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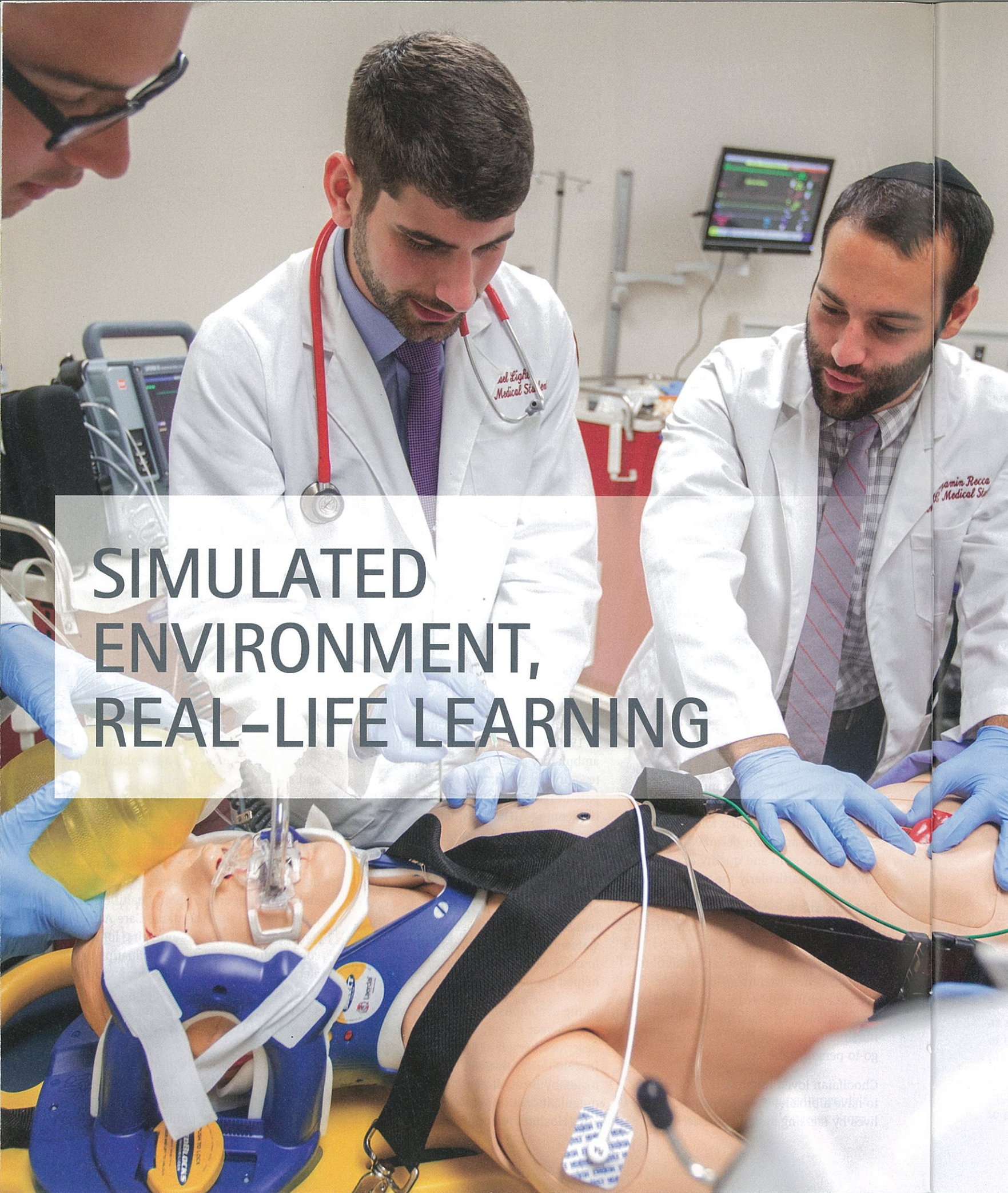
NEW YORK MEDICAL COLLEGE

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**SIMULATED ENVIRONMENT  
REAL-LIFE LEARNING:  
NYMC Launches State-of-the-Art  
Clinical Skills and Disaster  
Medicine Training Center**





# SIMULATED ENVIRONMENT, REAL-LIFE LEARNING



## *NYMC Launches State-of-the-Art Clinical Skills and Disaster Medicine Training Center*

By Nelly Edmondson

The patient was in bad shape. The 39-year-old male was having difficulty breathing, his arms, neck, and face were an angry red, and his tongue and face were swollen. His heartbeat was rapid, but his blood pressure was abnormally low. He said that his symptoms began shortly after he finished lunch at a health food restaurant, where he ate a grilled chicken sandwich, steamed vegetables, and salad. He said he was allergic to peanuts, but didn't recall eating any.

