



Molly, a four-month-old infant who had surgery at NYU Langone Medical Center to repair a hole in her heart, receives a warm welcome from her twin brother, Jack, as they are reunited at home.

Beatrice De Gea

Mending Molly

An Infant with a Damaged Heart and Her Heartbroken Parents Find a Team of Cardiac Specialists Who Give Their Story the Happiest of Endings

After years of trying to conceive with fertility treatments, Nancy Frankenberg, 47, and her husband, Josh Parker, 48, decided on one more round, using donor eggs. This time, the stars aligned. Nancy not only became pregnant, but with twins—a male and a female. “We hit the jackpot,” she told family and friends.

Five months passed in joyful anticipation. Then came an omen—an abnormal finding on an ultrasound. A missing artery in one of the umbilical cords, often

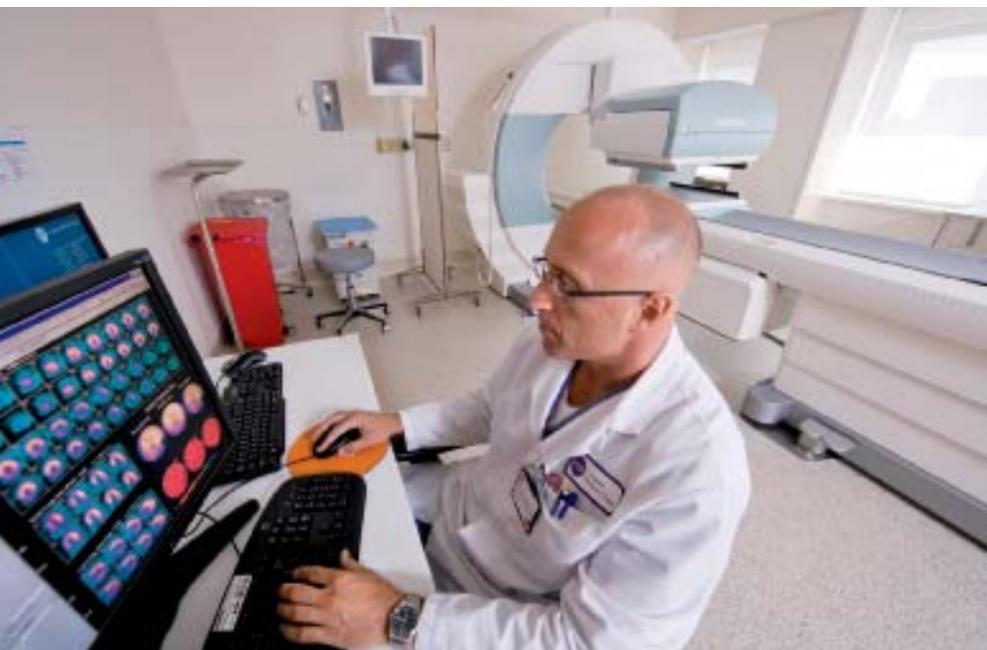
a sign of congenital anomalies, brought the couple to NYU Langone Medical Center, where they consulted Achiu Ludomirsky, MD, the Andrall E. Pearson Professor of Pediatric Cardiology and chief of the Division of Pediatric Cardiology.

On an echocardiogram, Dr. Ludomirsky found the male fetus’s heart normal, but in the female, he found evidence of one of the most common congenital heart defects: Tetralogy of Fallot. This condition is marked by

a large hole between the left and right ventricles and obstructed blood flow to the lungs. The condition occurs in 0.4% of the population, but open-heart surgery, ideally performed at four to six months of age, can repair the defect. “It was incredibly scary,” recalls Frankenberg.

“I couldn’t stop thinking that she could die in surgery.” They coped with their anxiety by planning for the births. “We’re both strong people and not ones to obsess,” explains Parker, who, like his wife, works in sales.

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Nuclear stress tests, conducted in the Jean & David Blechman Cardiac & Vascular Center, are just one of many diagnostic tests now available on Saturdays.

The Less Stressful Stress Test and Other Weekend Options

As Seven-Day-a-Week Services Expand, Patients Are Afforded Ever More Choices and Conveniences

Perhaps the only thing more stressful than undergoing a medical test or procedure is making the time for it amid so many personal and professional obligations. NYU Langone Medical Center has found a way to help: offer patients more options than ever to tend to their healthcare needs during off-peak hours. While NYU Langone’s caregivers have always been on call 24/7 for emergency procedures, the expansion of nonemergent care marks an important step toward becoming a true seven-day-a-week hospital, with the entire Medical Center humming at full capacity day in, day out.

The Medical Center has been gradually shifting its operational center of gravity, with roughly half of its diagnostic, clinical, and surgical services now ramped up for weekend duty. “Saturday and Sunday services are not meant to

(continued on page 3)

John Abbott



From the Dean & CEO

I often stress the importance of teamwork and how vital it is to the care of our patients and the overall success of NYU Langone Medical Center. But sometimes, a picture really is worth a thousand words. Take the one on page five, for example. Nearly a dozen physicians and nurses from surgical and intensive care teams—each with highly specialized expertise and a carefully choreographed role—work as a true ensemble to safely and seamlessly transition a four-month-old patient from the OR to Tisch Hospital's new Congenital Cardiovascular Care Unit. If her anxious parents could only have witnessed this group in action, caring for their baby as if she were one of their own, the sight would surely have brought a sigh of relief, if not tears of gratitude.

Impressive teamwork is in evidence throughout the Medical Center, but never more so than when the foe is cancer. If it

happens to be pancreatic cancer, infamous for its deadliness, only the best will do. On page eight, some of our nearly 30 multidisciplinary specialists in pancreatic cancer gather to remind us that curing and caring are highly collaborative endeavors, the work of many hearts and minds and hands serving one patient.

Robert I. Grossman, MD



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Partnership Creates New York Genome Center

What promises to become one of the largest and busiest genomics facilities in North America, the New York Genome Center (NYGC), was unveiled in Manhattan in November. NYU School of Medicine is one of 11 founding members of the center, which represents an unprecedented public-private coalition of leading universities, medical centers, technology partners, and private philanthropists in the field of genomics medicine.

In less than a decade, the field of genomics has emerged as one of the most important areas in the biological sciences, providing fundamental discoveries around human genetics and the origin of human diseases. This field has also enabled key discoveries that have impacted human health, including the development of biomarkers for prognostic, diagnostic, and therapeutic initiatives and drug discovery. About 10% of all marketed drugs recommend or require genetic testing for optimal treatment, and this number is expected to climb significantly as greater than 60% of all drugs in preclinical development rely on biomarker data. The \$125 million NYGC will bring together physicians and researchers to share clinical and genomic data on a large scale. Their studies will be aimed at ushering in a new era of personalized medicine; accelerating the development of new diagnostics and treatments for cancer, brain disorders, metabolic and chronic diseases, and other conditions; and providing an engine for life science commercialization in the region.

