

"The Future Looks Bright" *A Conversation with Dr. Freya Schnabel, Director of Breast Surgery*

Sporting pink, the color that symbolizes National Breast Cancer Awareness month (October), grateful patients gather with their surgeon, Dr. Freya Schnabel (wearing glasses), director of breast cancer surgery.



John Abbott

Does this country have an epidemic of breast cancer?

For a number of years, we saw a big incremental increase in breast cancer cases, but a percentage of that had to do with widespread mammography screening. In 2004, for the first time, we actually saw a small decrease in the number of cases being diagnosed. We think that may be a result of some women stopping hormone replacement therapy. Breast cancer remains, though, a very common disease, affecting one in nine women.

Are survival rates improving?

Yes, in every category, including among women with metastatic disease. Fifteen or 20 years ago, we didn't have much to offer them. That's not the case now. Still, the best weapon we have is early detection.

Are diagnostic tools getting better?

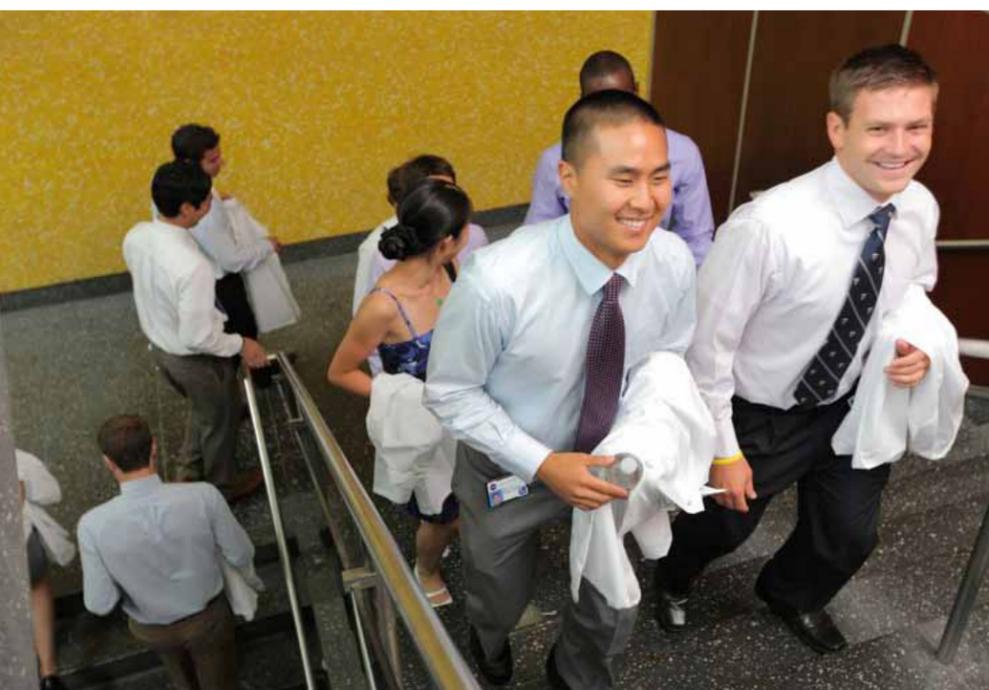
One of the big advances has been MRI exams of the breast. It's the most sensitive tool we have, picking up about 3% of breast cancers, those that don't show up on mammography or physical examination. But it has a downside: it's expensive, inconvenient, and uncomfortable—it requires use of a contrast agent—and it gives a number of false positives, which trigger unnecessary biopsies and follow-up exams. As a result, it's used primarily in newly diagnosed women to evaluate the extent of malignancy and in women at very high risk of developing the disease.

How is "high risk" defined?

The highest level of risk is people who have inherited mutations of the BRCA1 and BRCA2 genes. This

population is at the top of the pyramid, with a 50 to 85% chance of developing breast cancer, as well as a 16 to 40% risk of ovarian cancer. A few other genes have been identified that are linked to an increase in breast cancer, but the magnitude is not as high as with BRCA1 and BRCA2 mutations. The next tier consists of people who don't have the mutations but have atypical hyperplasia and lobular carcinoma in situ. These are cellular changes in the breast that are diagnosed on tissue biopsy. In addition, women with a strong family history of breast cancer carry a higher risk of the disease. There are a number of factors here: how closely related the family member with breast cancer is, how old the person was at the time of diagnosis, and whether there's a pattern of breast cancer in the family compared with one individual.

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John Abbott

An Upward Spiral of Learning *One Step at a Time, First-Year Students Become Physicians-in-Training*

"As a doctor, your body language and the look in your eyes really matter," says Sharon, a type 2 diabetic. "It can mean the difference between a patient really going out and trying, or thinking, 'My doctor gave up on me, so I don't have a shot.'"

"When I was diagnosed at 13," adds Courtney, who has type 1 diabetes, "I got so much information it was freaking me out. You need to be aware of when to give information and when to just give reassurance and encouragement."

Listening intently, taking careful notes, and making quick dives into Wikipedia on their laptops when needed to clarify a medical term, is a roomful of young men and women who just three days earlier donned their white coats, time-honored symbols of their new status as physicians-in-training. Today, they are taking the first step on that journey, and it's anything but traditional.

The event is designed to introduce first-year students to a key component of NYU School of Medicine's recently implemented Curriculum

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From the Dean & CEO

Autumn has arrived, and nature is ablaze with dazzling hues. But only weeks ago, the campus was resplendent in white. On August 20, 162 members of the class of '14 donned their white coats, marking their entry into an ancient and noble profession.

As you'll learn in these pages, the origin of the physician's white coat remains something of a mystery. But this much is certain: no symbol in medicine is more powerful or meaningful. White is the color of hope, purity of intent, and above all, compassion.

Humanism plays a key role in the education these students have embarked on. Our Curriculum for the 21st Century, or C21, stresses the unique, intimate bond between students and the patients who, as these students advance in their training, will serve as their true teachers.

This is one of the chief lessons our senior residents—such as Dr. Louis Miller, who is featured in this issue—instill in their junior colleagues. It's an ethic that begins on day one, when our medical students are assigned to a community clinic or outpatient facility. From that moment on, they carry in their hearts the oath they took at the White Coat Ceremony: "I solemnly pledge to devote my life to the service of humanity."

Bob



Patricia Walsh, RN; Cheryl Hart, RN; and Majella Maguire, RN (left to right).

"I'm So Glad You Called . . ."

Patients discharged from NYU Langone Medical Center's Tisch Hospital and Hospital for Joint Diseases (HJD) go home to another set of watchful eyes—and ears. Within 72 hours, inpatients from acute care units now receive a phone call from a nurse care manager regarding their care during this transitional period. While patients appreciate the extra attention, the outreach also serves an important medical purpose: to ensure that patients understand and are able to follow through on their discharge plan of care, which includes medication management, physician follow-up appointments, and self-care. The program currently extends to all acute-care primary medicine, surgical, and pediatric patients at Tisch and HJD, and will soon include new mothers and their babies, as well.

"Most patients are extremely pleased with the care they've received and have a good understanding of their discharge plan of care," says Brenda Ohta, PhD, senior director of care management. "But patients and families can still feel overwhelmed, and some may not fully recall or understand their discharge instructions. It's a tremendous source of reassurance and support to receive a call from our skilled nurse care managers soon after discharge."

"The questions are tailored to each patient's condition," explains Marianne Harkin, RN, senior director of professional practice. The nurses also go through a checklist designed to spot symptoms of medication reactions or other health problems. "Studies show that 23% of patients have at least one adverse event after discharge," notes Harkin.