The medical students examined the patient and concluded that he was suffering from anaphylactic shock, surmising that something in his lunch—perhaps the salad dressing—had, in fact, contained traces of peanuts.

Fortunately, the patient wasn't a real human being. Rather, he is one of New York Medical College's computerized, mannequin-based simulators that are among the innovative teaching tools being used at the new Clinical Skills and Disaster Medicine Training Center. In addition to the mannequins, students work with standardized patients, specially trained, professional actors that play the role of patients with different symptoms and ailments.

### A WELCOME ADDITION

Located at 7 Dana Road, the recently renovated 21,000-square-foot Training Center provides cutting-edge resources and technology to enable students to practice a wide range of clinical skills in a safe and controlled environment before treating actual patients. Inside the facility, there are 20 fully equipped exam rooms complete with two closed-circuit cameras, multi-directional microphones, and two-way speakers so instructors can monitor and evaluate the students' interactions with standardized patients. The Training Center also houses two large simulation rooms featuring three Laerdal SimMan 3G high fidelity patient simulators. These mannequins are wireless simulators, which allow learners to manage all aspects of patient care and procedures.

"Having the Clinical Skills and Disaster Medicine Training Center is a critical resource that will provide more educational opportunities for our students," said clinical skills director David Patterson. "It is a major boost to the entire NYMC community. We have increased the number of resources in place for faculty members to teach and students to learn how to deal with clinical situations ranging from seizures to internal injuries resulting from accidents to cardiac arrest," he added. "Before the Training Center opened its doors last spring, NYMC had to send its students elsewhere for high stakes assessment activities; now students can practice and be assessed on their clinical skills on our own campus."

The Training Center also provides opportunities to include simulation modalities in instruction as well as assessment. There are a myriad of educational programs planned in the Foundation of Clinical Medicine courses, pre-clinical skills classes for first- and second-year medical students, notes Ofelia Martinez, M.D., M.P.H., medical director of the Training Center and assistant professor of medicine. "The clerkships involve learning with the help of standardized patients, task trainers, and the high fidelity simulation equipment," she adds. This promotes "hands-on" active learning, which not only enhances integration and retention of information; it also underscores the importance of learning medicine with the patient as the central focus.

### A HOT TEACHING TOOL

Simulation-based medical education using mannequins and actors has become increasingly important and more widely used. In the past, medical students and other health care workers learned much of what they needed to know by watching more experienced colleagues interact with real patients in a hospital, and then performing those procedures on patients themselves. Spurred by the growing patient safety movement, many medical schools, like NYMC, are working more extensively with simulated patients—



both actors and mannequins. Extensive simulation training shortens the learning curve by giving students the opportunity to hone their basic communications and doctoring skills before encountering actual patients and allowing students to learn from their mistakes.

This is made easier by the fact that today's high-tech mannequins are incredibly lifelike. Many are pre-programmed with heart, lung, organ, and vocal sounds, a movable head and jaw, and open airways that allow students to practice techniques like intubation, placing a catheter, and conducting breast and pelvic exams. The mannequins can also be programmed to have features consistent with allergic reactions, heart attacks, and asthma exacerbations, as well as to speak, moan, and froth at the mouth.

"All students, including first-year medical students, have exposure to both simulation and standardized patient interactions," noted Michael Reilly, Dr.P.H. '10, M.P.H., director of the Center for Disaster Medicine and associate professor of environmental health science in the School of Health Sciences and Practice. "Students are excited to participate in these learning activities within the Center. The earlier we can expose students to the practice of clinical medicine, the better prepared physicians they will be."

In addition to simulation, the Training Center offers valuable opportunities for students to interact with standardized patients. They are able to practice the clinical skills they are learning, and to ask questions they have never asked before. They also can learn how to talk to patients about difficult or sensitive topics, navigate communication challenges and receive specific, detailed feedback from trained, experienced standardized patient-educators. This valuable feedback provides insight into the patient's perspective that is rarely possible in typical clinical practice. This is a unique experience that is extremely useful in honing clinical skills for both learners and faculty.

