



NEWS & VIEWS

The Newsletter of
 NYU Langone Health
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H **O** **R** **I** **C** **A** **L** **L** **,** **A** **B** **O** of NYU Langone Health's 1.2 million patients have been residents of Long Island. But that number is sure to grow considerably now that NYU Winthrop, a 591-bed hospital in Mineola, is part of NYU Langone Health System. On August 1, the institutions officially merged, marking the culmination of a process that began more than two years ago and the integration of a vast network of clinical services that will expand and enhance healthcare for the 2.8 million residents of Nassau and Suffolk Counties.

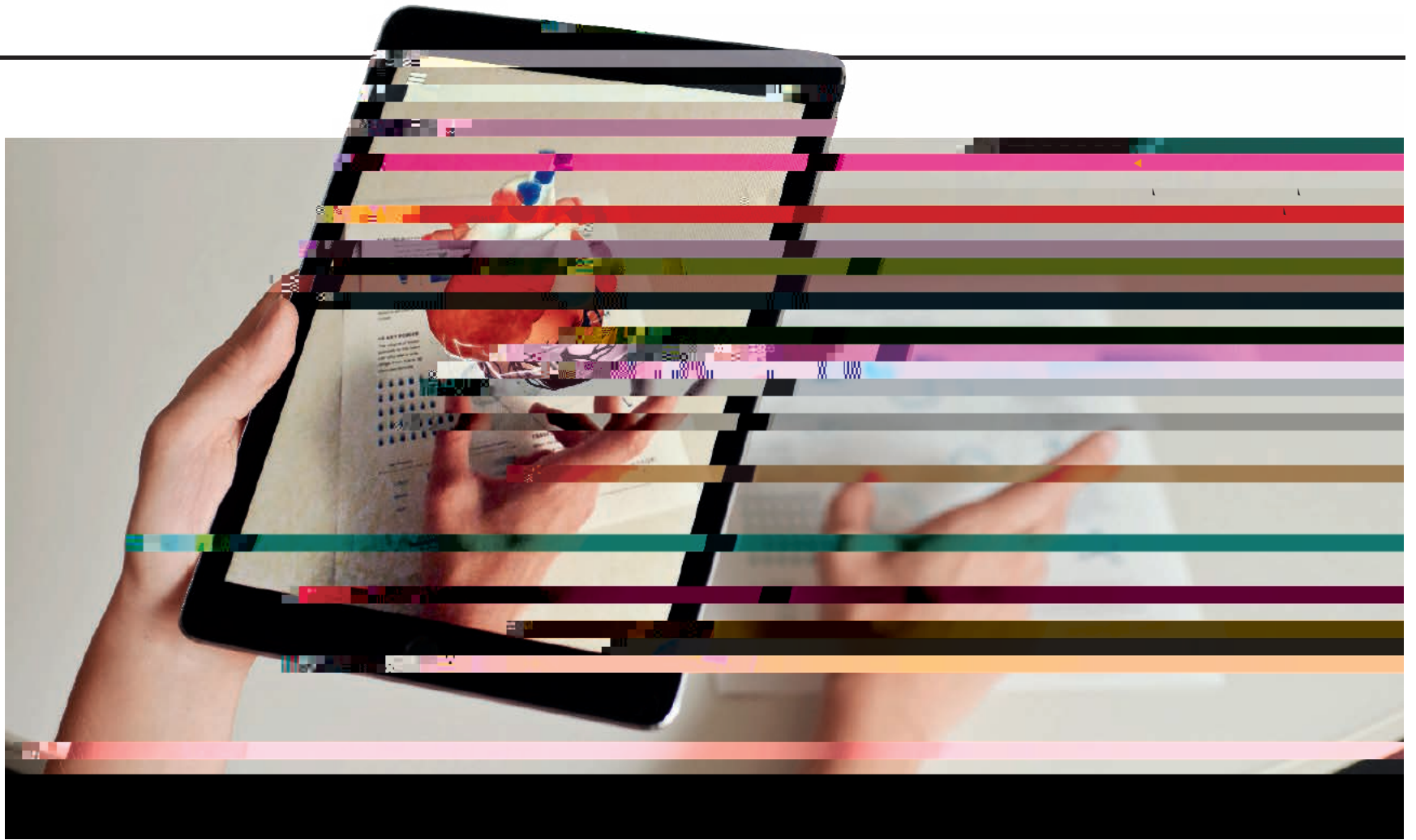
"Successful mergers are made when like-minded organizations join forces," says Robert I. Grossman, MD, the Saul J. Farber Dean and CEO of NYU Langone. "Our institutions share a dedication to

quality and excellence that represents true synergy."

