology and urology, found that statins, the most common drug in use today to prevent heart disease, do more than lower cholesterol in the blood: they also push those puffed-up macrophages to “get up and walk away” from plaque—at least in mice studies. In particular, statins alter

expression of a specific molecule (CCR7) on macrophages in the plaque, which in turn activates a cell-signaling pathway that forces these immune cells to skedaddle.

As is often the case in scientific research, this discovery, published in *PLoS ONE*, came about because of a chance meeting. Dr. Fisher and

Dr. Garabedian

just happened to chat while serving together on a student thesis committee. Dr. Fisher mentioned that he had just found that CCR7 seems to turn on the migration phenomenon he had discovered in mice. He wondered aloud whether statins prevent heart disease by switching on CCR7. Dr. Garabedian, an expert on gene regulation, said it was possible that CCR7 might respond to a statin. He soon found that both human and mouse CCR7 could be regulated by statins. “This is exciting,” notes Dr. Garabedian, “because it suggests that the plasticity of plaque that Dr. Fisher discovered in mice may also be operating in humans.”

Dr. Fisher is now working with colleagues elsewhere to maximize the beneficial effects of statins by encasing the drug within nanoparticles and delivering the therapy directly to artery walls. Perhaps a future drug that selectively switches on CCR7 might also be delivered, he says. “With this discovery,” says Dr. Fisher, “we can imagine a day when we can give plaque the boot—the ultimate clinical goal.”



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For African-Americans on High Blood Pressure Medication, Positive Reinforcement May Save Lives

Doctors who treat chronic diseases know that even the most effective drug can be truly effective only if patients take it faithfully. “The rate of medication adherence in any chronic disease is about 50%,” explains Olugbenga Ogedegbe, MD, associate professor of medicine and director of the Center for Healthful Behavior Change at NYU Langone Medical Center. Dr. Ogedegbe is the lead author of a new study that applied techniques of positive psychology to boost medication adherence among African-Americans with hypertension.

Hypertension, or high blood pressure, affects one in three adults in America. A leading cause of stroke and a major risk factor for heart disease, it disproportionately afflicts African-Americans, who have higher rates of hypertension than any other population in the world and suffer worse hypertension-related outcomes than whites. Hypertension, notes Dr. Ogedegbe, is the single largest contributor to the mortality gap between blacks and whites.

“African-Americans tend to have a much lower rate of medication adherence compared to whites. The proportion of African-American patients who take their medication consistently is only about 40 to 50%,” reports Dr. Ogedegbe, a clinical epidemiologist, hypertension specialist, and behavioral scientist. “We feel that if we can improve their adherence, this should lead to subsequent improvement in their blood pressure control, reducing the racial gap in mortality.”

“We know from studies that African-American patients tend not to trust their doctors and the healthcare system,” explains Dr. Ogedegbe. His team decided to test two techniques known to enhance an individual’s willingness to absorb potentially threatening health messages, but whose impact on medication-taking behavior had not been explored.

The study, funded by the National Heart, Lung, and Blood Institute, was published in the *Archives of Internal Medicine*. It followed 256 hypertensive black patients in a primary care practice. They were divided into two treatment groups. Each group received an educational workbook and a brief follow-up phone call every two months. In addition, patients in the intervention group were asked during the calls to spend time each day remembering their core values, and to recall those thoughts when they encountered obstacles to taking their medication. A few days before each call, they received a surprise gift—a small, practical item such as a coffee mug, umbrella, or pill counter. Spontaneous gifts induce a positive effect, research has shown, enhancing motivation.

At the end of a year, patients in the intervention group had a 22% higher medication adherence rate than those in the education-only group, with 42% of the intervention patients taking their medications as directed. Given these results, the study concludes that one in every 16 patients who receives the intervention will benefit. Dr. Ogedegbe finds the results encouraging. “There is evidence that patient education does help, but it’s not in itself sufficient,” says Dr. Ogedegbe. “The next step is to figure out how to fit this program into usual practice, as well as its cost-effectiveness.”