Core components of NYGC will be its sequencing capabilities and bioinformatics labs. It will also house an innovation center for developing new genomics technologies, educational and training programs in genomics, and a philanthropic unit. An architect has been retained to design the 120,000-square-foot center, which could open as early as spring 2012.

New Division of Medical Humanities Cultivates the Scientist-Humanist

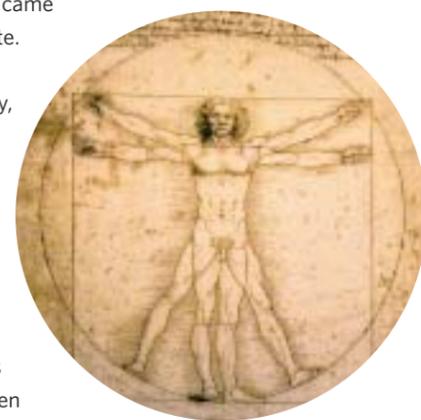
Something was missing. That much, Dr. Martin Blaser knew. In his years-long attempt to create a new Division of Medical Humanities, Dr. Blaser, the Frederick H. King Professor of Medicine and chair of the Department of Medicine, came to realize exactly what it was. A champion. An advocate. A leader. All the other elements required for the new initiative were already in place—the world-class faculty, the conceptual framework, the long, distinguished tradition of medical humanism. But he needed a director, someone who believed in the idea and had the skills to pull it off.

Then came a stroke of serendipity. Dr. Robert Anderson, a colleague of 38 years—he and Dr. Blaser had met at the University of Colorado—had recently retired as the chair of the Department of Medicine at its School of Medicine and had moved to Manhattan to open a photo gallery. “He will be the key to the new division,” says Dr. Blaser, “the catalyst.”

Medical humanities essentially calls for informing the practice of medicine with an understanding of the human condition through other disciplines. Medical students trained in the humanities are both scientists and humanists, and presumably more self-aware, reflective, compassionate, and intent on enhancing the physician-patient relationship. “The public needs more from medicine than competent performance,” notes a 2010 Carnegie Foundation report calling for the reform of physician education. “The toll of illness and the burden of human suffering demand it.”

“Medical schools are already good at teaching knowledge,” says Dr. Anderson, clinical professor of medicine. “But we want physicians to be good listeners, good observers, culturally sensitive. Exposure to the humanities can bolster the caring aspect.” Adds Dr. Blaser: “To be a doctor should involve both the head and the heart. Most medical education is only about the head—about asking people to think critically. But the heart is just as important. So is being empathetic and learning to care for people.”

Dr. Anderson has evolved toward the medical humanities slowly. He started as “a traditional academician, a hard-core basic sciences guy.” Then, 25 years ago, when he began to see patients as an internist, he took a weekend course in patient communication. “It turned out to be a big eye-opener for me,” he says. “I learned to listen much better. It took me a long time to develop the other half of the equation as a doctor.”



Healthy Brain Aging Fair Draws Scores of Visitors

John Casey, 78, came to NYU Langone Medical Center's first annual Healthy Brain Aging Fair with a lot on his mind: he was afraid he was losing it. “I think I might have a problem, but I don't know if it's Alzheimer's or not,” said Casey, 78, worry etched on his face. “I'm having memory loss, and I feel it's a bit more than average for my age.”

Held on November 17 in Alumni Hall and Farkas Auditorium as part of National Alzheimer's Disease Awareness Month, the fair was sponsored by NYU Langone's Center of Excellence (COE) on Brain Aging, in collaboration with our Division of Geriatrics; NYU's College of Nursing; NYU's Steinhardt School of Culture, Education, and Human Development; and the New York Chapter of the Alzheimer's Association.

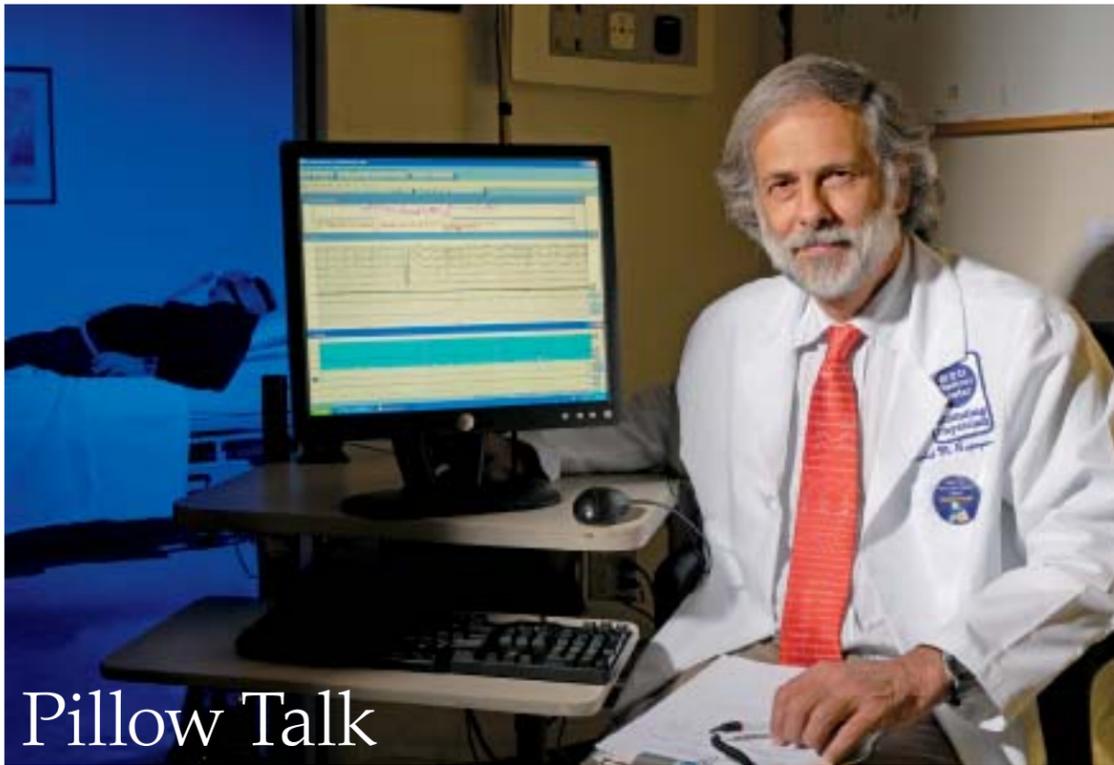
Approximately 5.4 million Americans suffer from Alzheimer's disease, an incurable disease that takes a heavy toll on patients and caregivers alike. The good news is that many lifestyle behaviors, including diet, exercise, socialization, and maintaining a healthy weight and blood pressure, can significantly delay the onset and possibly lower the risk of developing Alzheimer's, according to James Galvin, MD, MPH, professor of neurology and psychiatry, director of clinical operations for the COE, and director of the Pearl S. Barlow Center for Memory Evaluation and Treatment at NYU Langone Medical Center's Silberstein Alzheimer's Institute.