The three nurse care managers carrying out the new program—Cheryl Hart, RN; Majella Maguire, RN; and Pat Walsh, RN—prepare carefully for each call, reviewing the patient's medical record. But perhaps the most important skill they bring to their job is an ability to listen. Maguire recently discovered that one patient was having an adverse drug reaction but was not aware of the severity of the problem. "I helped him connect with his surgeon right away, who discontinued the medication immediately," she recalls. "The patient is 78 and lives alone. If I hadn't called, he might have become seriously ill and required emergency treatment or readmission." Just as important, though, are the calls where everything is fine. "We reassure patients that some of the things they're experiencing are common postsurgical issues," says Walsh.

"The goals are to reinforce any previous instructions, intervene when needed, and avoid the need for readmission," explains Regina Presa, RN, director of care management, who oversees the new initiative.

"By the end of the call, we've established a relationship with the patient," explains Maguire.

"Working side by side, we hear each other's suggestions and learn from each other," adds Walsh. "Patients are constantly telling us, 'I'm so glad you called.'"

A Mother and Child Reunion

Abigail Louise Marden fusses in her bassinet at her mother's bedside, her face on the verge of tears. A nurse immediately hands the newborn to her mother, Charon. As soon as she makes contact with her mother's skin, Abigail falls asleep without making a sound.

A physical bond between mother and child in the days after birth sounds like just what Mother Nature intended, but most hospitals have traditionally kept newborns in a separate nursery. As part of its efforts to become the first academic medical center in New York City to be certified a Baby-Friendly Hospital by Baby-Friendly USA—sponsored by UNICEF and the World Health Organization—NYU Langone Medical Center now encourages mothers and babies to stay together in the same room, where it's easier to promote skin-to-skin contact and breast-feeding. Studies have shown that skin-to-skin time and rooming-in increase the likelihood of breast-feeding, which has many benefits for both mother and child.

For Charon Marden, the baby-friendly initiatives were critical in her decision to have her firstborn delivered at NYU Langone. "That was one of the things we really liked," she says, as Abigail dozes on her chest. "I love having her in the room."

To earn the designation of a Baby-Friendly Hospital—there are fewer than 100 in the US—10 steps must be implemented. NYU Langone has already received a letter of intent indicating that it will be granted the designation. "The development of policies and educational programs are actually the easy part," explains Marge Lilienthal, RN, senior director of nursing for women's and children's services. "Our biggest challenge is keeping the mothers and babies together."

To help keep newborns in the room, nurses admit them at the bedside, and many pediatricians have started doing their first exam while mother and baby are side by side. Partners are encouraged to stay over in rooms with sleeper chairs. For Mayra Raigosa, whose second child, Sophia, was born here, having her husband in the room made her second delivery more relaxing than the first. "I'm really enjoying this time with her," says Raigosa. "John has been able to get the baby for me. We get to bond with her."

NYU Langone is still awaiting official certification, but it has already seen a significant increase in mothers who breast-feed exclusively during their stay—from just under 50% a few years ago to about 70% now, excluding mothers who can't do so for medical reasons. "It's really become part of our philosophy and standard of care," says Eileen DiFrisco, RN, parent education coordinator of Maternal-Child Services. "This is a culture change."



US News & World Report Ranks Three of NYU Langone's Programs among Top 10 Nationwide

In this year's *US News & World Report's* "Best Hospitals" issue, NYU Langone Medical Center ranked in the top 10 nationwide for rehabilitation, rheumatology, and neurology/neurosurgery, and our orthopaedics program came in 11th nationwide and 2nd in New York City. In addition, we secured a place in the rankings for our ear, nose, and throat; diabetes and endocrinology; gastroenterology; and gynecology programs, none of which were ranked last year. NYU Langone's reputation scores increased by double digits in cancer, neurology and neurosurgery, and rheumatology. In some cases (for example, cancer, neurology and neurosurgery, and orthopaedics), even though our rank went down or held steady, our reputation score went up, as did our overall *US News* composite score.



A Time Capsule for Tumors

A Treasury Like No Other, NYU Langone's Tissue Bank Preserves Specimens in the Hope of Saving Lives

"We have a specimen," announced Joan Durbin, MD, PhD, director of NYU Langone Medical Center's Tissue Acquisition and Banking Services (TABS), an integral component of the Department of Pathology, Office of Collaborative Science, and NYU Langone Medical Center's Cancer Institute. She hurried down a long hallway, up two flights of stairs, and into Tisch Hospital, then down another hallway and up another flight of stairs to the gross pathology laboratory.

This mad dash is all in a day's work for Dr. Durbin and her staff. Their mission is to collect and preserve tissue for research. That means being in the OR as soon as tissue, such as a tumor, is removed from a patient, and running it to the pathology lab as quickly as possible. "Cells start to degrade quickly," Dr. Durbin explains, including the fragile genetic material, DNA and RNA, that may hold the key to understanding cancer and other diseases.

Degraded specimens have long been a major problem for tissue banks. All too often, researchers retrieve preserved samples of tissue, only to find that the genetic material and cell structures they want to examine have deteriorated. "The minute cells are deprived of oxygen," explains co-director Cynthia Loomis, MD, PhD, "they start responding to that stress, sometimes shutting down the genes we need to study."

Dr. Durbin, associate professor of pathology, reached the gross pathology lab by the time the specimen (a suspicious thyroid) had arrived. After the pathologist examined the gland, he handed a small piece of it to Nellie Ziguridis, the lab manager, who placed it in a plastic mold and lowered it into a bath of dry ice and methyl butane. Within a minute, it was frozen.

The next step was to get the sample into one of the freezers in the tissue bank, where it will remain until the pathologist—no longer in need of it for diagnosis—re-



Jacinta Small, a research technician, removes a rack of boxes containing tissue samples from one of the lab's freezers.

leases it for banking. "The most important thing is the patient's diagnosis," Dr. Durbin explains. "We don't bank any tissue until the diagnosis is confirmed and the sample is released."

Once the doctors give the go-ahead to bank the specimen, technicians log the sample into their database and move it to a large tank of liquid nitrogen for permanent storage at -196°C . When possible, samples of healthy tissue from each patient are also stored for the purpose of comparison. Mostly, the samples are from tumors, but many other types of diseased tissues as well as serum are also preserved for researchers studying various diseases. To date, the bank contains 17,000 samples from 4,000 patients, each of them bar-coded.

"We now have easy access to a large number of high-quality samples," says William Carroll, MD, director of the Cancer Institute and an ardent proponent of routine tissue banking. "Those samples will help us understand what makes some people predisposed to

tumors, and will allow the discovery of those biological pathways essential for tumor growth so that they can be targeted by new agents."

Having preserved tissues, both healthy and abnormal, from many different patients with the same disease enables researchers to scrutinize the genetic behavior of cells before and after they go awry. They can compare genes and their pattern of expression (how and why they "turn on," or become active) for a given disease. These large tissue collections are invaluable for this kind of genetic research, known as genomics, in which patterns of gene expression are identified and linked to specific diseases.

Some researchers are also using lasers to carve out single cells from archived samples. They can then study them in greater detail than ever before through genetic and genomic analysis. "We're getting close to deciphering the genetic blueprint for cancer in extraordinary detail," explains Dr. Carroll, "and this information will allow us to personalize therapy for individual patients."