Participating in these simulated clinical scenarios, students learn basic clinical skills, such as how to conduct a thorough physical exam, how to secure an airway, and insert an IV. And, they can do it over and over and over again, until they are very comfortable with the procedure.

This kind of learning is now mandatory. In 2004, the Step 2 Clinical Skills examination became part of the United States Medical Licensing Exam sequence. This exam assesses students' clinical skills through their interactions with standardized patients. Each student meets with a dozen standardized patients and has 15 minutes to take a history and perform a clinical exam for each patient, and then 10 additional minutes to write a patient note describing their findings, their initial differential diagnosis list, and a list of initial tests.

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These educational modalities are relevant to basic science instruction as well, since it incorporates clinical relevance and makes the science "come to life" in a tangible way. This can enhance integration of basic science concepts into clinical practice, which optimizes diagnostic reasoning and ultimately, patient care.

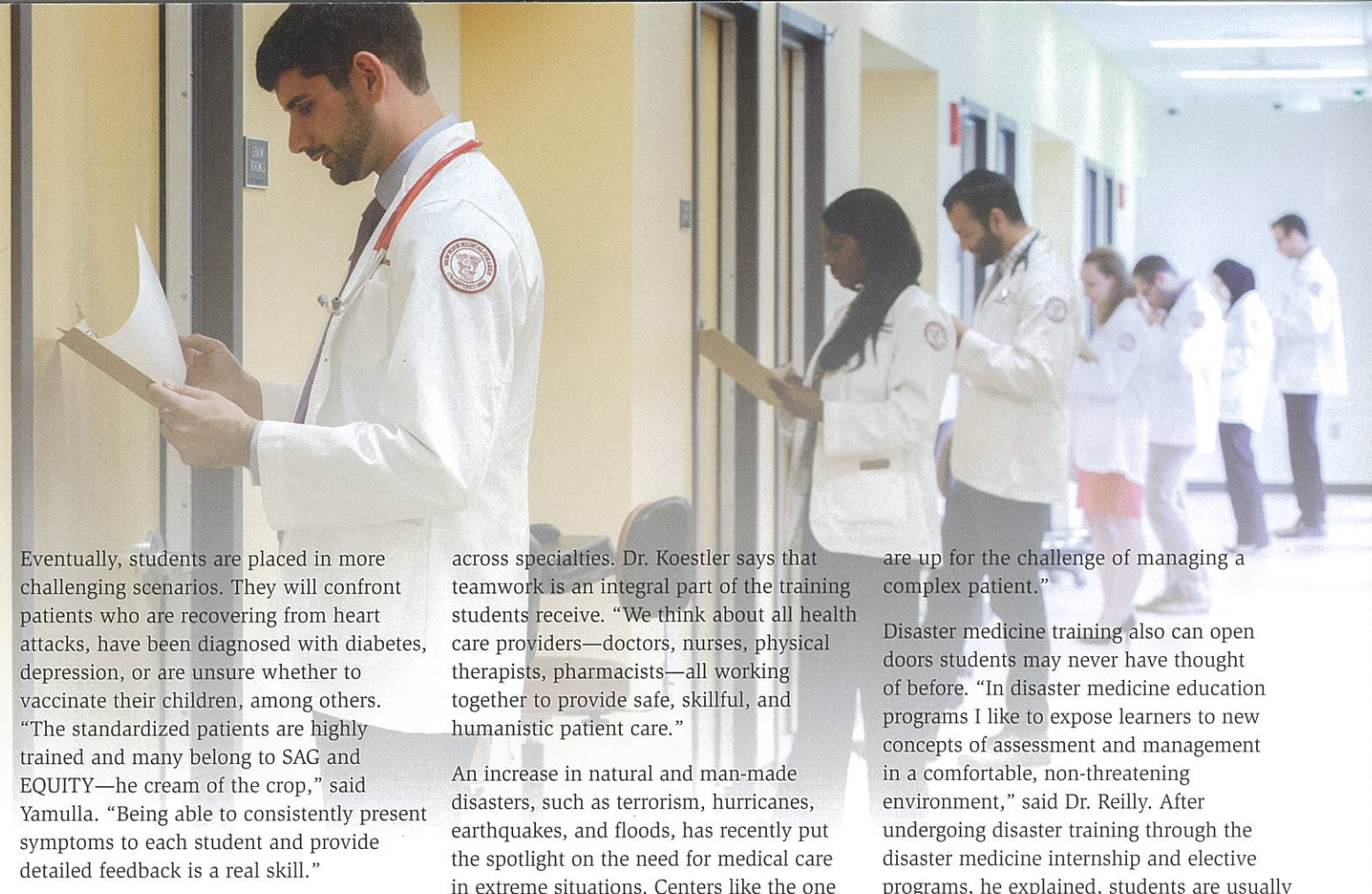
## CURRICULUM 'RENAISSANCE'