TELEMEDICINE

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After two decades of research that helped lead to a cure for hepatitis C, Ira Jacobson, MD, who joined NYU Langone Health in 2017 as director of hepatology in the Division of Gastroenterology and Hepatology, has embarked on a new crusade: defeating nonalcoholic fatty liver disease (NAFLD). Caused by the excess buildup of fat in the liver and closely linked to the rising incidence of obesity and type 2 diabetes, NAFLD affects an estimated 30% of American adults. Left unchecked, it can be as damaging to the liver as excessive drinking, elevating the risk for liver cancer and liver failure, as well as cardiovascular disease. Despite its prevalence, NAFLD is a largely silent epidemic, with insufficient awareness among patients and, surprisingly, even many physicians.



EDUCATION

CAN YOU TEACH ANATOMY WITHOUT CADAVERS?

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HERE’ A HOLLO space in the human skull that’s no bigger than a hazelnut but is a major source of headache for medical students: the pterygopalatine fossa. This hidden labyrinth of canals, tucked behind the jawbone, houses a bundle of nerves and vessels supplying all of the facial structures. Studying it is a real strain on the imagination because no one can actually see this body part, at least not without destroying the skull.

“Students can sort of find it during dissection, but it doesn’t look like much a er they’ve broken apart the skull to get to it,” says Victoria Harnik, PhD, associate dean for curriculum at NYU School of Medicine. “It’s a prime example of the limitations of cadavers.”

In the four decades that Dr. Harnik has been teaching gross anatomy, human dissection has figured prominently in her instruction. But this August, for the first time in NYU School of Medicine’s 178-year history, students will learn anatomy without it. Instead, they will rely on modern teaching aids, like virtual and augmented reality, 3-D cinematic renderings of CT and MRI scans, and a new collection of plastinations—human cadavers preserved with plastic resins. In a pilot run of the new curriculum last year, upper-level students found training without human dissection comparable to their experience with the cadavers, says Dr. Harnik.

While NYU School of Medicine will retain some cadavers for demonstration purposes, the inaugural anatomy module taught at the new NYU Long Island School of Medicine, which welcomed its first 24

students last month, will eliminate cadavers altogether. This historic shift is part of an institution-wide embrace of technology at NYU Langone Health, led by Robert I. Grossman, MD, the Saul J. Farber Dean and CEO, whose vision for modernizing medicine has driven paper medical records at the institution to the point of extinction and ensured that the Helen L. and Martin S. Kimmel Pavilion, opened last summer, is now among the most digitally sophisticated inpatient facilities in the nation.

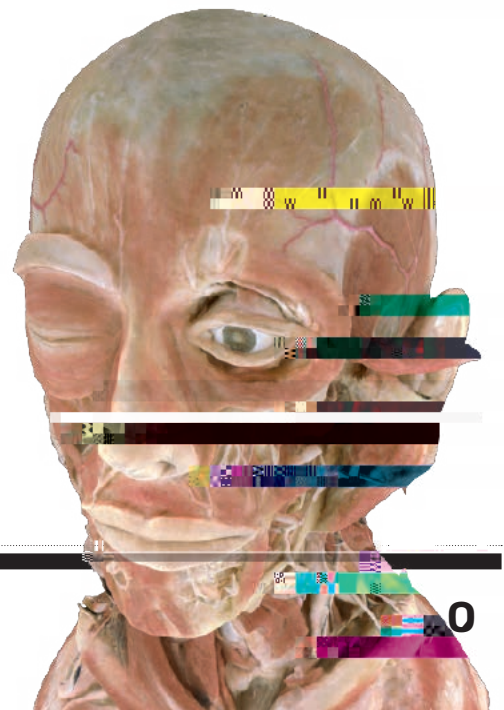
Setting aside the technical challenges of reaching the body’s many nooks and crannies without destroying them in the process, it’s often difficult to link anatomical structures to clinical problems in a body without a pulse. What’s more, cadavers are expensive to acquire and maintain. With newer digital tools, students can rotate a heart in three dimensions and observe how it behaves, say, when a valve leaks, or they can crack open a skull to see the pterygopalatine fossa, intact and in context, and then put it all back together again. “We now have access to a wide range of rich visualization tools that represent a big part of the future of healthcare practice, not just medical education,” says Marc Triola, MD, associate dean for educational informatics and the founding director of the School’s Institute for Innovations in Medical Education (IIME), which has partnered with the Office of Medical Education to implement the new anatomy modules.