As Good As It Gets

Sixty Years Later, a Patient with Scoliosis Returns to HJD—and Walks Out a New Woman

At age 12, Marilyn Koretz's aggressive form of scoliosis, a lateral curvature of the spine, started to become evident. It left her swaybacked, with a protrusion of the scapula. She wore a cast for a year but eventually

had to undergo spinal fusion surgery at the Hospital for Joint Diseases, then located at 123rd Street and Madison Avenue. Following more than two months of inpatient recuperation and therapy and four years of wearing a corset, she got on with the business of life: college, a teaching career, marriage to an orthopaedist, and four children.

"I was determined that the disease would not adversely affect me," says Koretz. "I played tennis and golf. With loose-fitting clothes, no one outside of my family could really tell." She played through tolerable levels of discomfort and pain until menopause, when she was diagnosed with an aggressive form of adult scoliosis. "I had been nearly 5'5", but I started to shrink. My hip was sticking out. One specialist said that because of my arthritis, I could not have surgery. Doctors said there was nothing more that could be done to help me because of my age and the magnitude of the deformity."

Two separate recommendations led Koretz to Thomas Errico, MD, chief of the Spine Division at NYU Langone Medical Center's Hospital for Joint Diseases. "Can you help me, Doctor?" asked the 73-year-old widow, whose vivacious personality had become sorely tested. "There are no guarantees," replied Dr. Errico, "but I believe we can."

Dr. Errico, associate professor of orthopaedic surgery and neurosurgery, heads one of the largest centers dedicated to spine surgery in the world, performing about 1,700 procedures each year. Physicians in the Spine Division treat some 20,000 patients annually—"from ages 2 to 92," as he puts it—with a wide range of conditions, including scoliosis, degenerative disorders, tumors, and trauma. Dr. Errico's caseload is divided between pediatric and adult patients, with 80% of his work devoted to spinal deformities, the most common being scoliosis. Dr. Errico extends the

center's reach internationally by joining his colleagues Joseph Dryer, MD, and Baron Lonner, MD, both associate professors of orthopaedic surgery, as volunteers with the Butterfly Foundation, a nonprofit medical organization that treats children with complex spine deformities in developing countries.

"Our approach to the management of surgical patients is multidisciplinary," says Dr. Errico. "For Marilyn's operation, Dr. Frank Schwab and I, as surgeons, were joined by a physiatrist, a rheumatologist, a neurologist, an anesthesiologist, a pain management specialist, an intensivist, and a plastic surgeon."

Koretz's 10-hour operation occurred 60 years—almost to the day—after her first one as a child. One of her daughters, a dermatologist, asked Dr. Errico why he preferred that Michael Margiotta, MD, a plastic surgeon, close the incision. "Because he does a better job than me," he replied. Koretz cites that kind of refreshing honesty and directness as the reason she calls Dr. Errico "the man who saved my life. If not for him, I probably would've ended up in a wheelchair."

After this operation, Koretz was in the hospital for about a week, followed by another week of outpatient rehab. "Now, two years later, I walk or drive everywhere," she says. "I run after my grandchildren. I feel better than I've ever felt. I'm 5'2", but I probably appear taller because I stand so straight. People constantly say to me, 'You look great. Have you had your face done?' I haven't, but this spine operation was like having plastic surgery. Two for the price of one!"

Dr. Errico is an equally big fan of his patient. He credits Koretz's positive attitude with helping her achieve the best possible outcome. The segment operated on—from the second thoracic vertebra to the first sacral vertebra—is now the strongest part of Koretz's spine. Summing up her postoperative results, Dr. Errico says: "It's as good as it gets."



Dr. Thomas Errico, chief of HJD's Spine Division, with X-rays of some of the spines he has corrected surgically.

For Those with Esophageal Cancer, the Cold, Hard Facts Are Now Good News

Four years ago, when Michael Clohessy, now 51, was diagnosed with stage IV esophageal cancer, the best treatment option available was a combination of chemotherapy and radiation therapy to shrink his tumor, followed by an esophagectomy, in which the cancerous portion of his esophagus, as well as nearby malignant lymph nodes, were surgically removed. His stomach was then stretched and reattached to the remaining section of his esophagus. Although Clohessy had continued to receive intermittent cycles of chemotherapy since then to keep his cancer from recurring, an endoscopic examination recently identified an area of Barrett's esophagus—pre-malignant lesions for adenocarcinoma, a type of esophageal cancer—and a one-centimeter-wide cancerous nodule.

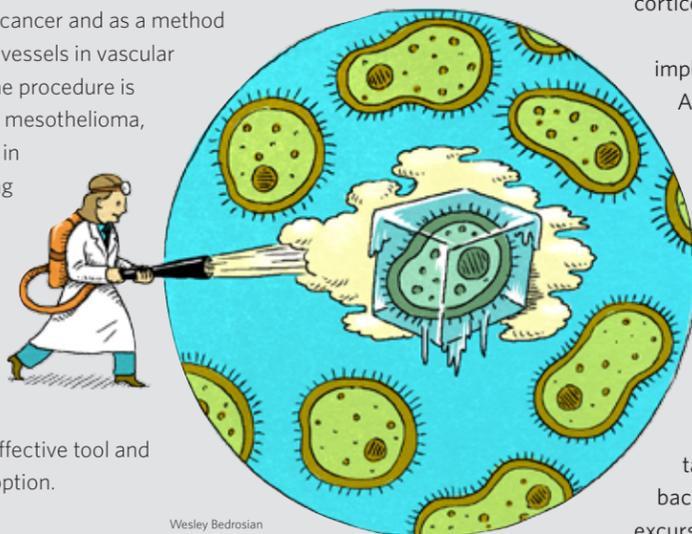
Faced with the prospect of additional radiation therapy or a second major surgery, Clohessy opted for a new, minimally invasive endoscopic procedure called cryospray ablation, a low-pressure, liquid nitrogen-based system that freezes the cancerous tissue. He was also prescribed two cycles of chemotherapy to kill any errant cancer cells and, if warranted, he'll receive additional treatments of cryospray ablation.

"Essentially, you treat an area by freezing it and letting it thaw," explains Clohessy's surgeon, Costas Bizakis, MD, assistant professor of cardiothoracic surgery and director of the esophageal surgery program at NYU Langone Medical Center. "A series of these cycles breaks down the cellular structure of the tissue, hopefully killing off abnormal cells."

The procedure, which typically takes about 10 minutes, can usually be done on an outpatient basis. Cryospray ablation is potentially curative as a frontline treatment for Barrett's esophagus and stage I esophageal mucosa. It also enhances the treatment armamentarium for patients with metastatic or late-stage esophageal cancer, especially those unable to endure radiation, chemotherapy, or surgery. While cryospray ablation isn't considered curative for late-stage esophageal cancer patients, it can help relieve symptoms and restore their ability to eat or swallow when blockages occur, eliminating the need for feeding tubes and improving their quality of life.

Cryospray ablation is so new that this FDA-approved procedure is available only at about 20 institutions throughout the US, with NYU Langone among the first to perform it. "Over the past five years, we have grown our esophageal surgery program significantly," explains Dr. Bizakis. "We now offer patients everything there is to offer in the treatment of esophageal cancer, as well as in benign esophageal diseases like acid reflux disease and achalasia."

