

# GRAPEVINE

THE ALUMNI MAGAZINE  
OF NYU SCHOOL OF MEDICINE  
FALL 2019

## Trendsetters in Education

Marc Triola '98

**BIG DATA**

Ruth Crowe '86

**APPS**

Greg  
Dorsainville, MPS

**VIRTUAL  
REALITY**

Kira Melamud '10

**3D IMAGING**

Crystal Mainiero, MPA

**PERSONALIZED  
LEARNING**

Verity Schaye '08

**MACHINE  
LEARNING**









# Educating the 21st Century Physician



Throughout its history, NYU School of Medicine has had many gifted physician-educators who have inspired students and residents to master the art and science of medicine, to question the status quo, and to treat patients to the utmost of their ability.

In the lecture hall, these outstanding teachers could mesmerize a room of young doctors-in-training, and on rounds, they could bring a lesson to life. They set the high standard of excellence in medical education to which we hold ourselves.

Today it's more urgent than ever that we honor that standard as we strive to become an even better and more dynamic medical school. With the dramatic changes that have swept through our healthcare system and our overall culture, the way medicine is taught must be updated to reflect the way it is actually practiced.

It's now possible for medical schools to leverage open-source databases and other analytic tools to optimize the curriculum; how do we seize that opportunity to build a responsive, continuously improving medical school? Telehealth, with doctors diagnosing and treating patients through smartphones and other digital platforms, has the potential to greatly expand access to high-quality care; how do we equip our students with the new skills they'll need? We know that immersing students in an artificial but realistic situation is an incredibly effective learning experience; how do we give them a simulated scenario with real impact?

Those are just a few of the questions that are being answered by the School of Medicine leaders you'll read about in this issue of *Grapevine*. Marc Triola '98, Res. '02, the founding director of the Institute for Innovations in Medical Education (IIME), is infusing the School of Medicine with a data-driven approach that will transform the way we teach and learn. Sarah MacArthur, MD, Res. '11, '15,

is developing new courses that will put students at the forefront of the fast-growing field of telehealth. As the co-director of the IIME's Educator Community, Michael Poles '92, Res. '96, PhD, is constantly responding to and shaping the curriculum and education methods for our changing times. Sondra Zabar '91, Res. '94; Carol DerSarkissian, MD, Res. '02; and Greg Dorsainville, MPS, are harnessing the latest technologies and techniques in simulation and virtual reality to prepare students for the moment of truth.

Like the great teachers who came before them, these and other talented educators are defining not only how students gain the latest medical knowledge, but how they absorb the timeless values of compassion, commitment, and wisdom that are hallmarks of NYU School of Medicine and of its alumni. I hope that you come away from this issue impressed by their efforts, and I invite you to reach out to us or to visit us on campus to learn more about how we're leading the way toward the future of medical education.

Sincerely,

ROBERT I. GROSSMAN, MD  
DEAN AND CEO

**“EDUCATORS ARE DEFINING NOT ONLY HOW STUDENTS GAIN THE LATEST MEDICAL KNOWLEDGE, BUT HOW THEY ABSORB THE TIMELESS VALUES OF COMPASSION, COMMITMENT, AND WISDOM THAT ARE HALLMARKS OF NYU SCHOOL OF MEDICINE AND OF OUR ALUMNI.”**



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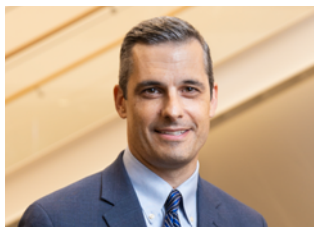
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NYU Langone Health comprises  
NYU Langone Hospitals and NYU  
School of Medicine.

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**“DR. KURZWEIL IS AN INNOVATIVE, ENERGETIC, AND BRILLIANT PROGRAM DIRECTOR WHO HAS TAKEN OUR NEUROLOGY TRAINING PROGRAM TO NEW HEIGHTS.”**

**DR. STEVEN GALETTA,  
THE PHILIP K. MOSKOWITZ,  
MD, PROFESSOR AND CHAIR  
OF NEUROLOGY**

## Neurologist Arielle Kurzweil, MD, Res. '13, Honored for Excellence in Teaching

**ARIELLE KURZWEIL, MD, RES. '13**, a neurologist at NYU Langone Health and director of the neurology residency training program, has received the A.B. Baker Teacher Recognition Award from the American Academy of Neurology. The prestigious award, given earlier this year, recognizes excellent teachers for their contributions to improving neurology now and in the future.

In addition to providing compassionate care to people with epilepsy, Parkinson's disease, carpal tunnel syndrome, and stroke, Dr. Kurzweil co-wrote and published a paper, “Teaching

NeuroImages: Hippocampal sclerosis in cerebral malaria,” in the July 2019 issue of *Neurology*. She has also been instrumental in developing an innovative simulation center and education program for neurologists in training at NYU School of Medicine. Dr. Kurzweil is also the lead author on a paper discussing the neurology simulation program at NYU School of Medicine that was recently accepted to *Neurology*.

“I was drawn to the specialty of neurology for its challenging and collaborative nature—I work closely with colleagues and form long-term bonds with patients,”

says Dr. Kurzweil. “As a neurologist at NYU Langone, I have the opportunity to be a member of a team and a lifelong student and teacher.”

“Dr. Kurzweil is an innovative, energetic, and brilliant program director who has taken our neurology training program to new heights, and it is no surprise that it is now consistently ranked as one of the top programs in the country,” says Dr. Steven Galetta, the Philip K. Moskowitz, MD, Professor and Chair of Neurology at NYU School of Medicine. “Dr. Kurzweil's abilities to build teams and to develop new pathways to training are unparalleled.”





Pictured from left are the key investigators on the grant: Yongzhao Shao, PhD; Jiyoung Ahn, PhD; Eva Hernando-Monge, PhD; Itai Yanai, PhD; Michelle Krogsgaard, PhD; George Jour, MD; Tomas Kirchoff, PhD; David Polsky, PhD, MD; Judith Goldberg, ScD; and co-principal investigators Iman Osman, MD; and Jeffrey Weber '80, PhD

# NYU Langone Health Receives \$11 Million Grant for Melanoma Immunotherapy Research

**THE NATIONAL CANCER INSTITUTE (NCI)** has awarded a five-year, \$11 million grant to NYU Langone's Ronald O. Perelman Department of Dermatology for research in the rapidly growing area of immunotherapy for melanoma.

Awarded this past May, the grant will be used to design tools that predict whether certain therapies, those that help the immune system fight cancer, will be effective for a given patient. Although such immunotherapies have

shown promise against many cancers, there is an urgent need for easily obtained tests (biomarkers) that help physicians tailor care by predicting both a particular patient's response to a treatment and that patient's risk of immune-related side effects.

The new program is NYU Langone's first grant to be funded by the NCI's prestigious P50 Specialized Programs of Research Excellence (SPORE), which promote interdisciplinary

research to help research findings move quickly from the laboratory to the patient. The grant follows the recent designation by the NCI of the Perlmutter Cancer Center as one of 51 comprehensive cancer centers nationwide.

NYU Langone's melanoma SPORE program will be led by co-principal investigators Iman Osman, MD, professor in the Ronald O. Perelman Department of Dermatology, professor of medicine and urology, and associate dean

## 2019 Alpha Omega Alpha Inductees



**“BEING INDUCTED INTO AOA CONFERS AN EXPECTATION OF FUTURE LEADERSHIP. THIS HONOR IS BY NO MEANS JUST AN EXTRA LINE ON A CV, BUT RATHER AN EXPRESSION OF WHAT OUR FIELD EXPECTS OF US.”**

**EMMA TRAWICK '19, PRESIDENT, DELTA CHAPTER, AOA**

Salma Abdou  
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 David John Cantor  
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 John Michael Colavito  
 Christopher V. Cosgriff  
 Oscar Emmett Dimant  
 Kyra Rose Edson  
 Victoria Fang  
 Nina Douglas Fisher  
 Meredith Blair Horton  
 Caroline Lili Katzman  
 Sarah Lauren Leventhal

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 Jennifer Lopez  
 Anthony Emyll Melendez Torres  
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 Cory D. Rillahan  
 Tadhg Adam Schempf  
 Emma Clare Trawick  
 Carrie Lan Vuong  
 Brandon Junyong Wang  
 Jason Feng Wang  
 Garseng Wong  
 George Andrew Zakhem

for translational research support; and Jeffrey Weber '80, PhD, the Laura and Isaac Perlmutter Professor of Oncology in the Department of Medicine and deputy director of the Perlmutter Cancer Center. Their work will revolve around “check-points”—sensors on immune cells that turn the cells off when they receive the right signal. Although immune cells are designed to attack invading viruses and bacteria, and they also recognize tumors as abnormal, cancer cells hijack checkpoints to turn off immune responses. Checkpoint inhibitors are one type of immunotherapy countering this effect, but the field needs more detailed guidance on how to use them to treat metastatic cancer, and as additions to other treatment types (known as adjuvant therapy).