Gregory Dorsainville, senior multimedia developer at IIME, who oversees the design, development, and implementation of augmented and virtual reality, believes the technology not only helps teach anatomy but also gives learners valuable exposure to broader trends in clinical practice. “Whether it’s planning neurosurgeries or visualizing three-dimensional radiographic studies,” Dorsainville notes, “being able to use these technologies to explore and understand the human body in new ways is a key part of the future.”

Nationwide, only a handful of other medical schools have abandoned cadavers, and the jury is still out on the educational value of virtual and augmented reality.

But the goal of the reimagined teaching module, called Living Anatomy, is not simply to replace cadavers with technology, but to find the optimal way to teach anatomy. That effort enlists a team of anatomists, pathologists, and radiologists to help rethink the modules and place new emphasis on multidisciplinary integration. “Each time students see an anatomical structure, they are also shown the imaging side of it,” says radiologist Kira Melamud, MD.

“The idea is to help students learn anatomy in the context of diseases and clinical practice,” adds pathologist Amy Rapkiewicz, MD, director of the Integrated Anatomy course debuting at NYU Long Island School of Medicine. “What we’re really doing is making a better anatomy module that brings anatomy to life in ways that were impossible in the past.” ■



PHOTOS: SASHA NALLA (TOP); GREGORY DORSAINVILLE (RIGHT)

A PAIN MANAGEMENT SURGEON who specializes in spinal cases, Erich Anderer, MD, has spent well over a decade mastering techniques and procedures to treat severe back pain—and avoiding them whenever possible. “My philosophy is ‘less is more,’” says Dr. Anderer, chief of neurosurgery at NYU Langone Hospital—Brooklyn and a member of NYU Langone Health’s Spine Center. “There are situations when we have no choice but to fix a problem in the operating room, but I work with patients to develop a treatment plan that usually doesn’t require surgery.”

Unlike most of Dr. Anderer’s patients, Connie Allen, a devoted athlete who has run four marathons, was one of those who didn’t have a choice. In 2017, the 30-year-old fitness enthusiast from Verona, New Jersey, was squaring 200 pounds at the gym when she felt something pop in her lower back. Intense pain radiated down her legs. Refusing to let the injury slow her down, Allen tried a variety of alternative therapies: acupuncture, massage, chiropractic. Nothing helped. Then, an MRI revealed the reason: a ruptured disc in her lumbar spine was compressing nearby nerves. An orthopedist recommended surgery and giving up the weights.

Allen reluctantly agreed, but then she got a reprieve. When her blood work came back, she learned she was pregnant, so surgery was off the table. Allen’s discomfort subsided, possibly due to a surge in pregnancy hormones that relaxed her back muscles, but the pain returned not long after her daughter was born. By January 2018, she was in “a really bad place,” she recalls. “I could barely lift the baby to feed her. I couldn’t sleep, couldn’t eat.”

Finally, in June 2018, on the advice of an acquaintance, she reached out to Dr. Anderer. After reviewing Allen’s previous MRI, he ordered a new one. The second scan confirmed the worst: a bulging disc that had narrowed the canal, compressing nerve roots. If the bulge expanded and completely choked off the spinal canal, it could cause severe neurological deficits, such as the loss of bowel and bladder function. “It was an extremely large herniation of the L4-5 disc, the one most commonly injured,” explains Dr. Anderer. The success rate for disc surgery is about 90%, but even so, he considers it only if symptoms persist for more than six weeks. Because Allen was debilitated and had been in pain for more than a year, he felt she was a suitable

candidate. “I told Connie that she had suffered long enough,” says Dr. Anderer.