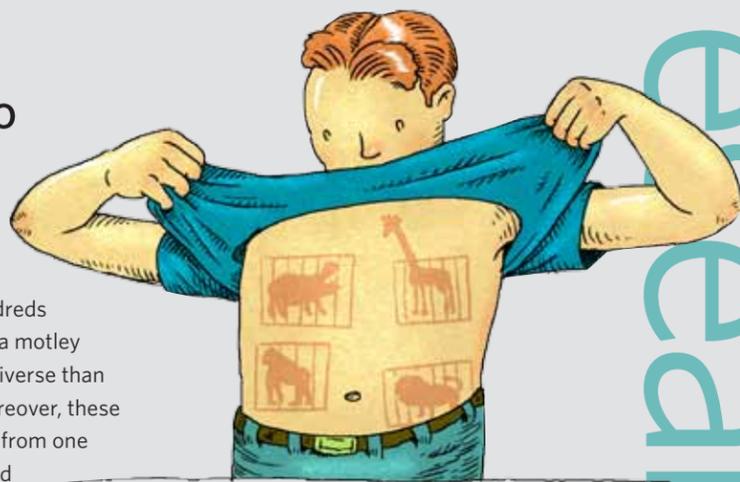
Soon, cryospray ablation may earn FDA approval for the treatment of lung cancer and as a method to freeze the small blood vessels in vascular growths in the airway. The procedure is also being considered for mesothelioma, a rare cancer that occurs in the thin layer of cells lining such organs as the lungs, stomach, and heart. While cryospray ablation is not for every patient with esophageal cancer, adds Dr. Bizakis, it does offer many a safe, effective tool and an additional treatment option.



Wesley Bedrosian

Motley Zoo

In 2007, NYU Langone Medical Center scientists made the surprising discovery that our skin hosts hundreds of species of bacteria—a motley zoo that's much more diverse than previously thought. Moreover, these species differ markedly from one individual to another and also vary over time. While a



Wesley Bedrosian

few of the identified bacteria are known to be potentially harmful and a few beneficial, what the rest are doing to us—or for us—remains a mystery.

If the NYU Langone team didn't solve this puzzle, they did raise an intriguing thought: perhaps the composition of the skin's flora plays a significant and underappreciated role in the maintenance of healthy skin. If so, it might be possible to control stubborn, chronic diseases like eczema and psoriasis by managing our skin's microbial mix.

In a step toward developing this new paradigm, researchers led by Seth Orlow, MD, PhD, the Samuel Weinberg Professor of Pediatric Dermatology and chair of the Ronald O. Perelman Department of Dermatology, have launched a study comparing the skin bacteria of young children with atopic dermatitis (AD) with that of children who are disease free. The most common form of eczema, AD is characterized by red, itchy blotches on the face and body folds. It typically begins in infancy and affects up to one in five children, many quite severely. There's no cure and few effective treatments, though many children eventually outgrow the worst of the disease.

"We do a pretty good job of helping children with AD, but there are still many patients whose AD is not well managed," says Dr. Orlow. His collaborators include the research team of Martin Blaser, MD, the Frederick H. King Professor of Medicine and chair of the Department of Medicine, and leader of the 2007 study, which was funded in part by a generous gift from Diane Belfer; as well as Julie Schaffer, MD, director of pediatric dermatology, and Mercedes Gonzalez, MD, a dermatology resident.

The researchers will identify the skin's flora using sophisticated gene-analysis techniques. All that's required of the children is a simple skin swab. In addition, the study, which is supported in part by a generous gift from the Manzo family, will examine how the skin's mix of microbes change after treatment with topical corticosteroids, one of the most effective therapies for AD.

Most people with the condition are colonized by *Staphylococcus aureus*, a bug implicated in a variety of skin infections. The more staph they have, the worse the AD. It's also known that staph can stimulate an immune response that aggravates already inflamed skin. Yet despite these links, staph-fighting antibiotics aren't very effective against AD. "Right now, all antimicrobial AD treatments are focused on staph," notes Dr. Orlow. "Perhaps we've been picking the wrong microbes."

If other bacteria are implicated, it could significantly impact how AD is treated. "AD seems to result from many factors," Dr. Orlow explains. "We know there's a genetic component—a mutation in a gene called filaggrin, which is responsible for maintaining the integrity of the skin's top layer—and there's also an immunological component." Some or all of these factors conspire to disrupt the skin's barrier and cause inflammation, paving the way for AD.

The hope, adds Dr. Orlow, is that early intervention with precisely tailored antimicrobial therapy, or perhaps even inoculation with beneficial bacteria, could interrupt this cycle and calm the inflamed skin. If so, then this is one excursion to the zoo that will delight countless children.

On the Trail of an Infamous Killer: Malaria

For more than a century, researchers have known that when malarial parasites rupture red blood cells, inflammation quickly ensues. Yet, they have not been able to pinpoint what triggers the excessive inflammation, or how to stop it from claiming an estimated 1 million lives annually.

Malaria is caused by a protozoan, which, unlike a virus or bacterium, has multiple stages in its life cycle, making it very difficult to target with vaccines. Inflammation, a hallmark of the disease, can lead to cerebral malaria, one of the most serious and deadly consequences of damage to the brain. *Plasmodium falciparum*, one of four malarial parasites that infect humans, is responsible for a majority of the estimated 300 million annual infections and 90% of related deaths worldwide.

Rather than seeking to stop this elusive enemy altogether, Ana Rodriguez, PhD, assistant professor of medical parasitology, and her research team are focusing on the source of the swelling. She and her team, including Diana van de Hoef, PhD, and graduate student Jamie Orengo, have found that blood cells infected by *Plasmodium* precipitate uric acid crystals, which cause the unchecked inflammation. "This fact looks like it's very important," notes Dr. Rodriguez.

The uric acid crystals are thought to come from hypoxanthine, a nucleotide precursor, which *Plasmodium* needs to reproduce. Dr. Rodriguez says that not all hypoxanthine is consumed by the parasite, although no one knows why, and what is left is somehow

converted to uric acid. Dr. Rodriguez's lab is focusing on stopping the conversion from hypoxanthine to uric acid. Without uric acid crystals, goes the thinking, inflammation would not be so severe, and therefore not so deadly.

Dr. Rodriguez is planning a study to test different uric acid inhibitors in mice and analyze uric acid levels in the blood of infected patients—specifically children, who have a 30% mortality rate once they slip into a malaria-induced coma. "I wouldn't be so interested in malaria," she says, "if it weren't killing so many children."

The promise of following the trail of uric acid crystals is that drugs already exist to stop their formation. Uric acid is a naturally occurring compound in the animal kingdom. Humans usually excrete excess uric acid in their urine, but when levels are too high, it can cause a range of medical conditions, including gout.

In initial studies, Dr. Rodriguez has found that uric acid inhibitors used in vitro stopped inflammation induced by *Plasmodium*-infected blood cells. Analysis of the blood of children stricken by malaria also revealed a correlation between the amount of uric acid and the severity of the child's illness.

Dr. Rodriguez hopes that if her research supports the theory that uric acid is responsible for the inflammation, existing drugs can be added to current treatment regimens, especially for children. Despite decades of disappointing research and a lot of work still to be done, she's enthusiastic about her current project. "I think this is the most important thing I've done to understand malaria," she says.



Wesley Bedrosian

A Routine Fantastic Voyage

With Minimally Invasive Surgery, Less Is More

The operating table tilts the patient ever so slightly toward H. Leon Pachter, MD, the George David Stewart Professor of Surgery and chair of the Department of Surgery at NYU Langone Medical Center. The patient, 32, is a new mom who felt a sharp pain in her right side during her pregnancy. A sonogram revealed a large stone inside her gallbladder. She had two choices: have it removed immediately or—to minimize risk to the fetus—wait until after delivery. “She chose to tough it out and wait,” Dr. Pachter says admiringly.