*This story was adapted from the NYU Langone News press release published on July 22, 2019.*

IN THE NEWS

## NYU Langone Health Rises to Ninth in Nation in *U.S. News & World Report* Rankings



NYU Langone was named by *U.S. News & World Report* to its 2019–20 Best Hospitals Honor Roll at No. 9 in the nation, up from No. 15 last year, and No. 2 in New York State and the New York metropolitan area. NYU Winthrop was ranked No. 7 in New York State

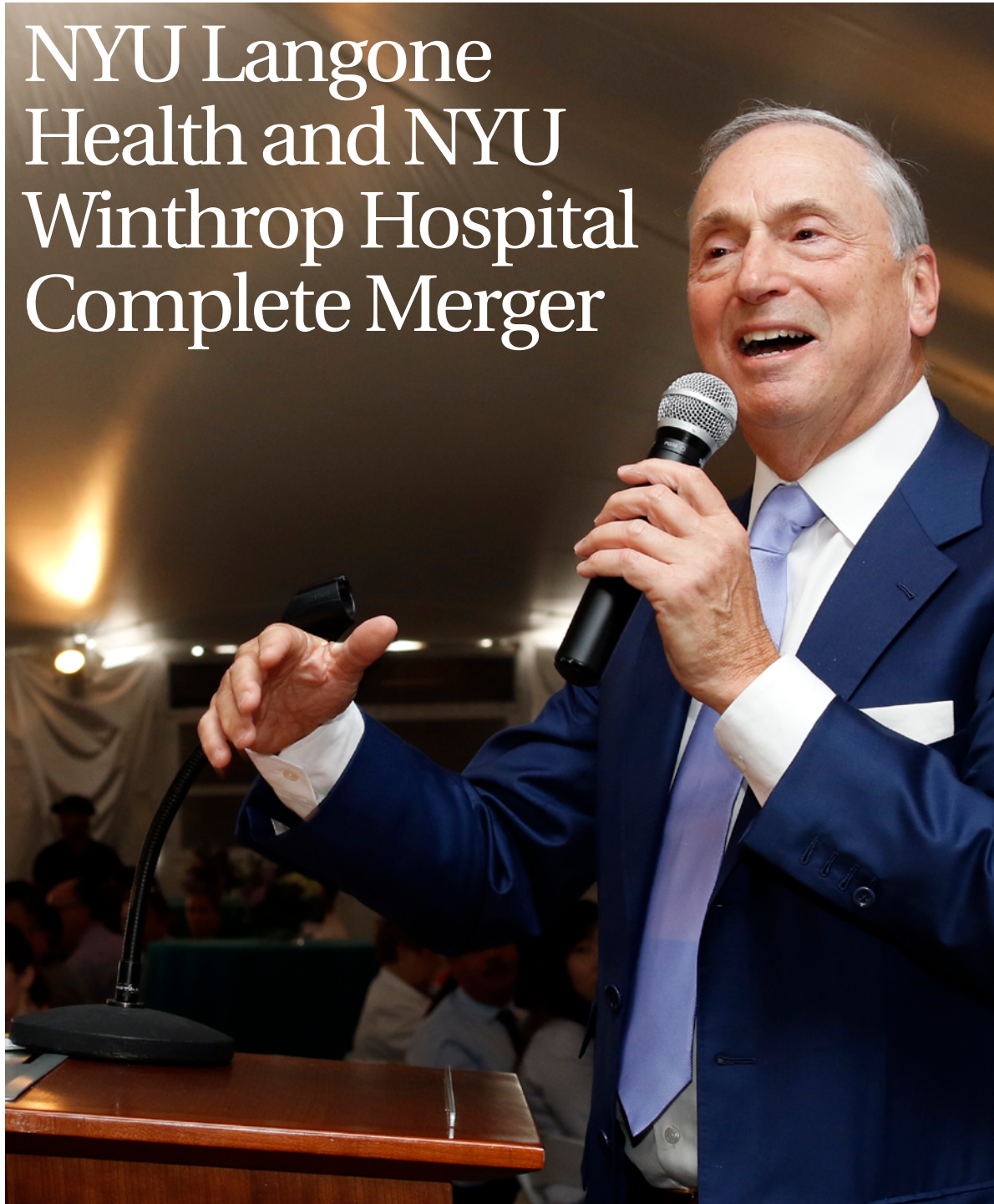
and the New York metro area, and ranked for the first time in six specialty areas. Twelve of NYU Langone's 14 nationally ranked specialties also ranked high, with orthopedics, rehabilitation, neurology and neurosurgery, rheumatology, and geriatrics all listed in the top 10 in the country.

*To view the full rankings, visit U.S. News & World Report Best Hospitals at [bit.ly/USNewsRankings2019](http://bit.ly/USNewsRankings2019)*

Photos: Ivan Balasi, Office of Science and Research, NYU Langone Health (left); Teri Bloom (right)



# NYU Langone Health and NYU Winthrop Hospital Complete Merger



**IN AUGUST**, NYU Langone Health announced the completion of its full-asset merger with NYU Winthrop Hospital in Mineola, New York, resulting in a 25 percent expansion of the health system. The partnership expands, enhances, and clinically integrates NYU Langone's healthcare

networks on Long Island while building upon those of NYU Winthrop Hospital, which provides inpatient and outpatient medical care through its network of Long Island-based healthcare facilities.

"NYU Winthrop Hospital has proven to be an exceptional partner and shares our level of commitment to

patient care," says Robert I. Grossman, MD, Dean of NYU School of Medicine and CEO of NYU Langone Health. "I now look forward to the great work we will continue to do together."

In a phased approach, the merger with NYU Winthrop Hospital added approximately 70 ambulatory sites to NYU



**“OUR INSTITUTIONS HAVE ENHANCED THE RANGE AND QUALITY OF SERVICES OFFERED TO THE RESIDENTS OF LONG ISLAND AND HAVE GROWN THE PHYSICIAN NETWORK ACROSS THE REGION.”**

**ROBERT I. GROSSMAN, MD  
DEAN AND CEO**

Langone’s healthcare network, including one inpatient hospital in Mineola, which has served Long Islanders for more than 120 years.

According to John Collins, NYU Winthrop Hospital’s president and CEO, “The merger of these two outstanding institutions will enable us to expand the

services offered to the communities we serve, enhance the level of care provided, increase patients’ access to clinical trials, and lead to the more cost-effective delivery of care across the region.”

Collins, 65, will retire later this year, after a decade of extraordinary service. Under his leadership, the

hospital’s revenue has doubled, to approximately \$1.7 billion, and the number of employees has grown from less than 6,000 to more than 9,500. Effective November 30, Joseph Greco, MD, CMO, will take over as head of the hospital, becoming the senior vice president and executive director.





# Congratulations to the 2019 Graduates

*Doctor of Medicine Degrees Awarded to 149 Students*

**NYU SCHOOL OF MEDICINE** celebrated its 178th annual graduation ceremony at Alice Tully Hall at Lincoln Center on May 22. The Class of 2019 was the first to graduate since NYU School of Medicine announced its tuition-free initiative in August 2018.

During the ceremony, Kenneth G. Langone, chair of the Board of Trustees of NYU Langone

Health, spoke about the importance of having empathy and compassion as a doctor. Thomas S. Murphy Jr., MBA, co-founder of Crestview Partners and trustee of NYU Langone Health, was recognized as the honorary alumnus. Robert I. Grossman, MD, Dean and CEO, addressed the new graduates, reflecting on the privileges and challenges that come with being a doctor.





## Washington Alumni Honor Dara Richardson-Heron '89, Res. '92

Pictured (from left to right): Anthony J. Grieco '63, BS (ARTS '60), associate dean, alumni relations; leadership honoree Dara Richardson-Heron '89, Res. '92; Tunmise Fawole '22; Ariel Ostad '91, clinical assistant professor, Ronald O. Perleman Department of Dermatology

### ABOUT THE CLASS OF 2019

**149** students

**28** Accelerated Three-Year MD Pathway graduates

**14** dual MD-MS degrees

**8** dual MD-PhD degrees

**6** dual MD-MBA degrees

**1** dual MD-MPA degree

**ALUMNI IN WASHINGTON, DC**, gathered on September 22 for brunch and to honor Dara Richardson-Heron '89, Res. '92 with the Washington, DC, Regional Alumnus/a Leadership Award. The award is presented to a distinguished graduate of NYU School of Medicine who has demonstrated achievement and service in his or her professional, social, and cultural endeavors. Dr. Richardson-Heron is chief engagement officer and scientific executive for the All of Us Research Program at the National Institutes of Health.

*Coming soon: Our next regional event will take place in Florida in February 2020. For more details and to RSVP, please contact Carolann Treacy at 212-404-4032 or [carolann.treacy@nyulangone.org](mailto:carolann.treacy@nyulangone.org).*



# White Coat Ceremonies Welcome Classes of 2023

*Orientation Culminates for 103 Students at NYU School of Medicine  
and for 24 Students at NYU Long Island School of Medicine*



**THIS AUGUST**, in the presence of hundreds of family, friends, and faculty, NYU School of Medicine welcomed the Class of 2023 into its program during its annual White Coat Ceremony. The Class of 2023 is composed of 103 students—55 percent women and 45 percent men. Eleven students entered the MD-PhD dual degree program and eight students entered the Accelerated Three-Year MD Pathway program.

The keynote speech was delivered by Mark J. Mulligan, MD, director of the Division of Infectious Diseases and Immunology and the inaugural director of the Vaccine Center at NYU Langone Health. During his remarks, Dr. Mulligan shared his experiences working on major virus outbreaks, such as Ebola and Zika, and how his medical education impacted

his career.

“Through the challenges of medical school and patient care, you will build an enduring edifice of character within yourselves,” said Dr. Mulligan. “You will form great friendships and bonds that will last a lifetime.”

Another 24 students celebrated at their White Coat Ceremony a few weeks earlier, when the newly accredited NYU Long Island School of Medicine (NYU LISOM) opened its doors to its first class. The school offers all students full-tuition scholarships with an innovative, accelerated three-year curriculum exclusively devoted to training primary care physicians.

At the end of each White Coat Ceremony, the students were brought on stage and “cloaked” in their first white coat by faculty members.



# We Hear You!

*Grapevine Survey Results Show Alumni Interest in Achievements, Innovation*

**THANKS** to the hundreds of alumni who responded to our most recent reader survey, we are better able to serve your interests as alumni.

Alumni said they are most interested in reading about alumni achievements, followed by clinical innovations and research and discoveries. Specific topics of interest are the ethics of biotechnology, cited by 20 percent; epidemiology and population health, cited by 17 percent; and infectious diseases, cited by 15 percent.

A majority of alumni—76 percent—said they feel a connection to the School, with 36% saying they feel a strong connection. You can continue the conversation by letting us know what you'd like to see in your alumni magazine by contacting us at [alumnirelations@nyulangone.org](mailto:alumnirelations@nyulangone.org).

# 76%


**OF ALUMNI FEEL A CONNECTION TO THE SCHOOL**



**“THROUGH THE CHALLENGES OF MEDICAL SCHOOL AND PATIENT CARE, YOU WILL BUILD AN ENDURING EDIFICE OF CHARACTER WITHIN YOURSELVES.”**

**MARK J. MULLIGAN, MD,  
KEYNOTE SPEAKER**



A portrait of Dr. Marc Triola, a man with short, graying hair, wearing a dark blue suit jacket, a light blue dress shirt, and a blue and white striped tie. He is smiling slightly and looking towards the camera. The background is a blurred, warm-toned interior space with diagonal lines, possibly a modern building or a library.