Allen knew she needed surgery but feared it would end her active lifestyle. Dr. Anderer, an athlete himself, helped her embrace a different perspective. “Some clinicians discourage people from returning to strenuous activity following disc herniation,” he says. “My goal is not just to get patients pain-free, but back to doing all the things they did before the injury, with no limits.” Allen found Dr. Anderer’s words “extremely powerful” because “most doctors told me all the things I should never do again,” she says. “He made me feel ready for surgery.”

Dr. Anderer operated on Allen later that month. Using a surgical microscope to maneuver through an incision less than one inch wide, he removed the ruptured portion of her disc in under an hour. The procedure, a microdiscectomy, is one that Dr. Anderer commonly performs, and it accounts for about half of the more than 1 million back surgeries performed annually in the US. Of the roughly 500 patients diagnosed with a herniated disc that he sees each year, fewer than 10% require surgery. Because up to 20% of injured discs reherniate at loN(e a)mouunus3(e s)10 -It loN.TJO -1.265 7

IN HEAF ERMA H of a stroke or other acute brain injury, vigilance is vital. Should brain swelling, bleeding, or seizures set in, the sooner neurointensivists can identify such life-threatening conditions, the more effectively they can treat them. Studies have shown that patients with secondary complications have better outcomes when they're treated by experts working together in a dedicated facility, but many hospitals, lacking such a specialized unit, care for acutely ill neurological and neurosurgical patients in a general intensive care unit. In March, NYU Langone Hospital—Brooklyn took its care for such patients to a new level when it opened a state-of-the-art neurointensive care unit. "The recovery period can make or break how a patient ultimately

does," explains Aaron Lord, MD, chief of neurology at NYU Langone Hospital—Brooklyn, who supervises the unit with Erich Anderer, MD, the hospital's chief of neurosurgery. "This new facility enables us to provide the very best care."

The 3,500-square-foot neurointensive care unit, located directly above a renovated 20-bed neurology floor and stroke rehabilitation unit, expands the adjacent 10-bed surgical intensive care unit as it builds on the hospital's expertise in neurology and neurosurgery. NYU Langone Hospital—Brooklyn is the borough's first Joint Commission-certified Comprehensive Stroke Center, and the only hospital in the Northeast that is also certified by the Joint Commission for stroke rehabilitation. Its stroke treatment times are faster, on average,

than other New York City hospitals. The hospital performs nearly 500 neurosurgical procedures annually.

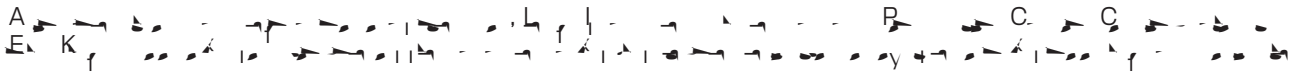
Complications such as brain swelling or bleeding are sometimes signified by very subtle changes, so each of the unit's four single-bed rooms is equipped with the most advanced monitoring and diagnostic equipment. Devices track intracranial pressure and brain oxygen levels continuously to alert clinicians to a looming threat, and bedside ultrasound technology provides speedy imaging. To detect seizures or other complications, brain signals are audited around-the-clock by an electroencephalogram, or EEG, which can be accessed remotely by video feed. The rooms are also equipped with ceiling-mounted lifts to help patients move around when possible. "Mobility

is the key to advancing patients to recovery quickly and preventing conditions like pneumonia and deep vein thrombosis," notes Dr. Anderer.

The unit's nursing station, or Clinical Integration Center, provides a hub for members of the care team to collaborate. "Critical care is a multidisciplinary endeavor, so we need a place where we can share information, develop a treatment plan, and discuss how to execute it," explains Dr. Lord. The neurointensive care unit is staffed by four fellowship-trained neurointensivists, more than at any other hospital in Brooklyn, and a dedicated on-call room for residents and physician assistants ensures that a care provider is on-site overnight.

"Our charge is to provide high-level neurological and neurosurgical care for our community," says Dr. Lord. "If a patient has a complicated aneurysm, spinal tumor, or other condition that requires high-level expertise and care, signals are

Shock, Anxiety, Then Resolve



ERIN KING SWEENEY, 46, knew the white spot on the radiologist's screen looked alarming. Sweeney felt dumbfounded by the diagnosis, and not just because she had little family history of cancer, but also because a manual breast exam by her gynecologist three months earlier had raised no suspicions. After a few deep breaths, Sweeney—a mother of two, a Hempstead town councilwoman, an aviation lawyer, and the daughter of US Representative Peter King—drove home from what was supposed to be a routine mammogram to Long Island, without telling anyone but her husband and parents.