When Dr. Pachter issues a command, an electronic female voice responds: “Light source activated.” Instantly, the light source for the camera comes to life. From the patient’s abdomen, small access tubes, or trocars, protrude from four small incisions. Through the one in the navel, carbon dioxide is used to inflate the belly, creating space between the abdominal wall and the organs within, and a video camera attached to a laparoscope is inserted. Dr. Pachter takes the first surgical instrument from the scrub nurse, inserts it into one of the trocars, then fixes his gaze on an overhead

high-definition monitor. Meanwhile, the assisting surgeon views another monitor from the other side of the table. So begins the fantastic voyage known as minimally invasive surgery, sometimes called keyhole surgery because its incisions are so small.

Every year, some 500,000 Americans need to have their gallbladders removed because cholesterol and other substances have built up in the small pouch under the liver where bile, a substance the body uses to digest fats, is stored. Once removed, the organ will hardly be missed, as the digestive system adapts. When Dr. Pachter trained in the 1970s, the only way to do this was with open surgery, which created an access point large enough for the surgeon’s hands. “Unfortunately, it was a long incision, and you had to cut through muscle,” Dr. Pachter explains. “It could take up to eight weeks for the patient to fully recover.”

By the mid-1990s, NYU Langone started to adopt minimally invasive techniques for abdominal surgery, and one of its earliest applications was for removal of the gallbladder. Patients welcomed the benefits: less scarring, reduced pain, speedier recovery, and fewer postoperative complications. Dr. Pachter was determined to master the new and oftentimes challenging technology, so he traveled to France and Australia for intensive training. Even with 20 years of surgical experience behind him at the time, he admits, “In the beginning, it was like learning to walk all over again.” Today, minimally invasive surgery is used for

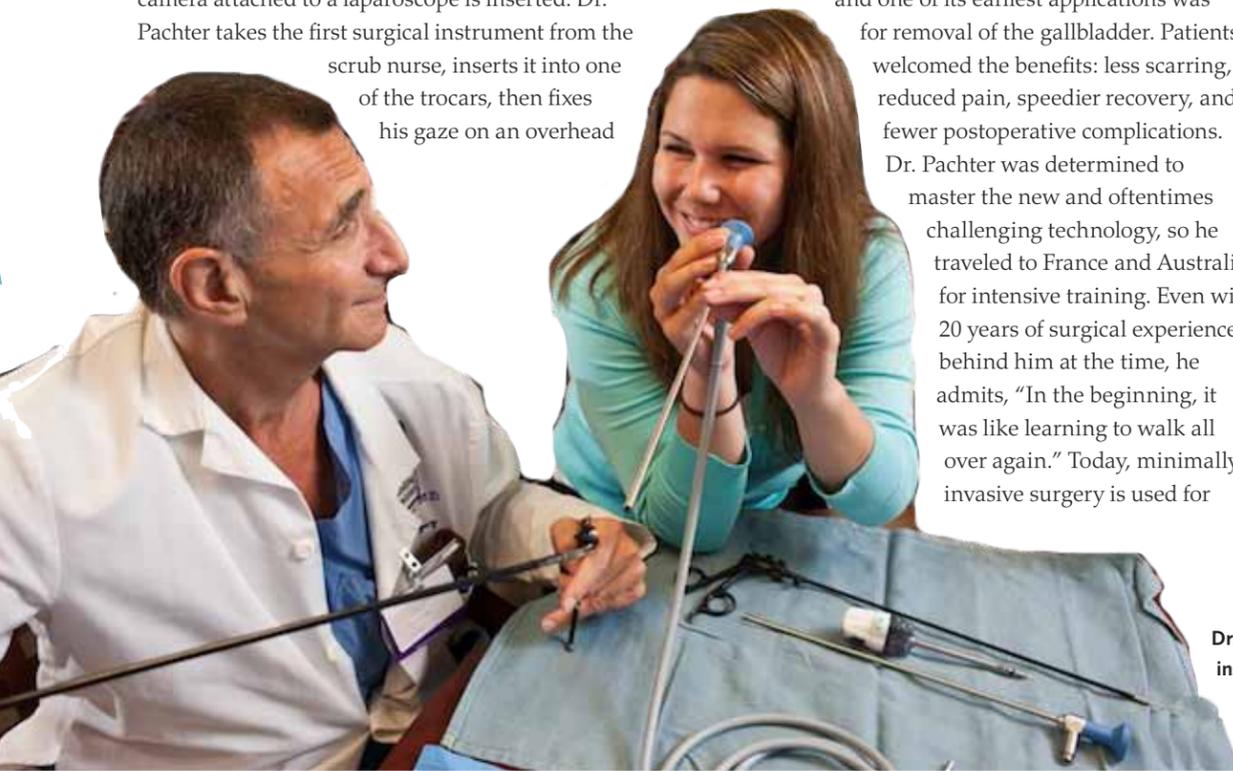
85 to 90% of NYU Langone’s general surgical cases, which include operations performed on the gallbladder, appendix, colon, spleen, and adrenal glands.

Once Dr. Pachter reaches the gallbladder, things move swiftly. With few words exchanged, his team moves as one. After an X-ray ensures that there are no physiological anomalies, Dr. Pachter grabs a pistol grip at one end of a wand. At the other end is a tiny clamping mechanism, which he inserts through a port. Pinching two clamps, one on either side of the spot to be severed, Dr. Pachter snips the gallbladder free and deposits it in a small bag inserted through another port. His miniretractor is holding a small loop of black plastic. “This works like a lasso,” he explains, as he drops it over the stump where the bladder was attached, and draws it snug. The bag containing the gallbladder is removed, and inside is a stone the size of a large marble, as hard as cement.

The next few minutes are spent meticulously cauterizing any bleeding. Everything looks fine, but Dr. Pachter needs to be sure. “Now, for my Jacques Cousteau maneuver,” he quips, flooding the area with saline solution. Any areas he missed, he explains as the camera searches underwater, will leave tell-tale red plumes.

The trocars are removed from three of the incision points. Working from inside the abdomen, Dr. Pachter seals three of them with cauterization. The last incision—the patient’s navel—is closed with sutures. The body will absorb the stitches, and the other three access points will heal without scarring. “In a month,” Dr. Pachter explains, “you won’t be able to tell she had surgery.”

And the patient? “She’ll be going home to her baby this afternoon,” says Dr. Pachter. “I’ll go tell her husband the good news.”



Dr. Leon Pachter shows Beth Antonius some of the specialized surgical instruments he used to remove her gallbladder with minimally invasive techniques. Three days after the operation, Antonius was on her feet. By day seven, she was able to resume her normal activities. After two weeks, she felt like she had never even had surgery.

Troubleshooters-in-Training

For the Medical Center’s Administrative Fellows, Learning the Ropes Is a Hands-On Experience

When her beeper sounded at 3:30 a.m. on December 25, 2008, Lauren Stewart knew her holiday plans would have to be put on hold. As NYU Langone Medical Center’s newest administrative fellow, she was the troubleshooter-on-call that Christmas morning, and she soon learned that a water pipe had burst in one of NYU Langone’s research facilities.

“It was my first experience handling a big crisis,” recalls Stewart, 25, a native of Kansas City, Kansas, who earned a master’s in health services administration at the University of Michigan. “Besides phoning hospital administrators and facilities staff, I had to figure out whose labs were involved and contact the appropriate research administrators. As it turns out, we were lucky. Some equipment was damaged from the water, but no major research was lost.”

One of the hallmarks of a good hospital administrator is the ability to solve problems where the rubber meets the road. Whether the issue involves a patient or staff member, a facility mishap or a procedural glitch, the goal is to resolve it—effectively and expeditiously—within the larger context of the institution. It’s a complex, ever-changing, daunting role, and the best way to learn the skills required is on the job, which is why a post in NYU Langone’s Administrative Fellowship Program is highly coveted. The program exposes promising postgraduates to every aspect of hospital operations. Each year, one to three new fellows are selected from over 100 applicants

for a one-year term, which can be extended to two years by mutual agreement.