A Goal for Kidney Stone Veterans: Twice the Number, Half the Size

Humanity might well be divided into two groups: those who have experienced the agony of passing a kidney stone and those who have not. An estimated 10% of the population falls into the former group. But for more than 10,000 Americans plagued by cystinuria, an inherited propensity to form kidney stones, the relief that comes from passing a stone—or having it removed—is short-lived. These patients repeatedly form stones made of cystine, a building block of protein, instead of the more common calcium oxalate crystals. George Brown, 70, has endured 20 medical procedures since the age of 22 to clear his kidneys of stones. He has taken both the FDA-approved medications for the disease, but neither drug has been much help in reducing the buildup of stones in his kidneys.

Now, he’s closely monitoring the progress of what may become the first new drug in 25 years to treat cystinuria. Developed by Michael Ward, PhD, professor and chair of chemistry at New York University, with the encouragement of David Goldfarb, MD, professor of medicine, physiology, and neuroscience and clinical chief of nephrology at NYU Langone Medical Center, the compound is the first to show promise in reducing the size of stones. This would make them easier to pass from the kidney through the ureter into the bladder, where they’re eliminated from the body.



Illustrations by Wes Bedrosian

The treatment uses a chemical that mimics the cystine building blocks that make up the crystals that develop into stones. The mimic, cystine dimethylester (CDME), gets built into the crystals, but its shape won’t allow any additional building blocks to be added to the structure, resulting in many tiny crystals instead of fewer larger ones. The initial experiments were performed in test tubes, and the results, published in the journal *Science* in 2010, were so promising that Dr. Ward and Dr. Goldfarb are now collaborating with Amrik Sahota, PhD, a geneticist at Rutgers University, to test CDME in mice. Dr. Sahota developed a mouse missing one of the same genes that causes cystinuria in people.

The group has already completed a small study to test CDME in 14 mice for four weeks. The mice passed twice as many stones, explains Dr. Goldfarb, but they were half the weight and size of the stones formed by untreated mice.

Now, as part of the Rare Kidney Stone Consortium, a large association of researchers studying genetic kidney stone diseases with funding from the National Institutes of Health and the Office of Rare Diseases Research, the group is hoping to translate these findings to a larger study to determine the optimal dosage and toxicity, and test similar chemical mimics that could work even better in reducing stone formation. Meanwhile, Dr. Goldfarb has formed a cystinuria registry so that patients like George Brown, who has been waiting for something to ease his suffering for decades, will be first in line when a new treatment is ready to be tested.

Listening between the Lines

A Day in the Life of Medical Interpreter Hei Ngan



John Abbott

Medical interpreter Hei Ngan, center, interprets for a patient receiving occupational therapy.

Since her first year as a medical interpreter at NYU Langone Medical Center in 2009, Hei Ngan has seen the number of Chinese-speaking patients increase significantly. Ngan credits the rise to Jody Gill, director of Language, Cultural, and Disability Services, and her staff of five interpreters, a program manager, and a program coordinator. Gill's department is augmented by several freelance and agency interpreters who provide face-to-face interpreting, as well as a company used for telephonic interpreting for emergencies, after hours, when a face-to-face interpreter is not immediately available, or for languages that are less common. "In any given month," notes Gill, "more than 30 different languages are spoken by our patients."

8:50 a.m. After printing out her daily schedule of prescribed sessions, Ngan scrolls through the computer, trying to assess which patients speak Mandarin or Cantonese, the dialects she's fluent in. This is just one way the department tries to ensure that any patient who may need an interpreter will have one available. "We'll block out time between appointments to visit patients who may not have been scheduled," she explains. In NYU Langone's Tisch Hospital, Ngan walks into the room of a middle-aged Asian woman, who shakes her head good-naturedly in response to Ngan's offer to interpret. "She's Korean, which I don't speak," says Ngan, whose own heritage is Chinese. "Some Korean surnames are similar to Chinese ones." Ngan, 27, studied at a bilingual (Cantonese and English) school in her native

Hong Kong. "It wasn't until high school that I learned the Mandarin dialect," she explains.