A week later, in early December 2018, Sweeney received from NYU Langone's Laura and Isaac Perlmutter Cancer Center one of 268,600 new US breast cancer diagnoses last year. In her case, the diagnosis identified the most common type, hormone receptor positive, fueled by both estrogen and progesterone. "I was overwhelmed," Sweeney recalls. "My first thoughts were, the hell with pink ribbons. I don't want sympathy. I don't want to be a victim."

While she had every reason to be optimistic about a tumor detected before she could even feel it (likely to be stage I) Sweeney faced a slew of tests, surgery to remove the lentil-size tumor, and radiation to kill any cancer cells remaining in the breast—the standard treatment plan for invasive breast cancer detected early. Sweeney's age—more than a decade younger than average for diagnosis (age 60)—led doctors to look for possible genetic causes. Did she carry a *BRCA* mutation for breast and ovarian cancer like actress Angelina Jolie? "I thought, 'Was this going to be on the rails or manageable?'" says Sweeney. She felt too uneasy to think about the upcoming family vacation to Charleston as she arranged an appointment with the surgeon

recommended by several friends and family, Deborah M. Axelrod, MD, director of clinical breast surgery and community outreach at Perlmutter Cancer Center, one of only 50 cancer centers nationwide designated as comprehensive by the National Cancer Institute.

A call that weekend from Dr. Axelrod helped Sweeney see out of the fog. Early contact with newly diagnosed patients, Dr. Axelrod finds, can be extremely beneficial to setting a positive tone to treatment. "My challenge," she says, "is to persuade these otherwise healthy women that being ill is temporary." Cancer might become your obsession for the next few months, she tells them, but it is not your life.


"She gave me tough love," remembers Sweeney. "Dr. Axelrod told me, 'You are not going to die from this. You have a family and a career. You can cry twice a day but no more.' That was exactly what I needed. A kick in the butt! Believe me, with cancer, you can get yourself incapacitated by worry."

Unless they discovered a genetic mutation or that cancer had spread to her lymph nodes, the treatment plan looked straightforward, and her prognosis, excellent. A presurgical MRI, however, revealed a potential abnormality on another region of her breast, so Dr. Axelrod ordered an MRI-guided needle biopsy to check it out. Spending up to an hour in an MRI scanner can be a challenge for anyone, but Sweeney's acute claustrophobia gave her discomfort so severe that Dr. Axelrod had to distract her by singing along to corny Christmas songs from the control room in what Sweeney recalled as a "real vaudeville scene." "I had to try not to laugh," she says, "the situation was so absurd." When that biopsy and genetic tests came back negative, Sweeney felt more intense relief than she anticipated.