Participants start by rotating through all major administrative departments of the Medical Center, then move on to manage a diverse range of projects. Like physicians-in-training, they’re given increasing amounts of responsibility in a variety of supervisory, coordinating, and communication roles, all under the direct oversight of senior-level administrators.

“It’s an opportunity to get a tremendous amount of experience and responsibility at an early stage in their careers, when ordinarily they’d be in a fairly narrow niche,” says Amy Horrocks, vice president for medical services, “and we benefit greatly from their contributions, as well.” Horrocks, a fellow here in the 1990s, went on to become a key member of the

hospital’s leadership team, following the same path of a half-dozen other current administrators.

Stewart’s typically hectic schedule brings a subtle but significant challenge: developing the discipline to attend back-to-back meetings on wide-ranging, often disparate topics, identify and absorb essential information, and discern the appropriate action steps. It’s an art Stewart is clearly mastering as she parses the content of each meeting and analyzes its import on her way to the next one.

“This fellowship has been an incredible chance to learn how a hospital works and to take on increasing responsibility as I’ve progressed,” says Stewart, who was recently appointed project manager for Epic, the electronic medical records initiative. “It’s exactly the hands-on experience I was looking for.”



Lauren Stewart meets with Dr. Bernard Birnbaum, chief of hospital operations, to whom she and the other administrative fellows report directly.



Joshua Bright

Max Duran, RN, is one of the Medical Center's 135 male nurses, who account for 7.2% of the nursing staff, slightly higher than the national average.

Men at Work

The Next Time You Call for the Nurse on Duty, Don't Be Surprised If a Man Answers

On one recent afternoon, Max Duran, RN, had his hands full in the KiDS of NYU Neonatal Intensive Care Unit (NICU) at NYU Langone Medical Center's Tisch Hospital. Duran, one of 135 male nurses at the Medical Center, helped a new mother perform what's called "kangaroo care," bringing her two-pound son to nestle, skin to skin, on her chest. Another mom came in with a cooler containing packets of breast milk she'd pumped. Duran chatted with her briefly, then stored the milk in a refrigerator so he could feed the baby by bottle later that evening. After checking the vital signs of a struggling newborn girl, Duran held her gently in the crook of his left arm, swaddled in a soft blanket. "You get to bond with the babies here," says Duran, who has worked in the unit since 2002. "You care for them as if they were your own."

For Duran, nurturing and protecting these most vulnerable of patients is part of a nursing career that began 13 years ago. At a time when women are flocking to once male-dominated professions like medicine and the law, men like Duran have discovered nursing. Nationally, male representation in the field has grown from 45,000 in 1980 to about 170,000 today, with men now comprising 6.6% of the nation's nurses. NYU's College of Nursing has seen a surge in male enrollments as well, with men representing 11% of its student body.

The recent economic downturn has attracted more men to the field, with its promise of job security, good pay and benefits, and multiple avenues for advancement, including such specialties as nurse practitioner and nurse anesthetist. They like the hours, too: three or four 12-hour shifts per week provide time for family obligations and recreational pursuits.

At NYU Langone, men comprise 7.2% of the nursing staff, slightly higher than the national average. Kimberly Glassman, PhD, RN, senior vice president for

patient care services and chief nursing officer, wants to recruit even more men. When male and female nurses work together, she says, a healthy dynamic evolves. "It creates a more balanced, open environment," says Dr. Glassman.

On some units, like the NICU, Duran is the only man. On others, such as the Mary Lea Johnson Richards Organ Transplantation Center on 14 West, 8 of the 47 nurses are men—more than twice the Medical Center's average.

The perception that nursing care is women's work and that nurses serve as physicians' handmaidens can deter men from considering the field. But some men say that stereotype is belied by the independence the job grants them—evaluating patient progress, making critical judgments about care, working with families, and collaborating with a host of other professionals.

As more men find their way to NYU Langone's Department of Nursing, they are also working to change attitudes. Some men in the profession, for example, bristle at being called a "male nurse," insisting that they don't need to have their title modified by their gender. "I don't call my attorney a 'female lawyer,'" notes Frank Stryczek, RN, senior nurse clinician at the Rusk Institute of Rehabilitation Medicine.

The power of language can influence attitudes, too. Ronald Keller, RN, senior director of nursing (cardiac and surgery), is working to eliminate gender-specific pronouns in nursing materials and everyday speech, where nurses are often referred to as "she" or "her." He has raised the issue at hospital leadership councils, in conversation, and at a conference held by the American Nurses Credentialing Center. "Nursing care isn't about gender," he says. "It's about outcomes. You provide a service for patients to get better, and you're part of the life of somebody in need."

"The Future Looks Bright"

(continued from page 1)

Does it matter if breast cancer is in the maternal or paternal line?

No difference. You get half your genes from one side and half from the other. As a matter of fact, paternal inheritance sometimes doesn't look as close as it should because the father can transmit a BRCA gene mutation and not be affected by any disease, and so all the affected relatives are second-degree or more distant. But only a minority of women who get breast cancer have any family history or abnormal genes. It's a complex disease, and the exact causes are still unknown.

"We've got new drugs that home in on cancer cells, unlike our older conventional medications."

Are we making progress when it comes to treatment?

Absolutely. We've got new drugs that home in on cancer cells, unlike our older conventional medications that attack both malignant and healthy cells. Herceptin, for example, targets the 25 to 30% of breast cancers that are positive for an abnormal gene that stimulates fast tumor growth. That's helping us to tailor therapy to an individual's particular kind of cancer. Avastin sabotages the growth of blood vessels that supply nutrients to cancer tissue. We've also got assays that help predict the chances of a recurrence, by genetically profiling not the patient, but the malignant cells themselves.

Is a prophylactic mastectomy ever a sound strategy?

As pure prevention, it's an option almost exclusively for people who carry the BRCA1 and BRCA2 mutations. A woman who has survived cancer—no matter how many years—never returns to the baseline risk of a normal healthy woman. She still has another breast in which cancer may develop. Mastectomies among these women are actually rising. As for medication, the only

drugs we have to offer women that may reduce the risk of breast cancer are tamoxifen and raloxifene.

Any exciting research projects under way at the Cancer Institute?

We're part of a multicenter trial for a device that could help us identify how much tissue to remove in a lumpectomy. To take out the cancer thoroughly and completely, you must include a margin of normal tissue on all sides of the excised tumor. With tiny cancers, it can be really hard to tell where the cancer ends, and about 20% of patients require a second procedure to take out more tissue. The device we're experimenting with—called the MarginProbe—uses radiofrequency spectroscopy to distinguish healthy and malignant tissue. In the OR, we examine the surfaces of a specimen after it's removed, and the readings are fed through a computer algorithm. The device beeps once if the margin is malignant and more tissue needs to be removed, twice if the margin is cancer free and no more cutting is required. We've also launched a Breast Cancer Database, funded in part by generous gifts from Arlene and Arnold Goldstein and the Manhasset Women's Coalition Against Breast Cancer. It accumulates information on every patient who has breast surgery here.

What advances are on the horizon?

Intriguing new methods of imaging are under investigation: tomography of the breast, a three-dimensional reconstruction, and nuclear scans that may give us information about how breast cells function. Advances in the treatment of localized breast cancer may include radiofrequency ablation of lesions or, even better, of the cavity of a lesion, and cryotherapy, or freezing a cancer. I hope, too, that a new category of drugs known as PARP inhibitors fulfills its promise. These drugs seem to be able to correct issues in DNA repair. Altogether, the future looks bright.