Dr. Marc Triola  
IIME director

# Driving the Education Revolution

Novel Technologies and  
Big Data Enhance Medical  
Practice and Education

By Deborah Schupack

**A second-year medical student** in virtual reality (VR) goggles immerses himself in wraparound high-resolution graphics that make him feel as though he is standing inside a larger-than-life healthy lung. His classmates follow what he's doing on a computer monitor. With the click of a controller, he gives the lung chronic obstructive pulmonary disease (COPD). A collective gasp rises in the room, as students can see in vivid, almost living, detail the disease's effects on the lung. "Swiss cheese," the student murmurs. "Don't smoke," another says.

"Virtual reality is used by doctors to plan surgeries at NYU Langone Health," says Marc Triola '98, Res. '02, associate dean for educational informatics and founding director of the Institute for Innovations in Medical Education (IIME). "It's used by researchers to visualize data and enables us to look inside the human body in ways that used to be physically impossible. We introduce our students to it early in their education, because it will be such a big part of their world view."

Innovations in technology and information systems have revolutionized healthcare delivery and biomedical research. But U.S. medical schools, says Dr. Triola, have typically lagged behind in using these innovations to augment the essential—and unwavering—patient learning. NYU School of Medicine is leading the way forward through the work of the IIME, which applies technology and the science of education and informatics to transform teaching, learning, evaluation, and assessment. With 28 full-time staff and more than 30 affiliate faculty, the IIME is one of the largest medical education innovation groups in the country and represents a multidisciplinary team of faculty educators, education scientists, informaticians (data experts), and multimedia developers.

In programs and initiatives across undergraduate and graduate medical education, and in close conjunction with the health system, the IIME aims to close the gap between how doctors practice medicine and how medical students and trainees learn in the classroom and clinical settings.

The institute curates and develops education technology for the School, including using augmented and virtual reality to immerse students in highly experiential learning; apps such as in-the-moment evaluation tools and clinical resources for students and educators;

and multimedia e-learning modules that supplement and enrich in-class learning. "It's never technology for technology's sake," says Crystal Mainiero, MPA, IIME's executive director. "Technology in medical education is meant to support active, integrated, personalized learning. It's always an enabler to [help students] do some really amazing things."

The institute, which grew out of the Division of Educational Informatics, also avidly collects and leverages a wide range of data and evidence to inform and improve the education experience, making use of the rich data already available across the health system. "We are a science-driven medical center. Gaining insight from data is a theme that has transformed our clinical mission and our research mission. Now we're working to make sure it's transforming our education mission," says Dr. Triola, emphasizing that data does not replace human decision making but rather positions decision making to be more successful because it is more informed.

#### **New Insights Pinpoint New Opportunities**

Using data from a wide set of sources—including the learning management system; evaluation and assessment tools; simulation checklists; student information system; and electronic medical record, EPIC—IIME built an education data warehouse that enables educators to visualize and act nimbly on education-related data. "We're leveraging all this data that we collect about our learners, about the curriculum, and about the healthcare system to inform our educational programs," says Dr. Triola. "It makes perfect sense, but it's not an approach that's used by most medical schools." The IIME recently received an award from the Association of American Medical Colleges'

"We're leveraging all this data that we collect about our learners, about the curriculum, and about the healthcare system to inform our educational programs. It's moved us away from education driven by anecdotes to education driven by an epidemiologic approach."

**Marc Triola** '98, Res. '02, IIME director



Crystal Mainiero, MPA, IIME executive director



“The healthcare delivery system is changing dramatically, and we have an obligation to change how we teach it to better prepare our students for this new world. At the same time, we must maintain the ethos, character, and integrity that make NYU [School of Medicine] such a great place to become a physician.”

**Dr. Marc Triola**

Group on Information Resources for making “significant contributions to academic medicine information technology.”

The data warehouse, combined with enterprise analytics, gives educators a deeper understanding—in real time—of what students are learning, how they are performing, what they will need in future practice, and what changes can be made today to better prepare them for that future. The same can be said for faculty members, who gain actionable insights, again in real time, into their performance and the effectiveness of their teaching and evaluating. “With the infrastructure and ability to collect, analyze, and summarize all of this data, it gives us the ability to create a continuous quality improvement approach to medical education,” says Dr. Triola. “It’s moved us away from education driven by anecdotes to education driven by an epidemiologic approach.”

The NYU School of Medicine will use such a data-driven approach—combined, importantly, with human input—to inform and improve the transition from undergraduate to graduate medical education (UME/GME). The School collects a vast array of data on its undergraduate medical students—on their strengths and weaknesses, educational goals and trajectory, assessments and competencies—but little of that information makes it across the UME/GME divide. Now, with a \$1.8 million grant from the American Medical Association’s (AMA’s) Reimagining Residency initiative, five residency programs will have access to that data right after a student matches to that program. Each student will connect with a residency coach, and, together

with the resident’s mentor from NYU School of Medicine’s undergraduate coaching/advising Violet Society Program, they will use the data at hand to create a road map ensuring curricular continuity and relevance, and, ultimately, enhancing readiness for practice.

NYU Langone is uniquely positioned to develop and benefit from the five-year project, Transition to Residency Advantage, Dr. Triola notes, because a higher-than-average percentage of the School’s graduates continue on through residency: 40 percent, compared with a national average of 24 percent.

### **Active Learning Through Technology**

Back in the classroom, the next student who wears the VR goggles becomes immersed in her selected organ, the pancreas. She first rotates a healthy 3D pancreas 360 degrees, then elects to view the pancreas with diabetes—to see the devastating effects of the chronic illness on the organ.

The class is part of an emergency medicine clerkship designed to give students firsthand experience with the specialty. Elsewhere in the conference room, fellow second-year students in VR goggles are immersed in a simulation to save a baby having a seizure. The immersive nature of the VR technology enables each student to check the baby’s vitals, clear the airway, give oxygen, and select lifesaving IV medications. The simulation increases in difficulty by medically complicating the situation and by introducing the baby’s virtual mother and a series of cascading distractions.

“The simulation allows students to put their knowledge and skills into practice and make



Patrick Cocks, MD, Res. '05

## **Big Data on Alumni Makes a Big Difference**

Using a vast array of publicly available health data sets, the IIME is examining what NYU School of Medicine teaches trainees by looking through the most revealing lens of all: its alumni.

The Tracer Project identified detailed practice data of 20,000+ UME and GME graduates, which “allowed us to understand not only what real life and real practice looks like for our graduates over the past 20 years, but also how we might change

our training programs to enhance some of the outcomes that we see in these data sets,” says Dr. Triola.

What are the most common diagnoses that alumni see in New York State hospitals, for instance, and does the curriculum adequately address them? Changes are already underway. Noting certain prescribing patterns among alumni practitioners, Patrick Cocks, MD, Res. '05, Abraham Sunshine Assistant Professor of Clinical Medicine and director of the internal medicine residency training program, revised his program’s pharmacology curriculum to ensure that residents would receive the most relevant training.





‘real-life’ decisions without compromising a real patient’s safety,” says Carol DerSarkissian, MD, Res. ’02, clinical assistant professor in the Ronald O. Perelman Department of Emergency Medicine. She developed the VR segment of the class with Gregory Dorsainville, MPS, IIME’s senior multimedia developer, after she took the Virtual Reality in Medical Education certification course he teaches for faculty.

“This is active, experiential learning, as opposed to passive learning, and students will remember more because they are learning from experience,” says Dr. DerSarkissian. “That gives them a more solid memory and a deeper understanding of that clinical situation and of that disease state.”

Novel technologies are driving profound advances in surgeries, research, and imaging. The School of Medicine is infusing technology into the curriculum both to ensure that students have a fluency with the tools of their future and to capitalize on what these technologies enable students to learn and do. This kind of enriched



learning brings medical students deep inside a human body to experience systems, organs, and structures, as well as various states of disease and wellness, up close and remarkably intact.

“The overall concept is that it’s difficult to

Top: Virtual and Augmented Reality course offered through the IIME. (inset): Image taken from Sketchfab, 3D/VR anatomy tool

Bottom: Carol DerSarkissian, MD, Res. ’02, and Gregory Dorsainville, MPS



“As we move toward competency-based medical education, these innovations can help sustain a major culture shift.”

**Ruth M. Crowe** '86,  
PhD (GSAS '86)



Kira Melamud '10

visualize in one's mind what these structures actually look like, where they're positioned, and what they're doing. Immersive 3D tech does that," notes Dorsainville, who is the developer behind many of the learning experiences that integrate existing and emerging technologies at NYU School of Medicine.

He narrates the immersive learning that is possible in a VR session: "Look at the heart. You

can see different layers, the circulation, and the process of beating. You can see the nerves firing across all the muscles, which you can't do with a cadaver. You can play with the values to manipulate how fast the heart is beating. There, that's what it looks and sounds like at 75 beats per minute. Now speed it up, or slow it down."

Starting this fall, students will be using virtual and augmented reality, 3D cinematic renderings of CT and MRI scans, and a new collection of plastinations, which are human cadavers preserved with plastic resins. In its leadership role as an innovator in medical education, the School continues to seek out the optimal way to combine technology and patient-based learning to best prepare the next generation of physicians and scientists.

"Conventional 2D clinical imaging—such as CT, MRI, and radiography—will be infused into the anatomy curriculum, so the students learn living human anatomy in the way they will be seeing it in the future," explains Kira Melamud '10, assistant professor of radiology. "Strategic use of advanced 3D rendering techniques will further enhance the students' understanding of critical spatial relationships."

New technologies that are being developed and used across the School and health system—including the point-of-care



# How Technology Can Spur Clinical Reasoning

The electronic health record communicates the diagnosis and treatment plan for each patient, but often, says Verity Schaye '08, Res. '11, MHPE, assistant director of curricular innovation for IIME, the note lacks a record of the robust clinical reasoning behind the diagnosis. "For a patient coming in with pneumonia, the note will often have a brief summary statement, the diagnosis, and a treatment plan—"give antibiotics,"" says Dr. Schaye, who is also assistant professor of medicine and medical director of inpatient medicine units at Bellevue. "But there's no supporting evidence about why this is pneumonia and not heart failure

or COPD exacerbation. It would be helpful to see, 'Pneumonia because the patient had a certain white count, fever, and infiltrate on their chest X-ray.'"

She is co-leading a new pilot project that aims to surface more clinical reasoning in the notes that first-year residents take. A machine learning algorithm will assess the trainees' notes for clinical reasoning, and a supervisor will interpret the results and give the trainee immediate and actionable feedback. "The ultimate goal here is documenting your thought process to have better diagnostic accuracy," she says.

Developed with Marina Marin, IIME's director of data analytics, the pilot, called Notesense, is expected to launch this year for internal medicine residents, then roll out across other clinical areas.