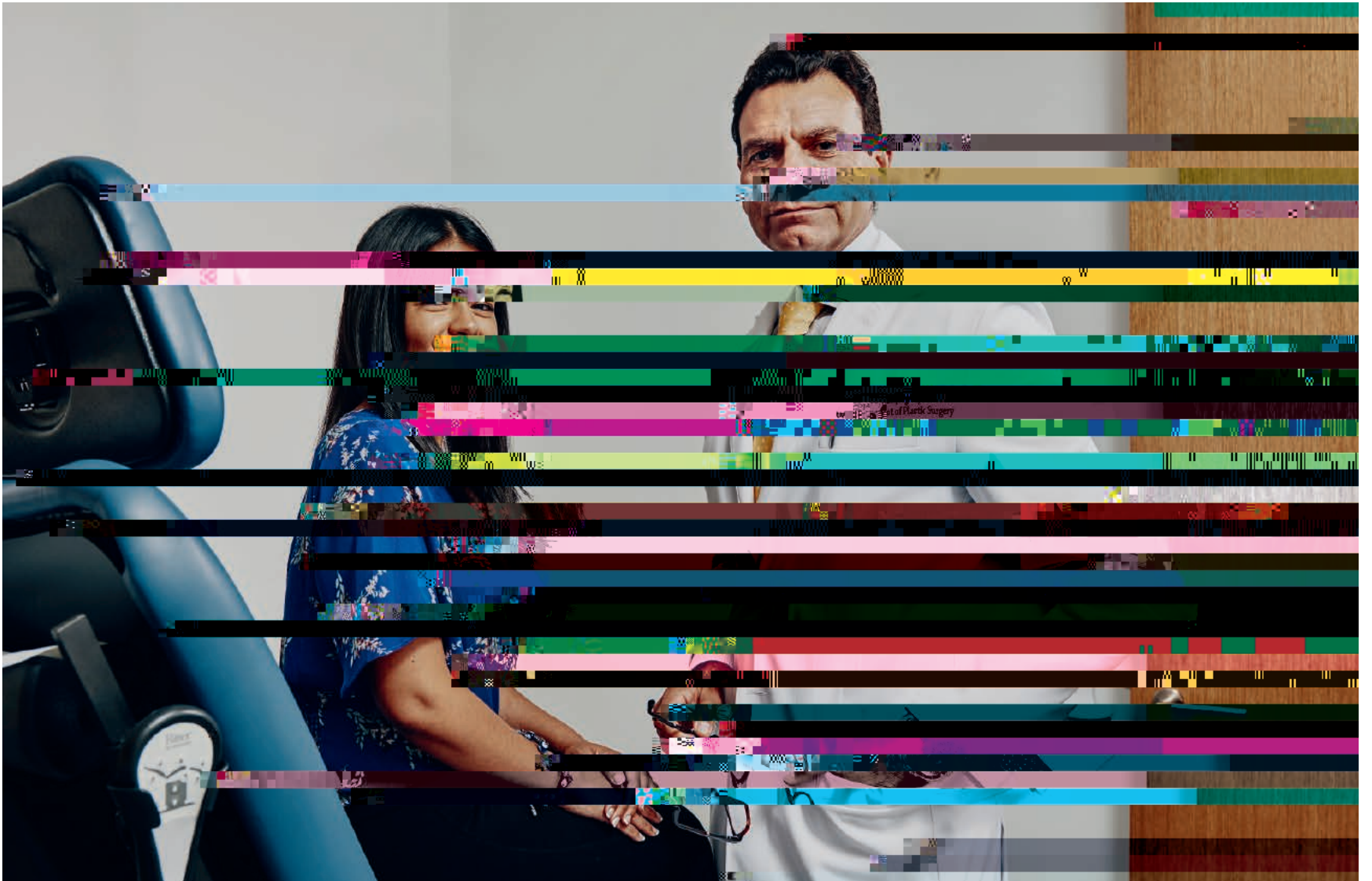
Five days after Dr. Axelrod removed the tumor, confirmed as stage I, in a two-hour outpatient lumpectomy in mid-January, Sweeney announced her diagnosis publicly. "I was really surprised," says Dr. Axelrod. "Patients usually want to know about their 'margins'—the pathology report on tissue surrounding the tumor—"and whether they face another surgery before they do anything. But she was really comfortable with her decisions and optimistic."

At a Hempstead town meeting, attended by about 300 people and broadcast live on social media, Sweeney shared a sober but also humorous account of her diagnosis and treatment. Early detection can change the trajectory of the life of a woman and her family, she said, and she vowed to support efforts already underway to pass state legislation to fund mammograms for younger women like herself. Her annual mammogram, after all, saved her.