An Upward Spiral

(continued from page 1)

for the 21st Century, or C21. As part of an innovative "spiral" curriculum, the School employs different areas of medicine, or "pillars," as central themes. Over their four years—thanks in part to a grant from the Josiah Macy, Jr. Foundation—students will absorb increasingly sophisticated information about each pillar and the diseases associated with it, producing an upward spiral of learning. This new approach to medical education changes how medical science is taught, how students learn to care for patients, even how medical school itself is structured.

"Remember," Steven Sedlis, MD, associate professor of medicine and chair of the atherosclerosis pillar, tells the students, "your best teachers are your patients." Now, as part of the diabetes pillar segment, two patients with diabetes are sharing their personal stories—what it's like to stick themselves numerous times a day to check blood sugar or inject insulin, their constant worry over diet, the hassle of making travel or exercise plans around fluctuating glucose levels.

"Have you considered an insulin pump?" one student asks Sharon, who recently switched from syringes to the more user-friendly insulin pen. "I can't wrap my mind around it yet," she says.

"How do you feel when your glucose is too high?" another student asks Courtney. "As if my blood wants to jump out of my body," she replies.

The exercise brings students face-to-face with patients—a radical departure from how medicine has been taught up until now. Historically, students spent their first two years immersed in basic science. Now, patient encounters and clinical concepts are woven into every aspect of the first year. During a break, the students are buzzing about what they've just heard and what lies ahead on the road to becoming a physician.



All photos by Joshua Bright

Laura Ahlborn has been appointed vice president for science strategy. In this newly created role, she will provide administrative leadership and support in the conceptualization, development, enhancement, and implementation of research strategy for NYU Langone Medical Center. She will also coordinate strategic business planning in support of the overall research strategy and vision, and will be responsible for research space planning, including programmatic planning for the new science building. Ahlborn comes to the Medical Center from the University of Pennsylvania School of Medicine and Health System, where she was the senior executive director of research planning and management. Ahlborn has had a 20-year career as a consultant, working with academic medical centers and health systems nationally. She began as an analyst and rose to the level of partner with APM/CSC Global Health Solutions. Ahlborn earned a BS in psychology from Wesleyan University.

Gerald DeSilva has been appointed vice president for supply chain management. Previously, he was at Cedars-Sinai Medical Center in Los Angeles, where he served as director of materials and facilities management. He will oversee all purchasing, materials management, receiving and distribution, printing services, central sterile processing, and supply chain



information systems. At Cedars-Sinai, DeSilva led the supply chain management and logistics program, facility operations, and environmental, grounds, and ancillary services. Prior to joining Cedars-Sinai, DeSilva held leadership positions at Kaiser Permanente, Unihealth Pacific Health Resources, and Unihealth-Glendale Memorial Hospital and Health Center. He received his bachelor's in health science management from the University of Redlands, and his master's in healthcare administration from the University of San Francisco.



Glenn Saxe, MD, has been appointed chair of the Department of Child and Adolescent Psychiatry and director of the Child Study Center. Previously, he was associate professor of psychiatry at Harvard Medical School and an attending psychiatrist at Children's Hospital Boston. Dr. Saxe's primary research interest is in childhood traumatic stress, specifically using innovative methods to elucidate the biobehavioral processes that lead to mental health issues in traumatized children. Over the last 15 years, he has conducted a series of studies to identify how psychosocial, behavioral, and biological processes interact in the formation of traumatic stress in children. The research, largely funded by the National Institute of Mental Health, uses longitudinal research methods to understand risk and resilience in acutely traumatized children. Prior to joining Harvard, Dr. Saxe was chair of the Department of Child and Adolescent Psychiatry at Boston University School of Medicine and an attending psychiatrist at

Boston Medical Center. He earned his undergraduate degree from McGill University and his MD from McMaster University in Canada. He completed residency training in psychiatry at Massachusetts Mental Health Center, a fellowship in traumatic stress disorders at Massachusetts General Hospital, and a fellowship in child and adolescent psychiatry at Cambridge Hospital in Boston.

Anthony Shorris has been appointed senior vice president, vice dean, and chief of staff. In this new role, he will be part of the executive leadership team, responsible for helping NYU Langone Medical Center continue to translate its ambitious vision into defined strategic outcomes. Shorris comes to the Medical Center from the Robert F. Wagner Graduate School of Public Service at New York University, where he was director of the Rudin Center for Transportation Policy and Management and a professor of practice. Previously, he served as executive director of the Port Authority of New York and New Jersey. He also served as chief operating officer and executive vice president of Healthfirst, Inc. Shorris has been commissioner of finance for the City of New York, deputy chancellor for operations of the New York City Department of Education, and deputy budget director for the City of New York. In addition, he was on the faculty and directed a research center at the Woodrow Wilson School of Public and International Affairs at Princeton University. Shorris, who holds degrees from Harvard College and Princeton University, is a fellow at the Century Foundation.



A Day in the Life of . . . Senior Chief Resident Dr. Louis Miller

"Within five minutes on its wards, I decided that Bellevue was where I needed to train," says Louis Miller, MD, a cardiologist steeped in the history of what is believed to be the nation's first teaching hospital, the birthplace of the modern residency system, and NYU Langone Medical Center's primary teaching affiliate. Dr. Miller is nearing the end of his 12-month term as senior chief resident in the Department of Medicine. "Seven years and hundreds of stories later," he says, "the place continues to amaze." Dr. Miller's initial diagnosis has been confirmed: "I love this place."

6:58 a.m. Dr. Miller arrives at Farkas Auditorium more than an hour before the Department of Medicine's Grand Rounds, a lecture given by a distinguished visitor. "I want to be there in case the speaker comes early," says Dr. Miller, "and also make sure all of the audiovisual equipment is working." At the appointed hour, Dr. Miller introduces the featured guest, a molecular biologist from the University of San Francisco School of Medicine.

9:00 a.m. "This is one of the most enjoyable activities of the day," says Dr. Miller, referring to the cardiology seminar he conducts with his co-chief residents in a conference room at the Joan and Joel Smilow Research Center. "I've already finished my fellowship, and many of the chiefs are going into cardiology," he explains. "So I assign articles, and we discuss them." Today's topic: "Non-ST elevation myocardial infarctions, and the best strategies to treat them."

10:15 a.m. On Bellevue's 16th floor, Dr. Miller shares an office with two of the nine chief residents, includ-

ing Dr. Jonathan Willner. "There are 168 residents in the entire program, and we like to think of ourselves as platoon leaders. Lou is, of course, our four-star general," says Dr. Willner, who clearly enjoys teasing his friend and mentor. As Dr. Miller grabs his white lab coat and heads off to rounds, Dr. Willner sharply salutes.

10:24-11:51 a.m. Dr. Miller attaches himself to the small clot of physicians-in-training gathered around the bedside of a 55-year-old homeless man. A third-year resident describes the patient as "hypertensive with a history of myocardial infarction and coronary stenting, not complying with meds, and in alcohol withdrawal." Dr. Miller hands his card to the man, offering: "I'm now your cardiologist." Outside the room, he explains that "the majority of our patients don't have insurance, and many are undocumented or high risk. Not a day goes by that I'm not humbled by the privilege and responsibility of delivering care to those who might otherwise go without." "Spoken by the nice Jewish doctor," interjects Dr. Willner, as he

passes by on his way to the noon conference. "I was born in Seoul, South Korea," explains Dr. Miller, "and adopted at three months old by a wonderful Jewish family."