Verity Schaye '08, Res. '11

ultrasound—are only as good as the problems they solve and the benefits they deliver to people. "Technology is the enabler, not the driver, of the human changes that we want to realize in our education and clinical systems," says Dr. Triola. "We're not casting around for something to do with iPhones because we have them. Rather, because we know we have to have certain conversations at the bedside, we might investigate how an iPhone could help."

## Collaborate to Innovate

Ruth M. Crowe '86, PhD (GSAS '86), associate professor of medicine and director of integrated clinical skills, has collaborated with IIME to develop apps that provide standardized, real-time feedback for OSCEs (Objective Structured Clinical Examinations) as well as for workplace-based assessments, such as oral presentations and patient handovers. "Technologic innovations such as the I-PASS app enable standardized assessments that can be measured and followed longitudinally," says Dr. Crowe. "We're gamifying around it: We can motivate learners to collect authentic clinical performance assessments in their electronic portfolio data with the realization that it can enhance their grades. This benefit drives behavior change in the form of practice and feedback, and leads

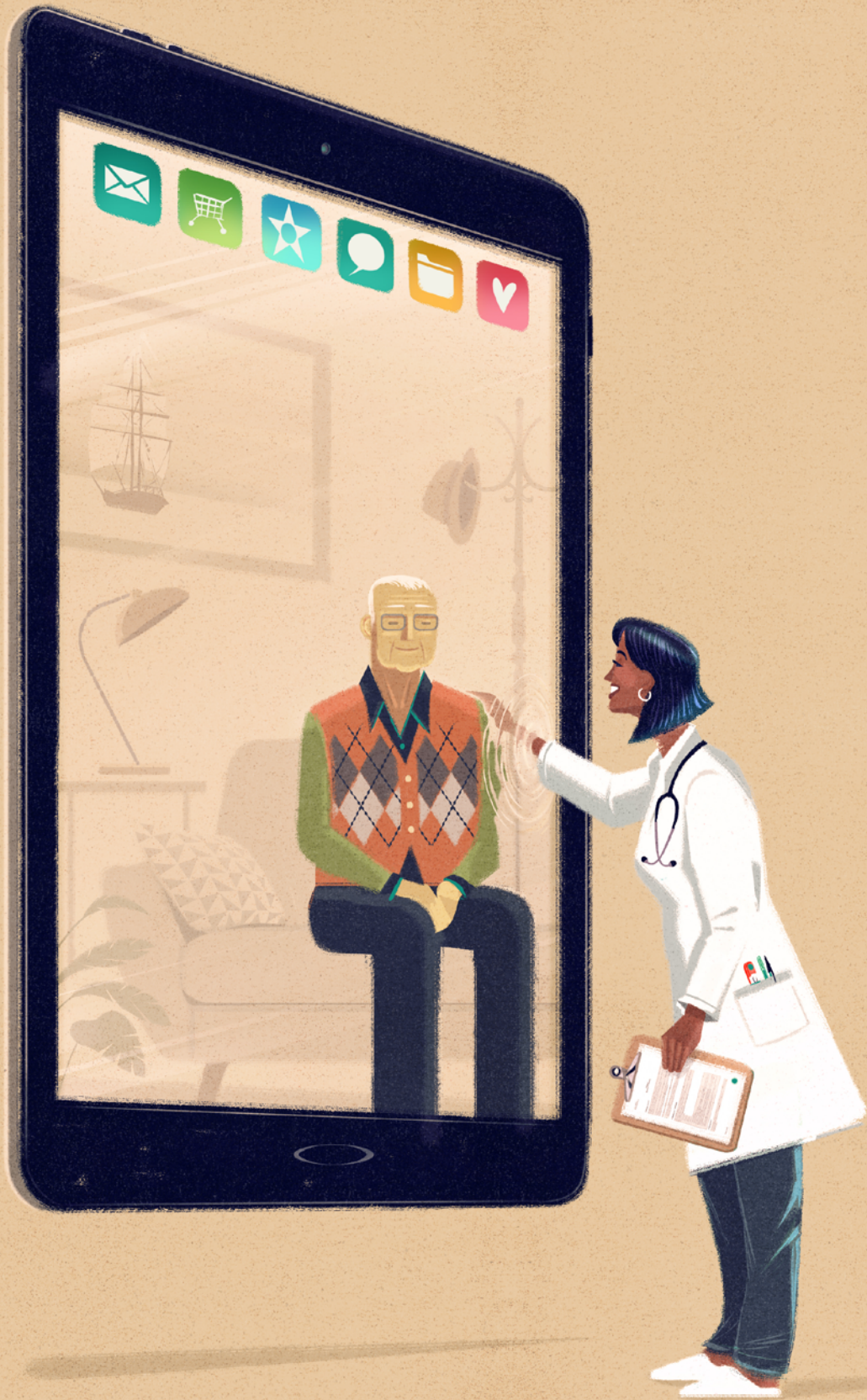
to better patient outcomes."

She emphasizes the importance of collaboration with clinical teaching faculty, ensuring that the assessment tasks and technology support their teaching goals, enhance communication with learners, and do not require undue time or attention from learners or instructors. "The major lift is not in creating the tool itself," she says. "The hard part lies in getting buy-in for using the tool."

IIME developed the NYU School of Medicine's Educator Community (see profile on Michael Poles '92, Res. '96, PhD, p. 24) to inspire and support faculty development in education innovations, including how to use data, novel technology, and e-learning modules to meet teaching and learning demands. In addition to holding regular workshops and providing resources to help faculty members remain current on the latest tools and techniques, the Educator Community holds an annual Medical Education Innovations and Scholarship Day to honor faculty who embrace technology and take it to the next level.

Dr. Crowe's goal is to support instructors and learners through change. "As we move toward competency-based medical education, these innovations can help sustain a major culture shift," she says.







# Teaching Digital Health

How NYU School of Medicine  
Preps Practitioners and  
Students for Medicine's Tech  
Evolution BY SARAH M. JACKSON

"You get an adrenaline rush racing against the clock," says Alicia Cowley '15, Res.'18, MBA '15 (STERN), about how she spent a weekend last May.

Dr. Cowley didn't run a marathon or take a timed exam, however. The hospitalist participated in New York City's first-ever Digital Health Datathon, hosted by NYU Langone Health.

The intense 48-hour competition started by defining and building the new interdisciplinary team for the digital era: clinicians and data scientists working side by side. Colleagues from NYU Langone, Massachusetts Institute of Technology (MIT), and Google worked in groups.

Once the teams were established, providers posed clinical questions that the data scientists turned into computer queries on a large electronic health record (EHR) dataset. Dr. Cowley's



Dr. Sarah MacArthur speaking at the 2019 Health Tech Symposium

## REVERSE MENTORSHIP

While in Boston pursuing his master's degree at the Harvard T.H. Chan School of Public Health, Christopher Cosgriff '19, MPH '19, also conducted research under the mentorship of Leo Anthony Celi, MD, MSc, MPH, clinical research director for the Laboratory of Computational Physiology at MIT, and an originator of the Datathon concept. Dr. Celi often invited Dr. Cosgriff to help facilitate Datathons all over the world.

When Dr. Cosgriff returned to complete his studies at NYU

School of Medicine, he suggested that the institution run its own Datathon. Marc Triola '98, Res. '02, associate dean for Educational Informatics and director of the IIME, met the idea with enthusiasm. The wheels were put into motion under the leadership of Sarah MacArthur, MD, Res. '11, '15, director of digital health innovation, and NYU Langone's inaugural Datathon took place in May 2019.

Dr. Cosgriff attributes this positive chain of events to NYU Langone's open-minded culture

of reverse mentorship, in which senior faculty members open themselves up to learn from students and trainees.

"Reverse mentorship works when there is a healthy, functioning exchange among faculty and trainees," he says. "The core faculty at the School know way more about medicine than I do, but I'm free to share with them my background in statistics and programming. Through this practice of learning and exposing colleagues to different skills, new ideas truly flourish at NYU Langone."





why we do something the way we do it, by analyzing massive amounts of patient data,” she says.

## Diffusing Innovation

According to Sarah MacArthur, MD, Res. '11, '15, director of digital health innovation for Medical Center Information Technology (MCIT) and the Center for Healthcare Innovation and Delivery Science (CHIDS) at NYU Langone, the benefits Dr. Cowley reaped from the Datathon are exactly what NYU Langone aims for when exposing medical professionals and students to data science and digital health.

“Physicians increasingly receive diagnosis and management suggestions from automatically triggered clinical decision support tools,” says Dr. MacArthur. “While these suggestions are often enormously helpful, it’s essential to understand how these tools are built to fully appreciate their promise and pitfalls. In medical school and residency, we’re taught how to tear apart a *New England Journal of Medicine* article, look at its methodology, and understand where it might be flawed—but we haven’t yet been taught how to analyze the new knowledge created by data scientists’ analyses of EHRs.”

Enter events like Datathon and, immediately following that event, the NYU Langone Health Tech Symposium supported by MCIT and CHIDS. The symposium provided a survey course on artificial intelligence and machine learning in healthcare to more than 500 NYU Langone Health clinicians and medical professionals.

“At NYU Langone, we’re enormously fortunate to have an abundance of national experts in healthcare delivery design, predictive analytics, and clinical informatics—most dual trained,” Dr. MacArthur notes. “How do we diffuse their knowledge and skills throughout our entire institution? We’re empowering the average physician to partner with data scientists to generate new knowledge and think about it critically.”

## Understanding Virtual Health

The School’s commitment to teaching innovation can also be found in a two-week elective at NYU School of Medicine that exposes medical students to the burgeoning field of

team asked: Do higher daily diuresis (urination) goals decrease ICU patients’ length of stay for heart failure exacerbation?

“Our team broke down what the question meant and the variables that led to the diuresis goal,” Dr. Cowley explains. “Then, we came up with assumptions and criteria. The pharmacists chose patients from the dataset based on medications, and the hospitalist physicians utilized admitting diagnoses. Data scientists then wrote queries to input the values we wanted and used statistics to better determine which patients were more ill or less ill.”

According to Dr. Cowley, the Datathon was a unique opportunity to develop knowledge and skills at the growing interface between technology and medicine.

“I got a 10,000-foot view and started asking

Seeing a patient via telemedicine is a much different skill set from seeing a patient in person.

virtual health and empowers them to educate NYU Langone's leadership about new ideas for potential implementation.