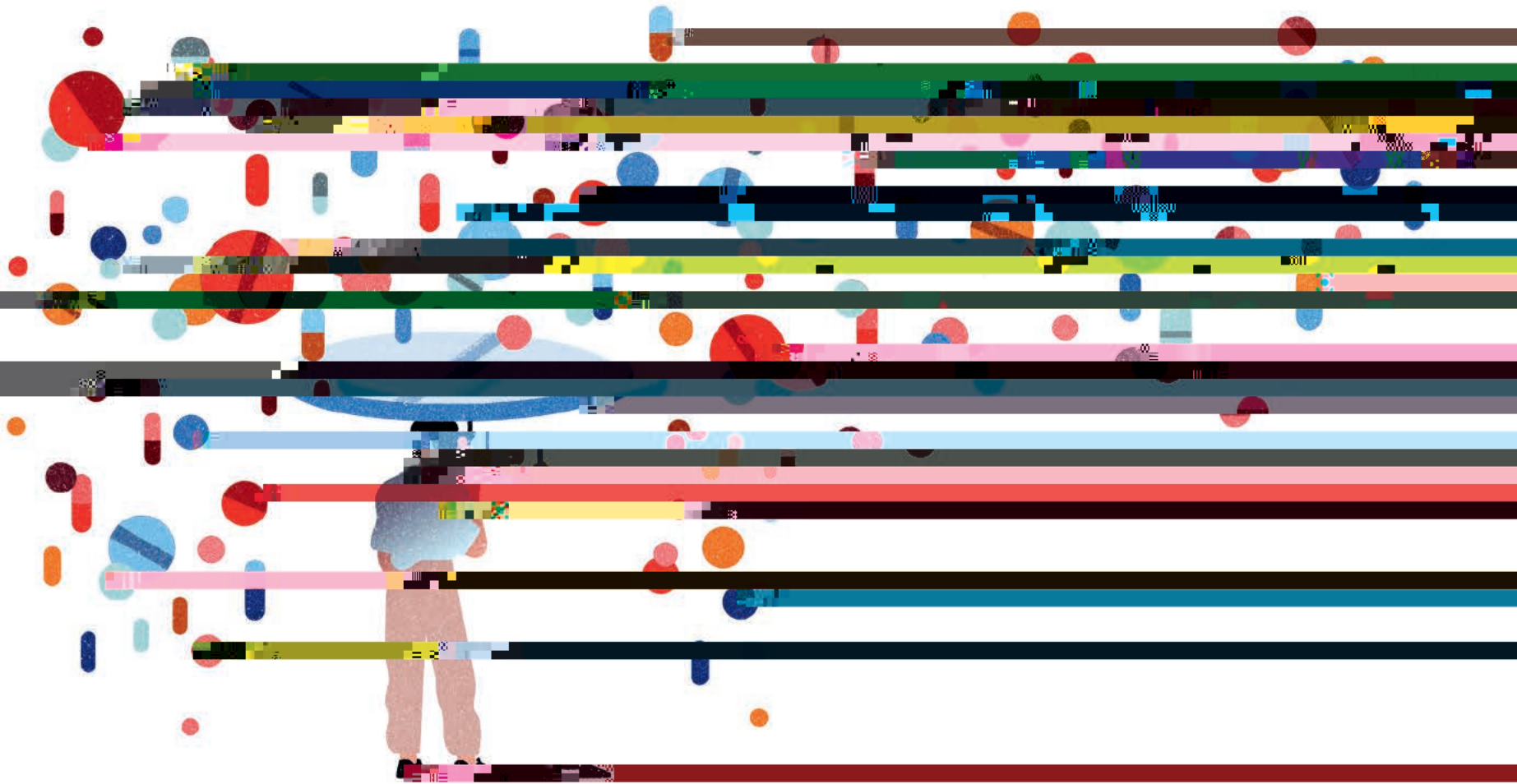
By March, as she completed the 15 radiation treatments with Carmen A. Perez, MD, PhD, assistant professor of radiation oncology, she also finished a half-marathon, making good on Dr. Perez's advice to stay active during treatment. Under the care of Ruth Oratz, MD, clinical professor of medical oncology, Sweeney would need to take the hormone therapy drug tamoxifen daily for the next five years to help prevent a recurrence, but her victory felt real. Sweeney was grateful and newly appreciative of the small things, she says, like a kind word at a stressful time, or the warm pad a nurse puts on your shoulder before you ask. "Believe it or not," she says, "my experience with breast cancer has been a positive one." ■

 **TO FIND A DOCTOR WHO TREATS BREAST CANCER**, visit nyulangone.org/breastcancer or call 646-929-7950.





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PAIN MANAGEMENT

NON-OPIOID PAIN MANAGEMENT

OPIOID ABUSE HAS TRIPLED in recent years, with overdoses of prescription opioids accounting for the deaths of more than 17,000 Americans in 2017. Orthopedic surgeons are the third-highest prescribers of these medications, according to the American Academy of Orthopedic Surgeons. For its part, the Department of Orthopedic Surgery at NYU Langone Health is tackling the epidemic head-on with an initiative that has reduced—and in some cases eliminated—the use of opioids following orthopedic surgery. A study by the Centers for Disease Control and Prevention found that patients face an increased risk

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