12:00 p.m. At a lunch hour lecture, Dr. Miller presides over a more informal presentation by the morning's Grand Rounds speaker, which is attended by about 20 interns and residents. "Normally, there's more interaction," says Dr. Miller, "but the nonclinical topic—pharmaceutical protocols—made it more difficult to engage the group."

1:20 p.m. It's time for Dr. Miller's "weekly workout" in the cardiac catheterization lab. "It's like my gym," he says. "I come here to practice my specialties: angiography, stenting, and angioplasty. As a fellow, I've done over a thousand procedures."

4:00-5:00 p.m. Back in his office, Dr. Miller listens to third-year medical student Adam Botwinick rehearse a case he'll present at Friday's Clinical Pathological Conference. "Adam is one of 4 students—out of a pool of 30—who are given a case," explains Dr. Miller. "They must come up with questions, an approach, and a diagnosis." Though Dr. Miller knows the "right answer," he can only guide his charge. "Lou is a fantastic teacher," says Botwinick. "He's low-key but a great communicator." Dr. Miller shyly accepts the praise. "My year as a senior chief has really taught me the art of teaching," he says. "Whether it's lecturing to large groups, interacting with a small team, or in one-on-one sessions, the questioning is always Socratic. As it should be, right?" Dr. Miller's workday won't be over for another four hours, but for now, it will end with a question to which there's only one correct answer.



All photos by Joshua Bright

Dr. Lou Miller, a senior chief resident in cardiology, is one of 168 residents and 9 chief residents in the Department of Medicine.

Inside This Issue



“The Future Looks Bright” Does America have an epidemic of breast cancer? Are survival rates improving? How is “high risk” defined? These are some of the questions addressed by Dr. Freya Schnabel, director of breast surgery, in a wide-ranging interview about the disease.
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A Time Capsule for Tumors Patients with cancer turn to physicians for a cure, but researchers often turn to patients—namely, those who grant permission to have their tissue samples preserved in The Cancer Institute’s Tissue Acquisition and Banking Services.
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As Good As It Gets Nearly 60 years to the day after her first surgery to correct an aggressive form of scoliosis, Marilyn Koretz returned to NYU Langone Medical Center’s Hospital for Joint Diseases for a state-of-the-art spinal procedure. “Now,” she says, “I run after my grandchildren.”
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A Routine Fantastic Voyage Every year, some 500,000 Americans have their gall bladders removed. Thanks to minimally invasive surgery, this and many other types of abdominal surgery account for less scarring, reduced pain, speedier recovery, and fewer postoperative complications.
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Troubleshooters-in-Training For the behind-the-scenes problem-solvers who manage the machinery of the Medical Center, the challenges are endless. NYU Langone’s Administrative Fellowship Program grooms aspiring hospital administrators by exposing them to roll-up-your-sleeves realities.
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NEWS & VIEWS

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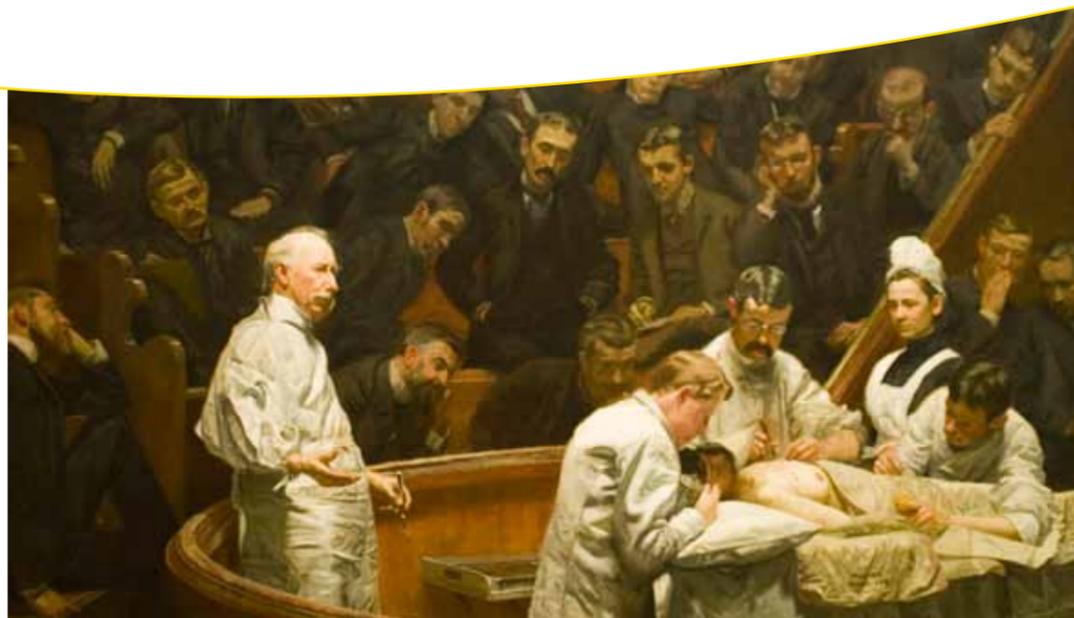
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In 1875, when Thomas Eakins (1844–1916)—who had considered a career in surgery before becoming one of the most important artists in America—painted *The Gross Clinic*, surgeons still wore black garb. By the time he created *The Agnew Clinic* in 1889, the principles of infection prevention had become widely accepted, and white was the standard color of both surgical gowns and hospital coats.

Cloak of Compassion

For Over a Century, the White Coat Has Been an Emblem of Medicine at Its Best

Medical students aren’t entitled to call themselves “doctor” until they graduate four years later, but the first time they feel like a physician is the moment they don their white coats during a ceremony that began in 1993 and is held each August at most of the nation’s 145 schools of medicine and osteopathy. In the world of medicine, perhaps no symbol is more vivid and ubiquitous, no rite of passage more momentous.

Exactly where, when, and how the white coat came to achieve its current status remains a medical mystery, but just over a century ago, it became the standard uniform of the profession. Prior to the late 19th century, physicians wore black garb, as black was (and still is) the color of formal attire, and medical encounters were considered serious matters. In the

20th century, medicine came to be known as a truly scientific enterprise, and hospitals came to be seen as institutions for healing rather than houses for dying. White, the color of hope, was a fitting symbol for the infinite promise of modern medicine. The Latin word *candidus*, meaning white, is the root of the word *candor*, and truth, after all, is the foundation of all professional societies.

The color of the doctor’s coat functions on other levels, as well. It symbolizes not only cleanliness, but purity of intent—a visual reminder of the physician’s commitment to do no harm. Like the black robe of a cleric or judge, it is a form of nonverbal communication—a pledge of trustworthiness, confidentiality, and proper

professional distance. Its power lies in its simplicity, representing dignity and authority, and commanding honor and respect. Above all, the white coat is a cloak of compassion, the hallmark of a true caregiver.

“The white coat represents the importance of what we as physicians do every day, and the value of medicine to those who come to us seeking help,” says Mark Hochberg, MD, professor of surgery and director of surgical clerkship, who has written about its history. “It symbolizes one of the best concepts of society—that individuals are devoting their lives to truly helping people who are ill, who turn to us with anxiety and hope. More than anything else, the white coat is emblematic of the fact that we can help people, physically and emotionally. As such, it should only be worn for interactions with patients and in a healthcare setting. It should not be worn carelessly around town because that diminishes its importance as a symbol. The white coat gives physicians the standard against which they must measure their every act of care to the patients who trust them.”