As one of the nation's first electives in virtual health, Telehealth—Technology Transforming Healthcare Delivery introduces undergraduate and graduate medical students to NYU Langone's current virtual health practices, including video urgent care visits and online follow-up patient appointments for the Medical Weight Management Program.

But Dr. MacArthur, who created the course, notes that its core purpose is not merely to observe; ultimately, it's to help drive a technology-enabled redesign of healthcare delivery.

"We give the learners several questions that come straight from administrative leaders, or they may choose their own question—and they present their findings and recommendations directly to hospital leaders," she says.

One such leader, Viraj Lakdawala, MD, clinical associate professor in the Ronald O. Perelman Department of Emergency Medicine, medical director of Virtual Urgent Care, and system chief for Emergency Medicine Telehealth at NYU Langone, recalls how his team harnessed information that virtual health elective students shared.

"One of the presentations we acted upon was about determining provider competency when it comes to telemedicine visits," he explains. "Seeing a patient via telemedicine is a much different skill set from seeing a patient in person. We are working with our colleagues in internal medicine who have expertise in using simulations with standardized patients [actors] to develop a program to measure and determine competency in certain core telemedicine skills."

In this way, the virtual health elective ends up benefiting both the student and the institution.

"The students' efforts get embedded because they've worked on something that the institution would like to understand more deeply," Dr. MacArthur says. "This is all about novel delivery design. We are driving forward and we want to create new models to generate knowledge."

## Advancing the Three-Pronged Mission

Although embedding innovation across NYU Langone may sound daunting, Dr. MacArthur frames it clearly through the lens of the institution's mission.

"When I give talks at digital health conferences, I note that our core tripartite mission is still to serve, teach, and discover—but we seek to reimagine it for the digital era," she explains. "The NYU Langone virtual health program advances how we serve our patients, bringing healthcare to them where they are. The ways we're trying to reimagine education—through programs like the Datathon, the Health Tech Symposium, and the virtual health elective—impact teaching as well as discovery, since learners create new knowledge that benefits all of us in our work."

To make sure that NYU Langone remains at the forefront of advancing technology across all three prongs of its mission, the institution and MCIT support multiple collaborative endeavors that foster a robust digital health ecosystem:

- The Institute for Innovations in Medical Education (IIME) is one of the country's largest medical education innovation groups. It applies the science of education and informatics to transform teaching, learning, evaluation, and assessment at every level of NYU Langone.
- CHIDS aims to improve patient outcomes by fostering the development of effective, efficient, and patient-centered learning healthcare systems at NYU Langone and nationally.
- The Digital Design Lab partners with researchers and clinicians to develop digital health innovations, supporting them from early ideation through product creation.
- NYU Health Tech Connect tracks potentially disruptive trends, technologies, and companies, channeling their assets to drive institutional objectives.

While helping various constituents find their place in digital health, Dr. MacArthur also feels strongly that NYU Langone must continue to seek out the best ideas from wherever they originate.

"We're on the brink of the next golden era of medicine," she says. "As an institution, we've worked very hard to build a robust technologic backbone by deploying Epic. While we lead in the nation, complacency is anathema to the NYU Langone spirit, and we have only just begun to unlock the promise that EHRs hold to generate new knowledge, care for patients, and educate. To that end, it's critical to remain open and awake to what others can teach us, including medical students and the next generation of leaders."



*“I am able to maintain my humanity because I’m not under financially crippling loans. I will be a better doctor because I will be a better person.”*

# Embolden the next generation of physician leaders

Photo by Sasha Niala

After losing her father to cancer and traveling on her own through Asia, Gwen Cody, class of 2020, discovered how she wanted to change the world: as a doctor focused on whole-patient health.

Thanks to a full-tuition scholarship, she can fully embrace her commitment to her goal.

Your support of tuition-free scholarships at NYU School of Medicine helps Gwen and others like her achieve their dreams.

For more information, contact Diana Robertson at 212-404-3510 or [Diana.Robertson@nyulangone.org](mailto:Diana.Robertson@nyulangone.org)

To see more of Gwen’s story, visit [bit.ly/GwenCody](https://bit.ly/GwenCody)



# TEACHING THE TEACHERS

## HOW NYU SCHOOL OF MEDICINE IS REIMAGINING TEACHING AND LEARNING

**A**s co-director of NYU School of Medicine's Educator Community within the Institute for Innovations in Medical Education (IIME), Michael Poles '92, Res. '96, PhD, is uniquely positioned to support his fellow faculty and inspire them to embrace, and even help dream up, technology that enhances teaching and learning. He has been actively involved in curriculum reform and understands that the NYU School of Medicine's curriculum and education methods must respond to and help shape changing times. Dr. Poles is also assistant dean for medical education in the preclinical sciences; associate professor of medicine and of pathology, specializing in gastroenterology; and a popular teacher. He has received medical school awards for both basic science and clinical teaching, including VA Teacher of the Year in 2010 and Gastroenterology Teacher of the Year five times. *Grapevine's* Deborah Schupack recently met with him to learn more about how faculty are harnessing technology to innovate in education.





**Q** When the newly formed IIME put out a call for faculty partners, you were one of the first to reply.

What was your interest?

**A** We deliver the vast majority of our education in the classroom, yet there was a yearning to be able to deliver more content in novel and better ways. With the immensity of medical information to teach students, it is increasingly difficult to impart to them all of the facts that they need to know as physicians. In addition, medical knowledge evolves, which makes it more important to teach them to be flexible thinkers, able to adapt to the mercurial nature of science. I became particularly interested in finding an asynchronous way of delivering key information that could supplement classroom teaching, and I turned to IIME and its

traditional, didactic method of teaching. They sat in a classroom, people spoke to them about a medical topic, they took notes, and they studied from those notes. Now, we are asking faculty to consider other ways of delivering that content, potentially involving the use of home-grown or outside resources. We are not looking to replace faculty—that’s very important to understand. Our faculty are experts in their field and can deliver content better than any outside resource. Obviously, the primary way our students will continue to learn is from our faculty. But we can also help them by delivering top-quality resources outside the classroom, so the students enter the room with a deeper level of understanding—and we can take our education to the next level.

**Q** Are the faculty experiencing a culture shift?

**A** The best teachers are typically the best learners, who understand that their own education should be a continuous process. As committed lifelong learners, they are well positioned to promote that drive within our students. The best teachers also want to help others improve their teaching ability. We developed the NYU School of Medicine Educator Community to bring these inspirational faculty together to work collaboratively, push us to imagine new ways forward in education, and promote best practices. You learn about what’s being developed by others within the community to improve education and you think, “Wow, that’s amazing. I can definitely use that to teach my students or trainees.”

Our faculty have all these ambitious ideas for teaching and learning that they want to bring to life. If they tap into the Educator Community, we can help them bring an amazing idea to fruition.

**“THE BEST TEACHERS ARE TYPICALLY THE BEST LEARNERS, WHO UNDERSTAND THAT THEIR OWN EDUCATION SHOULD BE A CONTINUOUS PROCESS. AS COMMITTED LIFELONG LEARNERS, THEY ARE WELL POSITIONED TO PROMOTE THAT DRIVE WITHIN OUR STUDENTS.”**

precursor, the Division of Educational Informatics, to find or develop e-learning modules for this purpose.

We could facilitate more active learning by “flipping the classroom”—having students access foundational content at home, then engage in group discussions at a higher level in class with an instructor. This change in format promotes a deeper understanding.

We believe it is important to get faculty comfortable and engaged in the process of pedagogical and curricular innovation. Most of our faculty themselves have experienced the

**Q** How are the IIME and the Educator Community using evidence-based innovations to continually improve teaching and learning?

**A** We believe that providing individualized performance data is the key to enhancing learner performance in both undergraduate and graduate medical education [GME], in the same way that it is being used to improve the performance of practicing physicians. In GME, we are now increasing our focus on collation of clinical practice data and delivery of that data back to the trainee to



identify, in real time, where gaps in knowledge or practice exist, so that we may react more rapidly in performance improvement. The same way that there's a continuous quality improvement, or CQI, process for everything else in the institution, there's a CQI process for students, young doctors, and even faculty educators to help them constantly improve.

I will provide an example from my specialty, gastroenterology. When we perform colorectal cancer screening using colonoscopy, it is vital that we identify and remove adenomatous colon polyps that have the potential to develop into a cancer. The data suggests that endoscopists should identify these polyps in approximately 25 to 35 percent of all screening exams. In this new world, we keep track of every fellow's adenomatous polyp detection rate—meaning, in what percentage of patients does the fellow identify an adenomatous polyp that can potentially develop into a cancer? We've collected this data for 10 years now, so every fellow knows how many polyps they're identifying—essentially, how many cancers they're preventing—compared with the last 10 years' worth of fellows. In real time, they can explore this, and other performance data, against expectations and against anonymized data from their peers. If they're far lower than the norm, we can intervene immediately and identify specific steps to improve their performance and make sure they are meeting benchmarks.

Just as we are using just-in-time feedback for students and trainees to improve their performance, we've started just-in-time evaluation of lecturers in undergraduate medical education. Before this new initiative, faculty wouldn't get performance feedback until months after their teaching was provided, when it might no longer be relevant. Now we can deliver that performance data in real time. We can provide lecturers feedback before their next lecture in a module, so they can already be thinking about how they can deliver content better and therefore do a better job at teaching the physicians of tomorrow.

**Q** What are you hearing from faculty about the feedback?

**A** We hear that for many, this is the first time they've gotten specific, actionable feedback, and they are incredibly happy about it. Some are a little daunted by the process, since they are not used to being evaluated immediately after they have completed a task. Still, the best teachers are always seeking to improve, and, just as we use feedback to improve our students' and trainees' performance, we have to be open to feedback

as teachers—because we should all be involved in practice-based learning and improvement.

**Q** Your son, Jordan, is a medical student here on the Accelerated Three-Year MD Pathway in internal medicine. How do innovation and technology play a role in his medical school experience?

**A** Like most of his classmates, he has been steeped in technology for his entire life. Anything that we can envision, this generation of students can bring to life using technology. For example, during his preclinical medical education, Jordan felt that he and his classmates could use more opportunities to reason through difficult clinical cases and grow their clinical reasoning skills. So he developed an app that gives learners access to a communal library of clinical scenarios to help them advance their abilities in a low-stakes learning environment. He's now working on a second app to help learners better understand arterial blood gas analysis and gain more confidence in their interpretation.

Today's students are full of amazing ideas, and more importantly, they know how to harness technology to deliver those ideas. We get the best medical students in the world, and we must continue to advance how we educate them.