Drawing more than 200 visitors, the fair hosted tables piled with information about Alzheimer's, Parkinson's disease, and other brain disorders associated with aging. A line of several dozen people snaked toward a booth offering free confidential memory screenings, which, in a matter of minutes, could provide reassurance or recommendations for further evaluation. Others queued up to have their blood pressure checked and their lung capacity measured, their body fat percentage determined, and to find out how yoga and meditation could improve their mental health.

A heavily attended lecture given by Ralph Nixon, MD, PhD, professor of psychiatry and cell biology, and director of both the COE on Brain Aging and the Silberstein Alzheimer's Institute, focused on groundbreaking research, the importance of clinical trials, treatable causes of dementia, and promising imaging tests and medications that could make earlier detection possible or improve patients' quality of life. “Now, we have the ability to detect markers that will allow us to recognize Alzheimer's disease from the very beginning,” Dr. Nixon noted. “There's also a very rich pipeline of medications, and we hope this is going to yield what we're all waiting for.”



Karsten Moran



Dr. David Rapoport, director of NYU Langone's Sleep Disorders Center, monitors a patient undergoing a sleep study.

Pillow Talk

A Conversation with Dr. David Rapoport, Director of NYU Langone's Sleep Disorders Center

Each year, more than 1,500 people seek help from NYU Langone Medical Center's Sleep Disorders Center. Some have problems falling asleep (insomnia) and a growing number suffer from sleep apnea, a breathing disorder in which their upper airways become obstructed during sleep. David Rapoport, MD, associate professor of medicine and the center's medical director, has pioneered research into the nature and treatment of sleep apnea for more than 30 years.

Why is it so hard for so many of us to get a good night's sleep?

Sleep is basically a habit. The more you stick to a bedtime routine, you better you sleep. In the old days, your internal clock was set by sunrise and sunset. Then we invented the electric light. Now we're up all night doing e-mail. After a stressful day, you fret about the next day. Our lives are increasingly filled with distractions that break us out of what should be a very habitual cycle.

Why do we need to sleep at all?

There seems to be nothing useful about sleep. You lose time. You become food for predators if you're not careful. You wouldn't choose to sleep unless it served an incredibly important function. But we don't know what the ultimate purpose is on a cellular level. All we know is that if you're deprived of sleep, things start to go awry. Concentration, mood, reaction time, judgment, memory, learning, and perhaps metabolism are all affected. Sleep must be important, because even very simple animals seem to have a natural activity-and-rest cycle similar to sleep. We believe sleep in humans is tied to pruning memory and learning. If I teach you, say, how to shoot a basketball, you'll practice, practice, practice, and when I finally test you, you'll have retained a certain level of skill. If you sleep, the next morning you'll be better at that skill than when you finished practicing. If you don't sleep, you don't

improve. The same may be true for memory. Hence the phrase "Let's sleep on it."

Can't we all get used to surviving on little sleep—the way medical residents or truck drivers do?

They *don't* get used to it. They might think they do, but they don't. As a species, we are very good at managing sleep deprivation for a short time, but we're not designed to do it all the time. When you don't sleep, you build up a debt that you have to pay back, sooner or later.

How can we help ourselves fall asleep more easily?

Put the day behind you. Develop a calm-down script, and stick to it every single night. Quiet your mind and stop focusing on daytime stress builders. Focus on regularity and relaxation. Your body is already primed for sleep. Allow it to happen.

What about sex before sleep?

A limited number of studies suggest that for some people, it's very helpful. The activity itself revs you up, but part of the release is actually predisposing to sleep. Satisfying sex probably aids a good night's sleep as much as anything else.

But for people with sleep apnea, the trouble starts after they're asleep?

Right. If you think of your airway as a floppy tube, it

doesn't collapse while you're awake because muscles hold it open. For reasons we don't understand, that muscle tone is lost when we go to sleep. The airway, if it's prone to collapse, is sucked shut when you breathe in. In milder cases, the airway only vibrates, and the sound that comes out is snoring. In more severe cases, it collapses, and you wake up to prevent suffocation. This cycle can repeat as often as every 30 to 60 seconds.

What are the long-term risks if it's untreated?

We believe sleep apnea predisposes to high blood pressure, heart attacks, strokes, weight gain, even death. We're beginning to suspect that apnea may play a role in metabolism. For example, we think sleep apnea may make diabetes worse, and it appears to change appetite and the way we handle glucose, possibly leading to weight gain. In addition, things that cause other diseases, such as inflammation, seem to be activated by sleep apnea.

What's the Sleep Disorders Center's approach to diagnosis and treatment?

Currently, 80% of our patients have sleep apnea, and it doesn't take long to confirm this. They sleep in a comfortable room while we monitor their sleep patterns and breathing. We often can make the diagnosis in the first hour or two, then wake the patient and start treatment the same night. Most often, we fit them with a mask attached to a continuous positive airway pressure [CPAP] machine, adjusting the air pressure until sleep and breathing become normal. When they go home with the treatment, it takes a week or so to get used to wearing it, but about 70% experience significant improvement. We treat patients with insomnia by teaching them good sleep habits, and the majority improve.

Would we all be better off if we took a siesta, like they do in southern Europe?

There's a lot in our biology to suggest that siestas are a natural rhythm. At about 4:00 p.m., our body says, "It's a good idea to take a nap." When you're sleep deprived, that's the time you're most likely to nod off. This afternoon hump means we're hardwired for a siesta. Some cultures have taken that to heart, but it's tough to sell here. Sadly, Europe is actually shifting to the American model.

How well do you sleep?

I used to be one of the lucky ones who slept well most of the time. But one of the prices you pay for aging—and having more work and stress—is that you sleep less well. I'm no exception.

Note: Dr. Rapoport has served as a paid consultant for a CPAP manufacturer.

Web Extra: for an article about NYU Langone's Sleep Disorders Center, see "The Sandman in the White Coat" at www.newsandviews-digital.com.

The Less Stressful Stress Test and Other Weekend Options (continued from page 1)

be a passing fad, but a fact of life at this institution," explains Andrew Brotman, MD, senior vice president and vice dean for clinical affairs and strategy. "This is what the public wants, and this is what we intend to deliver as part of our patient-centered care—to make comfort and convenience an integral part of the experience at NYU Langone."