9:45 a.m. Ngan's first scheduled appointment is with a 70-something patient receiving occupational therapy at NYU Langone's Rusk Institute of Rehabilitation Medicine, but before she can ask a question, the patient's daughter shoos her away. In Cantonese, Ngan explains why it's important to use a trained medical interpreter and not a family member, but to no avail. "Some Chinese people are ashamed that they can't communicate in the language of their adopted country," she explains. "They believe it's their fault."

11:00 a.m. Ngan moves throughout the Medical Center facilitating communication among pa-

tients, family members, and staff. Between stops, she explains: "A good medical interpreter can express a conversation word for word, duplicating every nuance and inflection. But you also need compassion and interpersonal skills." Meeting a son who believes that he's perfectly capable of speaking for his elderly father, Ngan once again explains why her services can help. The son finally accepts the offer and then thanks her profusely. "Family members often don't realize that their attempts to interpret can be counterproductive," Ngan says. "They're emotionally involved and don't know the medical language."

12:40 p.m. Ngan is paged by the Critical Care Unit. Over the past month, she has visited an elderly man in bed there several times. Today, he has taken a turn for the worse, and his physician needs to communicate the gravity of his condition to the patient's wife. "We have to take out the feeding tube," says the doctor. "It's posing a serious risk. We can do a tracheotomy, but that's a short-term fix. There's nothing else we can do. Your family has a difficult decision to make." A meeting with the family is scheduled for the following day.

1:55 p.m. Ngan's next assignment is Wen Wan Chu, a petite 76-year-old woman who broke both of her wrists in a spill, yet exudes an infectious joy. "Do you have any pain?" asks her physical therapist. "Oh, yes," Chu answers in English, before rattling off a string of words in Mandarin. Ngan interprets: "But I'm feeling much better." Chu slacks off on her three-pound barbell curls, mostly to see if the therapist is paying attention. Then, when chastised, she furiously starts curling. "Slower," says the therapist. Ngan interprets, "*Marn marn lai.*" "Ah, *marn marn lai,*" repeats Chu, who slows her movements to a virtual stop. It's an old joke that still makes everyone laugh.

5:30 p.m. Ngan heads to her last appointment, an 11-year-old patient with leukemia who is having his final weekly treatment after three grueling years. His mother can barely contain her emotions about this long-anticipated moment, and she is finding it difficult to convey her appreciation to Ngan and, especially, to her son's physician, Elizabeth Raetz, MD, associate professor of pediatrics and a pediatric oncologist. "It's been a long haul, and we're all kind of emotional today," says Dr. Raetz. "Ngan has been here week after week. The family knows and trusts her. We all love her." For the first time today, the interpreter is at a loss for words.

Another Kind of Marathon

(continued from page 1)

to a coworker and, before long, was being rushed by ambulance to NYU Langone's Emergency Department.

At first, the diagnosis was not clear. "Syndromes like migraines and seizures can cause symptoms similar to those of a stroke, and in a younger patient, the first diagnosis is not typically a stroke," explains the physician who treated Kent, Keith Siller, MD, assistant professor of neurology and psychiatry, and the stroke center's director. An MRI soon revealed that Kent had developed a total occlusion of the right carotid artery, caused by a tear along the inside wall. Blood, unable to flow to the brain, clotted within the artery, triggering a "brain attack." The likely culprit: the shoulder bag she wore during the race.

"The MRI showed a large stroke in progress," reports Dr. Siller. "Massive brain swelling began to occur, and Lauren was in a potentially fatal situation." The next several days were touch and go, but eventually Kent was off the ventilator and out of immediate danger. By then, however, the stroke had done its damage: her left hand and arm were largely paralyzed, her left leg weakened, and her speech impaired.