**Q** You've been at NYU Langone for your whole career, except for a five-year stint at UCLA to obtain your PhD. What keeps you here?

**A** It's the NYU Langone vortex. You can only stay away for so long before you get drawn back. When I walked back into Bellevue after five years in LA, all the love that I had for this institution came flooding back. It's not just a place where you come to work and care for patients. It really is home, where everyone feels like family.

Taking care of patients in the modern medical environment can be difficult. But it's that much easier and more rewarding when you know you can count on everyone around you to be committed to excellence and committed to creating a comfortable, supportive environment that allows you to do your best work. That is what epitomizes this place, and I couldn't imagine being anywhere else.



# Quiet on the Set!

Simulations Break New Ground  
in Teaching Patient Care

BY Sarah M. Jackson

The doctor walks into the exam room with a warm greeting and sits down across from the patient, who looks agitated. The patient takes a deep breath.

“My right foot is kind of swollen and it really hurts,” she sighs.

The doctor asks several follow-up questions that ultimately reveal the patient’s smoking habit, her recent hiking trip, and distress over her father’s untimely passing from a heart attack—each a possible clue related to the swelling. With several more probing questions, the intake is complete.

The patient and doctor exit the exam room, which is actually one of several studios equipped with a one-way mirror, boom microphone, and video and audio recording equipment.

And it’s a wrap.

The “doctor” is a medical student and the “patient” is a professional New York City actor.

What just transpired is a simulated training in the New York Simulation Center for the Health Sciences (NYSIM), located at Bellevue Hospital. NYSIM is a partnership between NYU School of Medicine and the City University of New York (CUNY). The actor will reprise her patient-with-foot-pain role up to 12 times today, each time with a different future doctor.

The actor is among 150 professional performers trained as standardized patients by NYSIM, one of the nation’s largest and most





Dr. Zabar in the control room at the SIM center, where she can monitor activity in the patient rooms





# QUIET ON THE SET

## The Learners Can Hear You Talking

sophisticated urban health science simulation teaching centers.

### A TRUE EDUCATIONAL HUB

Spanning 25,000 square feet, NYSIM has conducted more than 100,000 learner visits and 8,000-plus simulation courses for NYU Langone and CUNY since its 2011 opening. The center works with medical students, interns, residents, doctors, and diverse health professionals using standardized patient scenarios, mannequins, and other training methods.

“Our training programs with standardized patients begin on a medical student’s first day and progress throughout internships, residencies, and continuing education,” says Sondra Zabar ’91, Res. ’94, director of the Standardized Patient Program and the Division of General Internal Medicine and Clinical Innovation, and a national leader in performance-based assessments using actors. “The consistent approach and language we’ve developed across undergraduate, graduate, and continuing medical education means we can look longitudinally over someone’s career here at NYU, from med student to resident to faculty.”

This careful coordination across learning stages is unique among academic medical centers, Dr. Zabar notes, because most institutions develop simulation programs for doctors and trainees that operate independently from one another.

“NYSIM is a true educational hub of our

academic center,” Dr. Zabar says. “Because of that, we’ve been very successful with scholarship and in setting national standards for simulated training.”

### ON THE CASE

*Your name is Delores. You’re 66 years old. You hurt your right knee while walking down the subway stairs two weeks ago and have been in pain since. You’ve come to the walk-in clinic for help.*

So begin the actor’s instructions for the NYU School of Medicine knee pain Objective Structured Clinical Exam case—one of more than 500 training cases prepared by medical education and clinical experts from NYU Langone and CUNY.

The knee pain case goes on to offer the actor playing Delores a wealth of background information about her character, from job status and current living arrangements to exactly how the knee pain feels.

On the flip side, the case gives practicing med students and residents minimal details about the patient and outlines the tasks he or she must perform, such as evaluating the patient’s problem and developing a treatment plan.

“A lot of the case details we give actors won’t come out in the 10-minute simulation, but actors want to know the entire story and background,” Dr. Zabar explains. “We also structure the beginning, middle, and end of





## TAILOR-MADE SCENARIOS

NYSIM harnesses the power of standardized patients (professional actors) in unique ways, bringing the benefits of simulated training to diverse health professionals. For example:

- Visiting nurses practice **how to find a patient and check their blood pressure if the patient's apartment experiences a blackout.**
- Residents learn to **provide more sensitive care to transgender patients.**
- Patients become empowered to **better advocate for themselves** during doctor visits.
- Trainees **jump into immersive simulations**, such as First Night on Call for new interns to practice patient safety, and Night on Call for near graduates to prepare for their transition into residency.
- Hospitalists and outpatient physicians new to NYU Langone **refine their communication skills.**

the appointment. What are the two things we want the actors to do in every case? That's what makes it standardized."

The standardized patients also learn a detailed checklist so that they can evaluate each doctor-in-training across a variety of categories, from the physical exam to relationship development.

### THE PATIENT WILL SCORE YOU NOW

Secret shopping: It's been done in the business world for years and is starting to pick up steam in healthcare.

The NYU Primary Care and Internal Medicine Residency program, in partnership with Bellevue Hospital and Gouverneur Healthcare Services, is among the first to launch the medical version of secret shopping: unannounced standardized patient visits. Over the past decade, Dr. Zabar and her team have conducted 1,000 appointments like these with more than 350 residents in the outpatient setting.

"We wanted to find out how the residents' communication skills we assess in simulation compare with their performance in the real-life clinical environment," Dr. Zabar says. "We found some good news: For 75 percent of residents, if you were a high performer in the SIM Center, you're a high performer in the clinic."

Interestingly, a small percentage of residents achieved strong patient communication in the SIM Center but were less successful in the

clinical setting.

"The standardized patients' comments seem to be showing that residents scored lower in the real-life scenario when they struggled with interruptions, executive functioning, and dealing with the computer," Dr. Zabar says. "If we can identify those people earlier, we can give them skills to be more successful. We need to help them transfer those skills into the clinical setting."

As a next step, additional unannounced standardized patient projects are now looking at how clinicians and their teams respond to social determinants of health, as well as how effectively the team members abide by patient safety regulations.

### INFINITE POSSIBILITIES

According to Dr. Zabar, learning activities like unannounced standardized patient visits and simulated patient cases only scratch the surface of what's possible through using simulation.

"You're really only limited by your creativity," she says. "If you can identify what you want to teach, you can create a case or other scenario. What's so great about performance-based assessment with actors is that it's effective for lifelong learning. Whether you're a medical student, resident, faculty member, or nurse, there's nothing like having to do something and get feedback on it to get better at it—no matter what level you're at."

# Heard

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## '70s

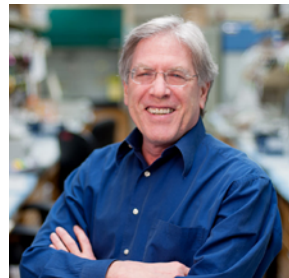


**MARK H. PODWAL '70, RES. '74**, a longtime supporter of the Jewish Museum in Prague, received the prestigious Gratias Agit Award from the Ministry of Foreign Affairs of the Czech Republic for his drawings, paintings, and films on Czech Jewish tradition, culture, and history. The Gratias Agit has been awarded since 1997 in appreciation of prominent personalities and organizations developing activities in nongovernmental fields that promote the Czech Republic in the world.

**ROBERT A. PRESS '71, PHD (GSAS '73)**, has been named executive vice president for medical affairs at Maimonides



Medical Center. He will also continue his outpatient practice in infectious diseases and immunology at NYU Langone Health.



**CHARLES J. SHERR '72, PHD (GSAS '72)**, chair of the Tumor Cell Biology Department at St. Jude Children's Research Hospital, received this year's C. Chester Stock Award Lectureship from Memorial Sloan Kettering. Dr. Sherr was selected for his seminal work on the molecular basis of cancer and the direct relationship of that work to present cancer therapies, including

CDK and CSF1R inhibitors. Dr. Sherr is also a past recipient of NYU School of Medicine's Alumni Achievement Award in basic science.



**STEVEN R. GOLDSTEIN '75, RES. '80**, professor of obstetrics and gynecology at NYU School of Medicine, has been named president-elect of the International Menopause Society (IMS) and will be speaking at the World Congress on Menopause in Melbourne, Australia, in spring 2020 on ultrasound and the menopausal endometrium. (The IMS, founded in 1978, aims to promote education, study, and research on all aspects of adult women's health.) In addition, Dr. Goldstein received the Joseph H. Holmes Clinical Pioneer Award from the American Institute of Ultrasound in Medicine in April 2019.





**ANNE KLIBANSKI '75**, chief of the neuroendocrine unit at Massachusetts General Hospital, has been named president and chief executive officer of Partners Health-Care, where she previously served as chief academic officer beginning in 2012. Dr. Klibanski is a past recipient of the Alumni Achievement Award in clinical science from NYU School of Medicine.



**NEIL S. PROSE '75**, director of pediatric dermatology at Duke University Medical Center, research professor at the Duke Global Health Institute, and co-director of Duke's Health Humanities Lab, was selected by his students to deliver a TED talk titled "Empathy, Curiosity, and the Human Connection." Dr. Prose has also been involved in a number of projects related to provider-patient communication in low- and middle-income countries. He collaborated in the creation of communication skills courses for medical students in Botswana, South Africa, and Ethiopia, and, with the Institute for Healthcare Improvement, on a national curriculum in respectful care for midwives and health extension workers in Ethiopia.

## PIONEERING ARTIFICIAL INTELLIGENCE EDUCATION

*The rapidly evolving AI field requires lifelong learning—not just for medical trainees, but also for faculty and staff. In this excerpted interview, Yvonne Lui, MD, Res. '04, Fel. '06, associate chair of AI in NYU Langone's Department of Radiology, explains how she and her colleagues approach AI learning.*

### GENERALLY SPEAKING, HOW DOES THE DEPARTMENT OF RADIOLOGY INTEGRATE AI INTO ITS DAILY WORK?

We've been developing an AI program for the past two years. Our chair, Michael Recht, MD, is a visionary who wants our department and our institution to lead in AI. Developing an AI program means pursuing research, recruiting personnel, fostering collaborations, securing the necessary infrastructure to conduct this work, and providing education.

### WHY IS THE DEPARTMENT FOCUSING ON AI FROM AN EDUCATIONAL PERSPECTIVE?

There's a lot of work to do educationally—not just for trainees but for all of us, because AI is relatively new to medicine and it's constantly evolving. We want to equip radiology faculty, staff, and trainees with the necessary tools and knowledge to stay at the cutting edge.