Elective outpatient surgeries on the weekends have more than doubled over the past year, underscoring their growing popularity. Procedures that can now be performed during off-peak hours (usually Saturdays) include those in orthopaedic surgery, bariatric surgery, urology, otolaryngology, and gastroenterology. "Only about a quarter of operating rooms are typically being utilized on weekends," notes Jeffrey Short, senior director of strategy and business development. "So we have all this capacity available for patients who would prefer to have elective surgery on a weekend rather than miss a day from work." In addition to scheduling

convenience, weekend services offer the advantages of less traffic and easier child care.

For the same reasons, nonemergent diagnostic testing on Saturdays and Sundays has become popular. The Clinical Cancer Center now provides screening mammograms, PET/CT scans, and chemotherapy on Saturdays, and radiation treatments on Sundays. NYU Langone's Tisch Hospital offers MRI scans seven days a week, while social workers and care management specialists are available on weekends at both Tisch and the Rusk Institute of Rehabilitation Medicine. At the Cardiac & Vascular Center, a patient can now undergo a stress test on Saturday and, if it's inconclusive or raises concerns about a potential arterial blockage, follow up with a nuclear stress echocardiogram the following day. "We're building a noninvasive cardiology capability on the weekends that's unsurpassed in the city," says David Seligman, senior manager for strategy, planning, and business development.

Because healthcare is so dependent on teamwork, the move to more and more weekend services requires a corresponding buildup of personnel. This enterprise has traditionally been fueled by overtime hours, but NYU Langone wants to ensure that whatever day of the week it is, patients can expect the same high-quality medical care provided by the same highly trained professionals. So the Medical Center is moving toward a new model of hiring full-time employees dedicated to both weekday and weekend hours.

At this point, the challenge is not only growing the roster of weekend services, but also helping the community to take full advantage of it. "It's a big shift in culture, so we have to work hard to change patient perceptions," says Seligman. "We want our patients to know that if they or their child needs a test, they no longer have to miss a day from work or pull the child out of school. Seven-day-a-week services are the future of healthcare, and NYU Langone is ahead of the curve."

Beating the Odds

To Wage War against Pancreatic Cancer, NYU Langone Marshals a Diverse Team of Specialists

Dr. David Shapiro, an 89-year-old retired allergist, is alive and well 14 years after his cancer surgery. Cancer survivor Gary Gordon labors up to 14 hours a day at his family-owned spice-importing business. Helen Weinreb, who made it out of Auschwitz alive as a teenager, finds herself once again counting her blessings after surviving cancer 60 years later.

In an age when long-term survivors of cancer are more numerous than ever, these stories might not seem all that surprising. Except for one thing: these people, all former patients at NYU Langone Medical Center, survived pancreatic cancer, a cancer notorious for having the lowest survival rate. According to the American Cancer Society, pancreatic cancer strikes roughly 37,000 Americans each year, claiming more than 34,000 lives.

Pancreatic cancer is difficult to detect and diagnose in its early stages. The pancreas, which secretes enzymes that aid digestion, and hormones that help regulate the metabolism of sugars, is hidden behind the stomach, small intestine, liver, gallbladder, spleen, and bile ducts. Moreover, by the time symptoms appear (jaundice, severe abdominal pain, dark-colored urine), the disease has often spread, invading major blood vessels and making surgery risky. Only about 15 to 20% of those diagnosed are eligible for surgery. Of those, the five-year survival rate is no better than 15%.

While the prognosis is often grim, the diagnosis is not necessarily a death sentence. “We don’t have any magic bullet,” notes H. Leon Pachter, MD, the George David Stewart Professor of Surgery and chair of the Department of Surgery, “but we do know that an approach to treatment that literally surrounds the patient

with a wide range of specialists who constantly weigh in on what’s best for that patient can sometimes turn the odds in their favor.”

The collaborative team—all part of NYU Langone’s NCI-designated Cancer Institute—consists of highly skilled surgeons, medical oncologists, radiation oncologists, radiologists, laboratory scientists, gastroenterologists, pathologists, nurses, researchers, nutritionists, and social workers. (See photo on back page.) The group meets regularly to discuss each case, pooling their knowledge and insights. “These people understand what the disease is about, what the issues are, and what it takes as a team to manage the patient in a way that gives them the best chance at the best possible outcome,” explains Elliot Newman, MD, associate professor of surgery and chief of GI surgical oncology.

That regimen often involves the chemotherapy drug gemcitabine, which has been found to slightly extend the lives of patients following surgery while improving their quality of life. NYU Langone is also involved in a number of clinical trials to determine the efficacy of chemotherapy before surgery, when it may be better tolerated and when it may be possible to shrink tumors enough to make them operable. “We’re targeting the disease, when possible, in its earlier stages, where there is a

greater ability to reduce the risk of recurrence and, ultimately, impact survival,” explains Theresa Ryan, MD, assistant professor of medicine, an oncologist.

Still, there have been no significant breakthroughs in the treatment of pancreatic cancer in the past 30 years. Two scientists at NYU Langone are determined to change that: George Miller, MD, assistant professor of surgery and cell biology, and Dafna Bar-Sagi, PhD, senior vice president and vice dean for science, chief scientific officer, and professor of biochemistry. These scientists lead a large team of investigators who are developing a multifaceted approach to curing this deadly disease.

Dr. Bar-Sagi focuses on attacking one of the primary “drivers” of pancreatic cancer, the mutated ras gene, while Dr. Miller, through a grant from the Irma T. Hirsch Trust, is investigating the synergistic role of the inflammatory microenvironment in the disease process. “We’re not attacking the actual cancer,” explains Dr. Miller, a surgeon and researcher, “but the microenvironment that can lead to it. I’m more optimistic now than I’ve been in years.”

Hope has also been a potent elixir for these patients, who are convinced they have turned the corner. Gary Gordon can’t recall whether he even thought about dying when he learned almost four years ago, at 59, that he had pancreatic cancer. “The doctors gave me encouragement,” he says, “and now I’m looking forward to another 15 years of work before I retire.”

Helen Weinreb, 83, says she gives thanks every day for beating the odds twice—in her youth and just five years ago. “My family and I prayed a lot. We left it to God—and the doctors at NYU Langone,” she says. “They didn’t let us down.”



Life, Interrupted

At NYU Langone’s Comprehensive Epilepsy Center, the Mysteries of the Brain Humble Even the Best of the Best



Scanning video monitors with the vigilance of lifeguards, nurses on Tisch Hospital’s Adult Epilepsy Monitoring Unit look for signs that a patient is undergoing a seizure.