After three weeks at Tisch, most of it spent in the Neurological Intensive Care Unit, Kent was moved to NYU Langone's Rusk Institute of Rehabilitation Medicine, where she underwent six weeks of treatment. "She was very weak and needed just about everything we could offer—physical therapy, occupational therapy, speech therapy, cognitive therapy, and vocational rehabilitation," explains Ira Rashbaum, MD, clinical professor of rehabilitation medicine and chief of stroke rehabilitation at Rusk. "But she had an excellent attitude and, through sheer determination and hard work, made incredible progress. It was what you'd expect from a marathoner."

Therapists put Kent through her paces for hours each day, including forced use of her weakened left arm and leg and repetitive drills to promote motor learning. Strapped to her calf was an electrical stimulator that helped Kent lift her left foot and walk increasingly longer distances, sometimes accompanied by her mother, Jan, who came down from Syracuse, NY.

"The first day I met Lauren, she was unable to move her left arm and had minimal movement in her left

leg," recalls Licet Echevarria, PT. "By the time she left Rusk, she was able to walk two city blocks with a cane. Her work ethic was a huge part of her recovery, and truly an inspiration." That admiration is echoed by Mauricio Magana, PT, Kent's outpatient physical therapist, who worked closely with her for seven months. Their rigorous regimen of walking, stretching, and balance and strength training paved the way for the unthinkable: Kent was once again able to jog and run.

Kent is the first to admit, of course, that there are still obstacles to overcome and deficits to deal with. While some movement has returned to her left arm, her left hand has none. It can take her a while to remember things, but she is confident that "stuff will come back." Kent's return to her job part-time and short jogs in her Cobble Hill, Brooklyn, neighborhood help to keep her spirits up. So does the dream that one day she'll be able to compete again in the New York City Marathon. "But not with the bag," she says with a laugh.

Web Extra: for an audio slide show about Lauren Kent's remarkable journey and recovery, see "Another Kind of Marathon" at www.newsandviews-digital.com.

Inside This Issue



Another Kind of Marathon Less than halfway through the 2010 New York City Marathon, Lauren Kent began noticing little blind spots in her right eye—the first sign that she was having a stroke, apparently prompted by the strap of her handmade shoulder bag, which caused a total occlusion of her right carotid artery. [page 1](#)



It Takes a Department To help bridge the gulf between impressive advances made in biomedical science and disproportionately modest gains in our nation's overall health, NYU School of Medicine has created a new Department of Population Health, designed to provide a hub for research and training. [page 3](#)



A Tale of Two Tumors Of the 3,000 pediatric brain tumors diagnosed each year in North America, fewer than 150 are craniopharyngiomas. Removing one is considered one of the most daunting challenges in all of neurosurgery. The surgeon cannot know precisely what he's up against until he's inside the brain. [page 3](#)



Listening between the Lines More than 30 different languages are spoken by patients at Tisch Hospital. When they need an interpreter, the Office of Language, Cultural, and Disability Services provides one for face-to-face conversation or by telephone during an emergency or when a language is less common. [page 7](#)

news & views

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The Man Who Reinvents the Wheels

With purpose in each step, Longino Ortiz makes his morning rounds among patients at NYU Langone Medical Center's Rusk Institute of Rehabilitation Medicine. Back in his office, a small room near the entrance of Rusk's Horizon House, Gino, as he's known, doesn't have to worry about dictating patient histories or keying information into a computer. He doesn't even have a computer.

What Gino does have is wheelchairs—lots of them—and plenty of tools and extra parts to fix them. He is responsible for cleaning, servicing, and adjusting more than 100 wheelchairs used by Rusk's inpatients. A seat adjustment for a short person, say, or a leg extension for a tall one, will usually do the trick. "For me, it's all

about the patients," says Gino. "If they have an armrest that's too low, for example, or if they feel any discomfort, I'll get beeped and be up in their room in no time flat to fix it."

Gino's mindset was honed during 41 years as a physical therapy aide at Rusk, where he helped patients walk, exercise, and swim. Mechanically inclined, he also did some repairs of wheelchairs, which made him a natural fit for his current job. Gino lost no time taping a photo of Dr. Howard Rusk to the wall of his workroom. "It was beautiful to watch him visiting and encouraging patients," he says of the institute's founder. The lesson clearly took.