### CAN YOU TELL US ABOUT SOME OF THE LEARNING OPPORTUNITIES OFFERED?

Algorithm development is what people end up talking about with AI; however, for successful implementation, there's a lot of supportive work that surrounds the science: data curation, data storage, deployment into a clinical workflow, and integration with existing systems. To be translationally relevant, we need to consider this entire pipeline.

Our department educates our faculty, technologists, and trainees about what's happening across Radiology's AI pipeline through rapid-fire

*(continued on following page)*



## PROFILE

sessions. We also spearheaded and co-sponsored a first-ever conference of its kind on the ethical and legal implications of AI in medical imaging. We called it the BOLD AIR Summit (BiOethics, the Law, and Data-Sharing: AI in Radiology). There were nearly 250 registrants from all over the world.



And our research lecture series offers AI research seminars, and we've just organized a five-day training seminar for residents to equip them with the necessary vocabulary to understand and engage in AI in medical imaging. There's also a deeper, more technical course for PhD candidates on medical imaging and machine learning.

### **IS THERE A KEY PRINCIPLE THAT YOU FEEL ALL AI LEARNING SHOULD IMPART?**

In addition to the actual science of machine learning, people need to keep the ethical use of data and regulatory aspects at the forefront of their minds. It's critically important and an area that is also evolving along with the field. Data scientists working in medical imaging, AI radiologists, and basic scientists alike should be part of this conversation, rather than letting regulatory agencies decide various issues for us over the next five to 10 years.

### **WHAT WOULD YOU TELL YOUR PEERS ABOUT THE IMPORTANCE OF AI EDUCATION?**

This is lifelong learning in practice. I want people's participation, whether they're trainees or faculty. This is the future of your field. Our department is trying to create these opportunities and we're learning alongside each other. I don't have the answer key. It's challenging, and it's a lot of fun.

## '80s

**ROBERT S. HOFFMAN '84, RES. '87**, professor of medicine and emergency medicine and director of the Division of Medical Toxicology at the NYU School of Medicine, is co-leading a new online training program titled "Clinical Toxicology: Fundamentals for Front-Line Practitioners," in partnership with the Montreal Medical Toxicology Initiative and the McGill School of Continuing Studies. The program aims to provide emergency physicians and other healthcare professionals with the required knowledge and skills to master the management of the three most important poisons: salicylates, acetaminophen, and toxic alcohols.

## '90s



In April, **SONDRA R. ZABAR '91, RES. '94**, professor of medicine and director of the Division of General Internal Medicine and Clinical Innovation at NYU School of Medicine, received the 2018–19 NYU Distinguished Teaching Award, a University-wide honor given to just six professors. In announcing the award to the NYU Langone Health community, Dean Robert I. Grossman noted that "her innovative approach to training physicians as both clinicians and teaching faculty has raised the bar in how doctors are educated here at our School of Medicine and on a national



level, making her richly deserving of this honor.” Dr. Zabar helped create a series of highly innovative performance-based assessment programs, including the “Night on Call” simulation assessment series for first-year residents and fourth-year medical students, the GME core Objective Structured Clinical Exams, and the highly competitive internal PrMEIR Innovation Grants Program, which supports faculty in conducting mentored research in medical education. *For more about Dr. Zabar’s work, see page 28.*



**SOMA J. MANDAL '97, RES. '00, BA (WSUC '93)**, an internist in New Jersey, has a new TV series on ITV Gold called *Desis and Health with Dr. Soma Mandal*, addressing health issues prevalent in the South Asian community. *Desis* refers to anyone of Indian heritage.

## '00s



**JEREMY E. MOSS '01, RES. '02, PHD (GSAS '00)**, an expert in medical and surgical dermatology and a partner with Integrated Dermatology, recently opened a third practice in Connecticut. Dr. Moss now oversees the medical

teams at both the Waterbury and Southbury locations. He also continues to serve as an associate clinical professor of dermatology at Yale University.



**CHRISTIAN J. ZAINO '10, BA (CAS '06)**, an orthopedic hand surgeon at the Orthopedic Institute of New Jersey in Morristown, married Joanna Rose Genco, a registered nurse in the Morristown, New Jersey, office of Garden State Urology, in February in Brooklyn.



**DAVID B. KUDLOWITZ '13, RES. '16**, a physician and an instructor in internal medicine at NYU School of Medicine, was named Distinguished Teacher in the Clinical Sciences by the class of 2019.



**JULIAN HORWITZ '14**, a fourth-year general surgery resident at Mount Sinai Hospital in New York, married Shruti Sehgal, a vice president for technology and innovation clients at BerlinRosen, in May in Park City, Utah.

## RESIDENT ALUMNI

## '80s



**RUTH ORATZ, MD, RES. '85**, an oncologist specializing in breast cancer and a clinical professor of medicine at NYU School of Medicine, published an article, “Cancer Changes Our Lives—and Our Relationships: Tips for Managing Interpersonal Relationships after a Cancer Diagnosis,” in the March/April 2019 issue of *Coping with Cancer*. She is committed to helping individuals with cancer continue to live life actively, placing significant attention on flexible treatment programs that address concerns about career, family life, relationships, and sexuality.

## '90s

**DANIEL H. POMERANTZ, MD, RES. '94**, director of ambulatory care and palliative care, and associate program director of internal medicine at Montefiore New Rochelle Hospital in New York, was recently named governor-elect for the Hudson Valley Region Chapter of the American College of Physicians; he will take office in April 2020.

## PEOPLE FIRST, THEN TECHNOLOGY

*How Harry Saag, MD, FACP, plans to shape value-based care*



**HARRY SAAG, MD, FACP, RES. '15**, is as surprised as anyone about where his career has taken him. The dedicated clinician and hospital administrator turned entrepreneur always envisioned himself thriving in academic medicine—not leading a start-up.

“If you told me a year ago I’d be talking about this company I’m now running, I wouldn’t have believed you,” he laughs.

At the same time, Dr. Saag is exactly where he wants to be. As co-founder and CEO of Roster Health since January 2019, he gets to pursue his professional passion: helping the nation’s most vulnerable patients by advancing a community-based model of support in which reimbursement is based on patients’ positive health outcomes, not on medical services rendered.

“Government and commercial payors are increasingly asking healthcare organizations to take on the financial risk of patient outcomes through value-based

contracts and pay-for-performance programs,” Dr. Saag explains. “To succeed in these arrangements, organizations must have a strategy for managing high-cost, high-need patients beyond the traditional four walls of care. Roster directly supports organizations tackling this problem through people, processes, and technology, in that order.”

Dr. Saag became interested in value-based contracts over time. “When I got to medical school and would wander the hospital, the econ major in me would wonder how we pay for all this,” he says.

He immersed himself in learning about the fee-for-service model during his NYU School of Medicine residency. Then, NYU Langone recruited him to help develop value-based contracts before a New York City-based social venture fund persuaded him to lead Roster.

“It appealed to me that payments in this country shouldn’t be as simple as hospitals and doctors getting paid a fixed rate for doing something,” he says. “It should be: Did the patient have a great outcome, and how much value did we deliver back to that patient? Are we keeping them healthy, happy, and at home?”

Research shows that most health outcomes—the proportion is as high as 80 percent—are driven by factors outside the clinic. To improve well-being, Dr. Saag believes that these social determinants of health (social isolation, food insecurity, housing issues, limited transportation, inability to access medicine, and more) must be addressed right in the homes and communities of highly vulnerable individuals.

His vision is for Roster to address social determinants by becoming one of the first for-profit companies dedicated to deploying highly trained community health workers (CHWs),



known as Roster health advocates. This wholly human-centered approach will be backed by an analytical model that both provides decision support for the Roster health advocates and rigorously tracks outcomes.

“CHWs are not a new idea, but no one has built a sustainable business model to fund CHWs that is scalable across the country,” Dr. Saag says. “Most CHWs are hired directly by a healthcare system or health plan—where CHWs are not likely their core area of focus. At Roster, this is all we think about, and we’re confident we have a best-in-class hiring and training protocol, management oversight, and tailored tech built with the community health workers’ needs in mind.”

Although Roster will rely on sophisticated technology and use it to shape future efforts, Dr. Saag believes strongly that nothing will help vulnerable populations more than building highly trusting relationships with trained CHWs from their own communities.

With plans to launch its first

partnership in early 2020, Roster will provide top-notch health advocates to health organizations, relieving those institutions’ need to sustain an in-house CHW service. Roster will guarantee outcomes—and receive payment—depending on how patients fare.

Over time, Roster will also utilize the granular data it gathers in the field to predict which outreach approaches will contribute to the greatest improvements in each unique patient’s social determinants and overall well-being. The company’s technology will evolve and expand based on this data.

“We’re excited to pave the way as a value-based vendor,” Dr. Saag says. “We’re committed to building contracts with our partners that create benchmarks and goals based on their patients’ needs, and tie our payment to how well we can hit those goals. If the patient can have a great outcome, that’s how we get paid. That’s the fun part—what better job is there?”

– S. Jackson

## Honoring a Lifetime Together

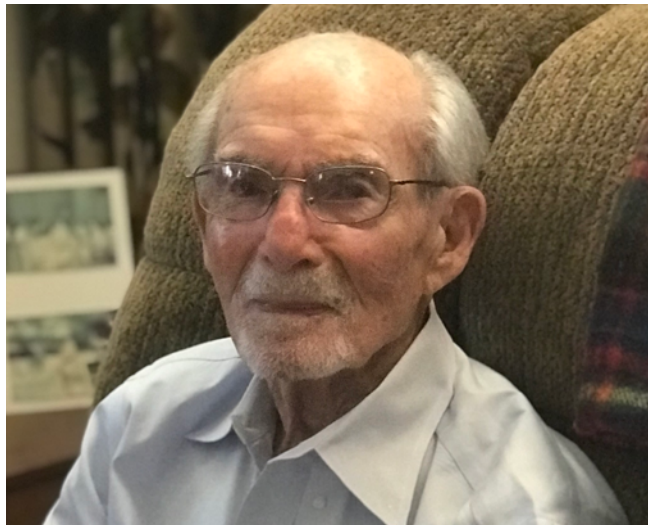
“Roberta and I grew up down the block from one another and got married while we were both still in college. What can I tell you? We could never get enough of each other’s company. When she died in 2015, creating a scholarship fund in her name gave me a way to honor our life together. And helping young people who want to be doctors achieve their dreams—that just makes me feel good.”