Her scalp and chest covered with electrodes tied to an electroencephalograph (EEG) and electrocardiograph (EKG), her every move monitored by an overhead camera, Megan sits on a hospital bed, waiting for what she usually dreads: a seizure. Her last, a tonic-clonic, or grand mal, which struck a few weeks earlier, left her as wrung out as a marathon runner. In the safe, controlled setting of the Adult Epilepsy Monitoring Unit, part of NYU Langone Medical Center’s world-renowned Comprehensive Epilepsy Center, Megan, a 46-year-old mother of three, hopes to experience another seizure, which might help neurologists diagnose her and determine what part of her brain is short-circuiting. Her epilepsy medications temporarily on hold, Megan will be kept awake until 4:00 a.m. At times, lights will be flashed in her eyes to try to induce a seizure.

Seizures can take many different forms and produce varied symptoms, but all begin with abnormal, overexcited electrical activity in the brain. A sudden lapse into unconsciousness, typically with stiffening followed by involuntary muscle contractions and tongue biting, is characteristic of tonic-clonic seizures. Less well known and harder to diagnose are the smaller ones, known as partial or focal seizures, that may be causing Megan’s strange abdominal sensations and lack of focus lasting no more than a minute. “You could watch me during these,” she says, “and not know it was a seizure. I can carry on.”

About 10% of the population are believed to suffer some sort of a seizure during their lifetime, often without recognizing it. A second occurrence raises the possibility of epilepsy.

As Megan waits, two nurses observe her and 17 other patients, some who have come from as far away as Puerto Rico and Venezuela, on a wall of video monitors, scanning the rows with the vigilance of lifeguards. The monitoring unit can go long stretches in peaceful anticipation. Then, suddenly, nurses rush down the hall from both directions to help a seizing patient. Across the hall, Allison, a 27-year-old financial analyst, lets out a scream, clutching her right leg as it’s gripped by an intense pain. Similar episodes have awakened her every night for more than a month before she arrived at NYU Langone, exhausted and desperate for them to cease.

The next morning, a team of physicians, whose work is generously supported by David Fishel, studies Allison’s recording on a large wall monitor. Deana Gazzola, MD, assistant professor of neurology, the unit’s head epileptologist, scans the EEG’s 23 lines of brain waves as Allison is seen writhing in agony in the video superimposed on the corner of the screen. “She had a rough day,” Dr. Gazzola says sympathetically.

“We were having trouble locating the source of her seizures, so we injected her with a radioactive isotope that goes to the most active point of the brain. Here it is lighting up the left postcentral gyrus, the sensory part of her brain. That makes sense, given her symptoms.”

The irregular electrical activity brings the physicians one step closer to recommending surgery to remove a small portion of Allison’s brain, if memory and motor function can be preserved, for a reasonable chance that she’ll become seizure free. “We promote aggressive treatment,” Dr. Gazzola explains. “Every convulsion is like a blow to the head. Over time, they can add up, diminishing cognitive function.” Medications are usually the first option, but about 30% of people with epilepsy are treatment resistant. When patients like Allison fail to respond to two or more anti-seizure drugs, the remaining options are surgery, vagus nerve stimulation, and alternative therapies.

News of possible surgery brings Allison to tears. Only 10 days earlier, she sat writing financial reports. Nobody knew about her epilepsy, as her seizures were nocturnal. Now, on temporary medical leave, she must contemplate a longer absence. “It’s maybe the worst day of my life,” she says. “I just want to have a normal life.”

Feeling fine one moment and falling to the floor in a convulsive state the next takes a tremendous toll on the patient’s spirit. This concern weighs heavily on Orrin Devinsky, MD, professor of neurology, neurosurgery, and psychiatry, and director of the Comprehensive Epilepsy Center, who established the monitoring unit in 1989 as one of the first of its kind in New York State. “Although seizures may occupy less than 0.01% of a person’s life,” he says, “the diagnosis, stigma, and medications can be continuous.”

After more than a week on the unit, Allison goes home to consider the pros and cons of surgery. Megan leaves after four uneventful days, hoping that her irregular brain waves will help guide her treatment. She’ll probably be back again to try to capture a moment of brain distress that, like the disease itself, remains mysterious and unpredictable. “Dr. Devinsky reminds us all the time,” says Dr. Gazzola, “that we need to remain open-minded and humble.”



All photos: Beatrice De Gra

Mending Molly *(continued from page 1)*

They chose to have the delivery at NYU Langone's Tisch Hospital so that Dr. Ludomirsky and Ralph Mosca, MD, professor of cardiothoracic surgery and pediatrics, and chief of the Division of Pediatric and Adult Congenital Cardiac Surgery, would be available should the girl be born "blue"—that is, without adequate blood oxygenation, which would require immediate surgery. Though doctors can assess the defect in utero down to the millimeter—a hole 15 millimeters across, in this case—it is difficult to predict its impact on the newborn.

On April 27, the twins arrived, full-term. Jack weighed 5 lbs., 11 oz. Molly, at 5 lbs., 4 oz., looked pink, like her brother—an instant relief to both parents. She went straight to Tisch's KiDS of NYU Langone Neonatal Intensive Care Unit, where her heart anatomy and function were determined to be stable enough to carry her through the next few months. At home, she was the easy-going one, able to amuse herself, while her feisty brother cried to be held. As they lay side by side, they reached for each other, touching hands.

Molly's heart, laboring inefficiently, kept her weight gain at half that of her brother's. By late summer, she developed symptoms of heart failure. At 6:00 a.m. on September 15, Molly returned to Tisch for heart surgery. Allowed briefly into the operating room, Frankenberg held her baby close until the anesthesiologist administered a sedative.

Dr. Mosca led a team of 12 as he opened Molly's chest and placed her on a heart-lung bypass machine. Known for his speed—vitally important with "unforgiving" young hearts, Dr. Ludomirsky explains—Dr. Mosca cut a patch of white Gore-Tex and stitched it over the hole in Molly's heart. He also divided potentially obstructive muscle bundles in the right ventricle. Heart tissue would soon grow over the fabric, creating a lifelong fix. Using an echocardiogram, Dr. Ludomirsky checked the repair and found that Molly's tiny heart was working beautifully.

Because the hours following cardiac surgery are critical, Molly's journey from the OR to Tisch Hospital's new Congenital Cardiovascular Care Unit was closely monitored every step of the way. Dedicated to infants recovering from heart surgery, the unit is the first facility of its kind in New York State.

Once members of the surgical team wheeled her into her room, the intensive care team joined them. Though Molly wasn't in crisis, a dozen physicians and nurses gathered around her small bed, beginning a 40-step procedure to transfer lines, electrodes, and monitors. It was all done with the speed and precision of a cockpit crew running through its checklist—just as Dr. Mosca had envisioned when he proposed and planned the specialized unit. "I wanted to create a culture of congenital cardiac care where everyone knows their role with the infant," says Dr. Mosca. NYU Langone expects to perform 300 congenital heart surgeries in 2012, up from 72 just three years ago.

With Molly stabilized and tucked in, Dr. Ludomirsky brought her parents upstairs for a reunion. He warned them that Molly would be tethered to a bank of monitors and IVs, and still dependent on a breathing tube. "I expected her to look like she'd been in a fist fight," says Parker. But Molly weathered the surgery so well, looking rosy and peaceful while still under sedation, that Frankenberg felt suddenly unburdened from worry for the first time in seven months. "She looks great! Just great," she repeated, sensing that everything was going to be just fine. After thanking the doctors, she wasted no time arranging Molly's favorite stuffed toys and mobiles around the crib.

By the second day after surgery, most pain medications were discontinued, and the breathing tube came out. On the third day, Parker brought Jack to visit his sister. Transfixed by all the flashing numbers and colored lines, the boy didn't even notice Molly propped up, staring at him. Four days after open-heart surgery, she fidgeted and fussed from boredom. Her feet wriggling in the air, she worked the blood oxygen sensor off her toe. "I'm telling you," said Frankenberg, "she wants out of here."

On day six, Molly went home with her parents. Within weeks, she began to eat ravenously, closing the gap between her weight and her brother's. "She's playing more, smiling more, laughing more," said her father, six weeks after the surgery. "It's remarkable."

Remarkable, indeed. "Forty-five years ago, we couldn't fix anyone," says Dr. Ludomirsky. "Now, we fix everyone. I expect Molly to have a completely normal life, with no restrictions of any kind. She will grow to adulthood, have a great time, and beat her brother at whatever she decides to."

Web Extra: for a photographic essay highlighting Molly's journey from the OR to her reunion at home with her twin brother, Jack, see "Mending Molly" at www.newsandviews-digital.com.



Nipping Crohn's Disease in the Bud

On the website of Ken Cadwell, PhD, assistant professor of microbiology, a four-paneled Japanese screen serves as a visual metaphor for the serious inflammatory intestinal disorder known as Crohn's disease. In three panels, a cherry branch teeming with pink blossoms represents a healthy intestinal tract.

The fourth panel, however, shows a branch stripped of its flowers, highlighting a potential breakthrough in how scientists are viewing the murky mechanisms of a disorder that afflicts an estimated one in 500 people.

As some of Dr. Cadwell's recent studies have suggested, a gene mutation that promotes susceptibility isn't sufficient to cause the disease, a notion that's suggested by the undisturbed cherry blossoms in the second panel. Nor is a viral infection enough to disrupt the intestinal status quo, as illustrated by the third panel. In combination, however, the virus and mutation could strip away a patient's protection, as pictured by the bare branch in the fourth panel, and trigger Crohn's. The consequences can be devastating. "Many victims of the disease end up having pieces of their intestines surgically removed," notes Dr. Cadwell, whose recruitment was supported by funds from the Helen L. and Martin S. Kimmel Center for Biology and Medicine at the Skirball Institute of Biomolecular Medicine. "That tells you how crude the treatment options are right now."

The idea that an external virus or other environmental factor might combine with an internal gene disruption to spur Crohn's disease isn't entirely new. Dr. Cadwell's research, however, is among the first to provide experimental evidence that links specific gene mutations with cell abnormalities that might help explain the disorder's tremendous variability. Among its many unexplained quirks, Crohn's primarily affects the lower small intestine in some patients and the colon in others. "We try to paint this disease with a broad brush and say that it's all the same disease," says Dr. Cadwell, "but we're really talking about a group of diseases that have certain similarities."

One of his key findings has come from mice with a mutation in a gene called ATG16L1, which is genetically associated with Crohn's disease susceptibility but extremely common in humans. Clearly, something more is required to trigger the disease. In the genetically altered mice, Dr. Cadwell and colleagues noticed a specific abnormality in a cell type that secretes antimicrobial molecules to control the intestinal flora. The research group then saw the same cell defect in intestinal samples taken from human patients with the ATG16L1 variant. "The mice actually told us what to look for in the humans," says Dr. Cadwell, "and it turned out to be true."

To his surprise, mice that had the ATG16L1 mutation but were raised in a virus-free facility did not have the intestinal defect. When the researchers deliberately infected the mice with a virus related to one that causes gastrointestinal infections in humans, the abnormality reappeared. Treating these mice with antibiotics, however, prevented their Crohn's-like symptoms.

New Procedure Offers Elderly Patients with Aortic Stenosis a New Lease on Life

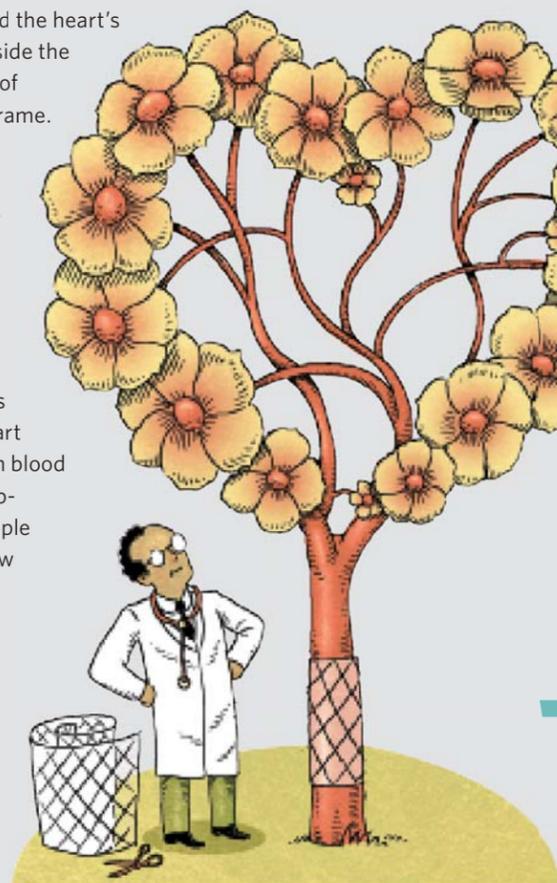
For many elderly people diagnosed with severe aortic stenosis, a progressive narrowing of the aortic heart valve, the situation is a catch-22. While a procedure to replace their faulty valve is available, as many as one-third—mostly in their 80s or 90s—are too sick or frail for the surgery. Without a replacement valve, few of them will survive more than a year or two. But their future may soon be brighter, thanks to a new procedure called transcatheter aortic valve replacement.

One of these valves is currently being investigated in clinical trials at 41 sites nationwide, including NYU Langone Medical Center. "The first four people we treated left the hospital within five days and were discharged not to a rehab facility but to their homes," reports James Slater, MD, professor of medicine and director of the Cardiac Catheterization Laboratory. "This could be a tremendous breakthrough." Dr. Slater is a consultant to the device manufacturer that sponsors the trial.