–ALEX C. SOLOWEY '58

TO FIND OUT HOW YOU CAN HONOR A LOVED ONE, CONTACT DIANA ROBERTSON AT 212-404-3510 OR [DIANA.ROBERTSON@NYULANGONE.ORG](mailto:DIANA.ROBERTSON@NYULANGONE.ORG)



Photo courtesy of Dr. Alex Solowey



**ARTHUR ZITRIN '45, RES. '49, PHD (GSAS '41)**, a leading bioethicist who opposed the death penalty, and a longtime professor of psychiatry at NYU Langone Health, died May 11, 2019, at 101. Dr. Zitrin was on the NYU School of Medicine faculty for nearly 70 years, serving as the director of psychiatry at Bellevue

(1955–68) and as the associate dean of students (1988–93). He also founded the school's Bioethics Colloquium and established the NYU Center for Bioethics with an endowed professorship. Of his many notable accomplishments, Dr. Zitrin is best known for his efforts to thwart physician involvement in administering

lethal injections to inmates facing the death penalty. In 2005, he filed a complaint against the Georgia Composite State Board of Medical Examiners, asserting that doctors who presided over medical executions should face disciplinary action. Although his later efforts to seek legal recourse were ultimately unsuccessful, Dr. Zitrin helped bring national attention to the issue and added to public pressure to find more humane methods of carrying out the death penalty, or to abolish it altogether. Dr. Zitrin was married to Dr. Charlotte Marker, who died in 2013. He is survived by his son, Richard, a professor of legal ethics in California, and his daughter, Elizabeth, who is president of the World Coalition Against the Death Penalty, as well as four grandchildren and two great-grandchildren.

**YVETTE ("LOLLY") BROWN LEDERBERG '49, BA (WSC '45)**, a pediatric allergist and one of only three women in her graduating class at NYU School of Medicine, died July 1, 2019, at 93. In addition to maintaining a private practice in Long Island (1956–72), Dr. Brown Lederberg volunteered at Bellevue Hospital and served as chief at the Allergy Clinic Community Hospital Glen Cove Long Island. In 1972, she and her first husband, Philip Lederberg, moved from New York to St. Thomas, Virgin Islands, where Dr. Brown Lederberg had a private practice and served as chief at four Virgin Islands public health clinics (1973–79). In 1976, she was elected as a fellow of the American Academy of Allergy (now the American Academy of Allergy, Asthma,



and Immunology). In 1990, Dr. Brown Lederberg moved to Atlanta, Georgia, where she served as president of the Atlanta Audubon Society (1997–99), volunteered at the Nature Conservancy Atlanta office, worked for Vote Smart, and traveled extensively. In 2013, she married her college sweetheart, Jerry H. Jacobson '47, BA (WSC '44), when she was 88 and he was 90. She was predeceased by her first

husband, Philip, and her second husband, Jerry. She is survived by her son, Michael Lederberg, and daughter-in-law, Linda Baracos; her daughter, Amy Lederberg, and son-in-law, Julian Bene; her grandson, Philip Bene, and his wife, Andrea Ness; and her granddaughter, Emma Bene, and her husband, Najee Johnson; and her great-grandson, Miles Lederberg Johnson.

*Our condolences to the families and friends who have recently lost loved ones. Please notify us of alumni and faculty passings, so that we may recognize and honor our community members in future issues.*

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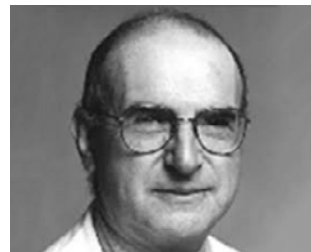
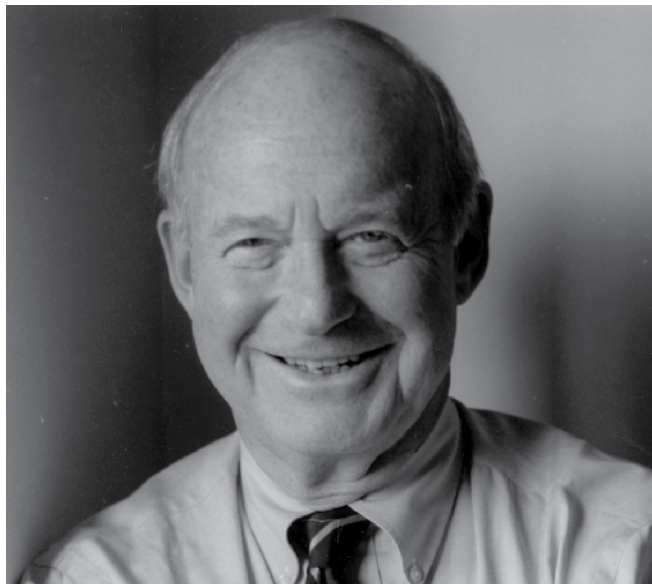


**JANET O. JEPSON ASIMOV '52**, a psychiatrist and psychoanalyst in New York City, died February 25, 2019, at 93. She was the former director of training at the William Alanson White Institute, the author of around two dozen science fiction books (writing under the name J.O. Jeppson), and a former syndicated science columnist for the *Los Angeles Times*. She was predeceased by her husband, Isaac Asimov, a noted writer and biochemistry professor.



**GERALD WEISSMANN '54 (RES. '60)**, professor emeritus of medicine and director of NYU Langone Health's Division of Rheumatology (1973–2000), died July 10, 2019, at 89. A world-class scientist, rheumatologist, writer, and mentor, Dr. Weissmann received numerous distinctions and awards, including the Solomon A. Berson Medical Alumni Achievement Award in 1980. He was recognized for presenting evidence that identified rheumatoid arthritis as an immune complex disease, and demonstrating that crises in systemic lupus erythematosus are provoked

by intravascular complement activation. He authored pioneering studies in leukocyte activation and the role of salicylates and corticosteroids in cell signaling and adhesion. In the mid-1960s, he co-discovered liposomes, lipid vesicles that have become a crucial way to deliver substances such as medications and nutrients into tissue. Dr. Weissmann is survived by his wife, Ann; his daughter, Lisa Beth Weissmann '81 of Mount Auburn Hospital in Cambridge, Massachusetts; his son, Andrew Weissmann, Esq., distinguished senior fellow at NYU School of Law; and his grandson, Ben.



**NOEL L. COHEN, MD, RES. '62 (HON. '99)**, longtime faculty member and chair of the Department of Otolaryngology at NYU Langone Health (1980–2002), died February 19, 2019, at 88. Dr. Cohen also served as acting dean of NYU School of Medicine and president of what was then known as New York University Hospital Center, from 1998 to 2000. Dr. Cohen distinguished himself as one of the earliest pioneers of cochlear implants and auditory brainstem implants, and was recognized as one of America's leading experts in acoustic neuroma management and cochlear implantation. He paved the way for otolaryngologists around the world and at the NYU Langone Cochlear Implant Center. Dr. Cohen is survived by his son, Mark, and daughter-in-law, Sheila; and his grandchildren, Victoria and Chris. He was predeceased by his wife, Baukje, and sister, Ann Kenvin.

## MD Alumni

**NAOMI DE SOLA POOL '43D**  
**BERTRAM KERTZNER '44**  
**LEON SOKOLOFF '44, BA (WSC '38)**  
**ROBERT L. EHRMANN '46**  
**ALFRED J. KALTMAN '46**  
**BENEDICT M. REYNOLDS '48**  
**GERALD S. WEINBERGER '48**  
**HERBERT M. HENDIN '49**  
**JACOB S. ISRAEL '49**  
**AUSTIN A. SCHLECKER, '50, BA (WSC '47)**  
**STANLEY F. WALLACE '51**  
**ARTHUR KARMEN '54**  
**IRVING SCHNEIDER '54**  
**GARRISON L. SOBEL '54**  
**MARVIN DRUCKER '56**  
**LEON ZUCKER '57**  
**SANDRA R. WOLMAN '59**  
**MORTON DAVIDSON '60**  
**JAMES I. PESSIN '60**  
**FRANCIS W. MERGENTHALER '61**  
**HERBERT A. BERKOFF '63**  
**WARREN M. WALKOW '69**  
**ELLIOTH H. FISHKIN '72**  
**FRANK E. GOLDBERG '72**  
**MARK A. LEBOWITZ '82**

## Resident Alumni

**PETER H. BERCEZELLER, MD, FACULTY/STAFF, RES. '19**  
**RICHARD H. HAMILTON, MD, FACULTY/STAFF, RES. '01**  
**RUTH D. NASS, MD, FACULTY/STAFF, RES. '19**

*Correction: In the Spring 2019 In Memoriam section, we neglected to include Dr. Orentreich's medical school graduation year of 1948.*

*We apologize for this error.*





## GRAND ROUNDS, 1880S STYLE

**THE ADVENT OF PHOTOGRAPHY** in the first half of the 19th century was embraced by physicians, who immediately recognized the art of capturing light with a camera as a valuable tool for research, documentation, and education. In 1868, New York University hired the nation's first civilian hospital in-house photographer, Oscar G. Mason (1830–1921), to photograph patients and document events, which he did for more than 40 years.

This photograph by Mason, showing a patient presentation at Bellevue Hospital in the 1880s, is one of numerous images he took documenting surgeries and the presentation of unusual patients and diseases. The casual stance of the onlookers on the operating

room floor—likely physicians familiar with the case—reflects Mason's tendency to pose subjects in his photographs.

Presenting disease states and using the patient as an illustration was an educational tool that dominated 19th-century medicine, according to Stanley B. Burns, MD, FACS, clinical professor of medicine at NYU Langone Health and curator of the Burns Archive, one of the world's largest collections of early medical photographs. Patient presentations developed into the now-familiar grand rounds where specific patient conditions are discussed. To this day, patient cases are presented in a formal amphitheater-style lecture hall setting—but very rarely with the patient present.

Historical notes courtesy of Stanley B. Burns, MD, FACS, NYU Langone

Image courtesy of the Lillian and Clarence de la Chapelle Medical Archives at NYU





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# SAVE THE DATE



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## ALUMNI REUNION WEEKEND 2020

*Honoring classes ending in 0 and 5*

### Friday, May 1

**WELCOME RECEPTION • 5 PM**

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### Saturday, May 2

**ALUMNI DAY • 9 AM**

Program, Awards Ceremony, Alumni Luncheon  
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#### Questions?

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