Vivian Bell, a pert 91-year-old who once aspired to be an opera singer, is among those with a new lease on life. Not long after her surgery, she was back attending the opera and taking walks around her Midtown Manhattan neighborhood, her new aortic valve working without a glitch. "I'm happy and I feel good," she says.

NYU Langone pioneered cardiothoracic valve replacement through a minimally invasive surgical approach. Even this technique, however, requires an incision between the ribs and use of a heart-lung machine—sometimes too taxing for the infirm. Transcatheter aortic valve replacement is a promising alternative. Typically, a one-inch-long incision is made in the groin, and a catheter is snaked through the femoral artery to the aortic valve, nestled between the aorta and the heart's left ventricle. Compressed inside the catheter is a new valve made of porcine tissue attached to a frame. With the help of three-dimensional angiographic imaging, a sheath is removed, and the valve expands. The procedure takes roughly half the time required for a standard valve replacement.

"It's remarkable to see the valve flower in place," says Dr. Slater, "and suddenly a heart that had been laboring to push blood through a narrowed valve is obstructed no more. A lot of people with severe aortic stenosis now die of the disease rather than have surgery," Dr. Slater notes. "Many of them may have an alternative if this new, less invasive treatment option becomes widely available. It's a potential game-changer."



A Gas with a Foul Reputation May Hold the Key to Better Antibiotics

Hydrogen sulfide (H₂S), the gas that gives a rotting egg its noxious stench, has long been thought to be a mere by-product when bacteria digest organic matter. A study by researchers at NYU Langone Medical Center, however, reveals that microbes make the gas to survive one of the major hazards of cellular life: a storm of reactive oxygen molecules known as oxidative stress. A normal immune response induces oxidative stress in bacteria, and most antibiotics do so even more powerfully as part of their bacteria-killing effect. "Taking away their H₂S leaves bacteria much more sensitive to antibiotics than they would be otherwise," says Evgeny Nudler, PhD, the Julie Wilson Anderson Professor of Biochemistry and senior author of the study, published in the November 2011 issue of *Science*.

Drugs that inhibit bacterial H₂S production could thus be a potent addition to the physician's toolkit, and with so many bacteria evolving resistance to antibiotics, they are sorely needed. Researchers recently have found that humans and other higher organisms actually produce H₂S in small quantities because, at low doses, it has positive effects. "We now know that H₂S, among other things, signals blood vessels to relax and protects heart cells from injury after an arterial blockage," explains Dr. Nudler, whose research is supported by Timur Artyemeyev.

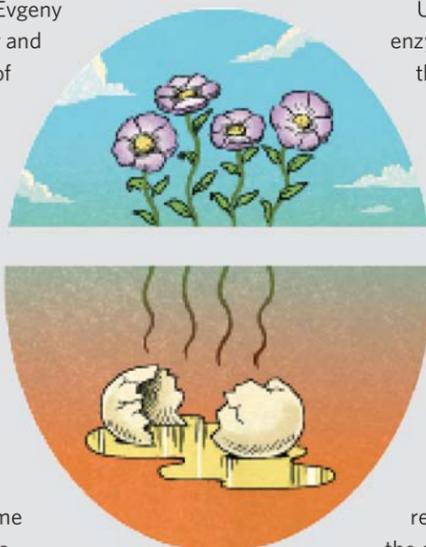
Another simple gas, nitric oxide (NO), has similar positive effects in our bodies. In a landmark study that appeared in *Science* in 2009, Dr. Nudler and his colleagues reported that NO helps some bacterial species survive DNA-damaging surges of oxidative stress.

Alas, only a handful of bacterial species produce NO, so the blocking of bacterial NO during antibiotic treatment, for example, would be of limited use. But what about H₂S? "Since H₂S has beneficial effects like NO's in higher organisms, we reasoned that it might have such effects in bacteria, too," says Konstantin Shatalin, PhD, assistant professor of biochemistry and lead author of the new study. Searching databases, Dr. Shatalin found that virtually all bacteria have genes for enzymes that produce H₂S—

from plague and anthrax bacilli to the tiny mycobacteria that cause tuberculosis.

Using genetic and chemical techniques to shut down H₂S-producing enzymes in four representative bacterial species, Dr. Shatalin found that the bacteria did indeed become more vulnerable to oxidative stress and thus to antibiotics. "Blocking H₂S production made them all highly sensitive to the antibiotics," he notes, "and restoring H₂S reversed the effect." The findings, which are likely to lead to better medicines, also support a fundamental new concept in microbiology: different classes of bacteria-killing drugs, which attack bacteria by different routes, all induce potentially lethal oxidative stress along the way.

Dr. Nudler is reaching out to the pharmaceutical industry to help him develop drugs that will inhibit H₂S-producing enzymes in bacteria without harming their counterpart enzymes in human cells. In principle, such drugs would be administered along with antibiotics to turbocharge their bacteria-killing effect, even for strains currently considered multidrug resistant. With this strategy, he says, "we should be able to increase the efficiency of virtually every class of antibiotic now in clinical use."



Call Me Israel

A Day in the Life of Patient Advocate Israel Rosman



Joshua Bright



In October, Israel Rosman joined Andrew Brotman, MD, senior vice president and vice dean for clinical affairs and strategy, at an event in Williamsburg, Brooklyn, that honored Dr. Brotman for his outstanding dedication to the Jewish community. The event was sponsored by Hatzolah of Williamsburg, a volunteer ambulance company.

relationship with Hatzolah, the ambulance drivers usually take them here." In the past six years, such visits have increased eightfold, according to Rosman.

1:00 p.m. Rosman visits a patient recuperating from surgery, a 48-year-old mother of nine who, only days before, had a four-centimeter tumor removed from her brain. "I'm already up and walking," she says. "I don't think I'm having any more children, but if I did, they'd all be delivered here. Everyone, especially Israel, has been great. All things considered, I couldn't be happier."

2:30 p.m. Another happy outcome awaits on the Pediatrics Unit, where a 10-year-old boy with a fractured left arm is watching *Uncle Moishe*, one of about 2,000 Jewish-oriented DVDs that Rosman has acquired for patients. The boy's father raves about the hospital, the doctors, and Rosman's "first-class treatment."

4:00 p.m. At the Bikur Cholim (Visiting for the Sick) kosher kitchen and meeting room, Rosman runs into Jake Elbogen, a 50-year-old real estate executive who comes in twice a week for cardiac rehab. He says his favorite part of the day is kibitzing with Rosman—when he stays in one place. "He's in constant motion," notes Elbogen, "tirelessly working for anyone in need. Everyone wants a piece of him. It's almost like a Talmudic dilemma: 'How can a man be in more than one place at once?' If anyone can, it's Israel." Rosman won't leave the hospital for four more hours, by which time he will have resolved the bris crisis and other problems, big and small. With sincerity and warmth, he and Elbogen exchange a customary valediction: "Zay gezunt." Stay well.

Six years ago, Israel Rosman's daughter, Miriam, was born three months premature, fitting neatly into the palm of his hand. As she grew to term in the KiDS of NYU Neonatal Intensive Care Unit at NYU Langone Medical Center's Tisch Hospital, her parents virtually took up residence there on the ninth floor. "The personnel became like family," says Rosman. After a thriving Miriam left the hospital, Israel vowed to help other patients and their families. "I saw there was a need for better communication between hospital and patients." He volunteered one day a week for two years before he was hired full-time. Primarily serving the Orthodox Jewish community, he greets strangers with a familiar refrain: "Call me Israel."

7:30 a.m. Rosman has already worked out at the local gym and prayed in synagogue before he arrives at his office in Greenberg Hall. A few hours earlier, he'd solved a few emergencies from home. "People have to know that I'm available 24/7," he says. "That's the way you earn their trust." To keep his word (and not to awaken his wife), Israel had a pocket for a cell phone sewn into his pillowcase.

9:00 a.m. Even seated while fielding nonstop calls and e-mails, Rosman thrums with energy. At the moment, he's on the phone with the father of a newborn boy who's concerned that his son's bris (ritual circumcision) has not yet been approved. They speak in Yiddish, with some recognizable English terms sprinkled in. "Special waiver," says Rosman. After the call, he explains: "The boy, born premature, is nearing his eighth day in the hospital. The bris must be done by then. I need to get a special form signed

by the family so that we can have it performed at the hospital by a mohel."

10:15 a.m. Rosman crosses First Avenue just as a bus from Borough Park, a Hasidic (ultra-Orthodox) Jewish enclave, is pulling in. As he greets the volunteers carrying bags of donated kosher foods, each woman's face lights up. "Good to see you, Rabbi." "Please," he responds, "call me Israel." Though he was recently ordained, he wants people to think of him as "a friend, an equal. I'm here to serve communication and cultural needs, not religious ones."

11:20 a.m. A call comes in from a captain of Hatzolah—a volunteer ambulance company based in Brooklyn—on whose board Israel serves. "Because our community tends to be self-contained, people are fearful of outside institutions," Rosman explains. "When a medical emergency arises, most of them don't know what to do or where to go. Because of our

HJD Founders Gala

NYU Langone Medical Center's Hospital for Joint Diseases (HJD) hosted its annual Founders Gala on November 1, 2011, raising over \$1.6 million. This year's event, held at the American Museum of Natural History, honored Frank A. Olson, chairman emeritus of The Hertz Corporation, and Andrew Rosenberg, MD, professor of anesthesiology and orthopaedic surgery; executive vice chair, Department of Anesthesiology; and chief of anesthesiology at HJD. Over 600 people attended the gala, which was chaired by Gary D. Cohn, HJD Advisory Board chair, and president and COO of Goldman Sachs. Joining them as hosts were Physician Chairs Joseph Zuckerman, MD, the Walter A. L. Thompson Professor of Orthopaedic Surgery and chair of the Department of Orthopaedic Surgery; Steven Abramson, MD, professor of medicine and pathology, and vice dean for education, faculty, and academic affairs; and Robert I. Grossman, MD, the Saul J. Farber Dean and CEO.

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



Dean and CEO Robert I. Grossman, MD; Honoree Frank Olson and his wife, Sarah; Medical Center Board Chairman Kenneth G. Langone; and HJD Advisory Board Chairman Gary D. Cohn.



Steven Abramson, MD, vice dean for education, faculty, and academic affairs; Honoree Andrew Rosenberg, MD, professor and executive vice chair, Department of Anesthesiology, and chief of anesthesiology at HJD; and Joseph Zuckerman, MD, chair of the Department of Orthopaedic Surgery.



Soledad O'Brien, anchor and special correspondent for CNN, and Laith Jazrawi, MD, chief of the Division of Sports Medicine.



David Fiszal, Founders Gala Journal chair and HJD Advisory Board member, and his wife, Sarah.

All photos: Jay Brady

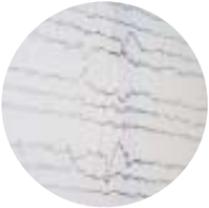
Inside This Issue



Mending Molly Molly was born with a hole in her heart, as is the case with 0.4% of the population. But at home, her heart was filled with the love of her parents, and at NYU Langone, it was mended by a world-class cardiac surgeon and a team of specialists who cared for Molly like one of their own. [page 1](#)



Beating the Odds Think of pancreatic cancer and you think of the phrase “death sentence.” But the prognosis is not always as grim—or fatal—as expected. At NYU Langone, a diverse team of multidisciplinary specialists battles one of the fiercest of all foes. Several long-term survivors pay tribute to them. [page 4](#)



Life, Interrupted Epileptic seizures can take many different forms and produce varied symptoms, but all begin with abnormal, overexcited electrical activity in the brain. About 10% of the population are believed to suffer some sort of seizure during their lifetime, often without recognizing it. [page 4](#)



Call Me Israel “People have to know that I’m available 24/7,” says patient advocate Israel Rosman, who primarily serves the Orthodox Jewish community. “That’s the way you earn their trust.” To keep his word (and not to awaken his wife), Israel had a pocket for a cell phone sewn into his pillowcase. [page 7](#)

NEWS & VIEWS

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Teaming Up to Fight Pancreatic Cancer (See article on page 4.)



To wage war against pancreatic cancer, infamous for its deadliness, NYU Langone marshals a diverse team of specialists, including (front row) Elliot Newman, MD (surgical oncology); George Miller, MD (surgical oncology); Jennifer Wu, MD (medical oncology); H. Leon Pachter, MD, chair, Department of Surgery (surgical oncology); Deirdre Cohen, MD (medical oncology); Stephanie Lauro, RN (nursing); and Cristina Hajdu, MD (pathology); (back row) Marcovalerio Melis, MD (surgical oncology); Nicole Hindman, MD (radiology); Carmen Morales (social work); Ruliang Xu, MD, PhD (pathology); Kevin Du, MD (radiation oncology); Dafna Bar-Sagi, PhD, vice dean for science and chief scientific officer (basic research); Linda Chio (nutrition); Steven Cohen, DO (surgical oncology); Eileen Janec, MD (gastroenterology); and Michael Macari, MD (radiology). Not shown: Umut Sarpel, MD (surgical oncology); Theresa Ryan, MD (medical oncology); Alec Megibow, MD (radiology); Mark Lemert, MD (gastroenterology); Inessa Khaykis, MD (gastroenterology); Jonathan Cohen, MD (gastroenterology); Tong Jing, MD (gastroenterology); Heather Wrin, RN (nursing); Lauren Bey, RN (nursing); Susan Moore Komen, RN (nursing); and Michelle Mallamud, NP (nursing).