NYMC officials credit the 2011 merger of NYMC and the Touro College and University System with bringing many of the resources and ideas needed to develop the Training Center, as well as a number of other additions and improvements to the College and its campus. "Since our affiliation with Touro, we have had a renaissance taking place on the campus. The Clinical Skills and Disaster Medicine Training Center is the focus of this robust reimaging of the curriculum and a focus for enhanced student-teacher learning and assessment," said Jennifer L. Koestler, M.D., senior associate dean for medical education. Speaking of the entire NYMC community, she added, "There is a stronger sense of community, several opportunities for interprofessional education and renewed excitement about being part of something bigger."

Working with actors was a completely new experience for second-year student Cyril Rosenfeld, 25, and she is appreciative of the learning opportunities she is having at the Training Center. "Our teachers want us to learn how to ask questions and delve further for information," she said. "Communication is paramount in medicine, and students should take as much advantage of the Training Center as they can."

Katharine Yamulla, director of standardized patient training and assessment at the Training Center, is responsible for creating the training sessions that include mannequins and/or actors, and works alongside the curriculum directors to write clinical cases relevant to what students are learning.

For example, during their first week of medical school, students have an initial encounter with a standardized patient. "Before they've even opened a medical textbook, students will go through a 20-minute patient life history so we can get a reading of how well they communicate," said Yamulla.



Eventually, students are placed in more challenging scenarios. They will confront patients who are recovering from heart attacks, have been diagnosed with diabetes, depression, or are unsure whether to vaccinate their children, among others. "The standardized patients are highly trained and many belong to SAG and EQUITY—he cream of the crop," said Yamulla. "Being able to consistently present symptoms to each student and provide detailed feedback is a real skill."

During the course of their medical training, students will take part in encounters that run the gamut of situations they will encounter during their rotations. For example, they may be placed in a situation where a patient comes in complaining of menstrual problems, but careful questioning reveals that she is experiencing domestic violence at home. "We're deliberately adding all of these encounters into the curriculum," said Yamulla.

After each encounter, the standardized patient and faculty will provide students with detailed feedback. They may suggest ways the student could improve his or her interview techniques, and point out important questions that went unasked. One of the key goals is to teach the students to become better communicators.

## CREATING TEAM PLAYERS

Teaching NYMC students how to function as part of a team is another important goal of the Training Center. These days, medical practice is becoming more and more a team initiative. Large health care systems are increasingly using interdisciplinary teams to provide patients with coordinated care

across specialties. Dr. Koestler says that teamwork is an integral part of the training students receive. "We think about all health care providers—doctors, nurses, physical therapists, pharmacists—all working together to provide safe, skillful, and humanistic patient care."

An increase in natural and man-made disasters, such as terrorism, hurricanes, earthquakes, and floods, has recently put the spotlight on the need for medical care in extreme situations. Centers like the one at NYMC are placing heightened emphasis on preparing health care professionals to function outside the hospital, in much more chaotic settings. "Disaster medicine is an application of emergency medicine," explained Dr. Reilly, "but it is practiced in austere environments," such as an out-of-hospital setting, where there are few diagnostic and ancillary resources and no access to other amenities found within an intact health care facility. In disaster settings, he added, physicians and other health care providers must be able to assess and manage life-threatening illnesses and injuries without the use of diagnostic tests and using clinical skills alone.

"Putting students and other practicing health care professionals through clinical scenarios in a safe environment means they can make mistakes here, and we can help perfect their skills," said Dr. Reilly. "We debrief the students, and teach them 'clinical pearls' and tricks of the trade as appropriate." With simulation training, "we are able to replicate actual cases and patient encounters. So when the learner is faced with a particular presentation they know they can rely on their skills and

are up for the challenge of managing a complex patient."

Disaster medicine training also can open doors students may never have thought of before. "In disaster medicine education programs I like to expose learners to new concepts of assessment and management in a comfortable, non-threatening environment," said Dr. Reilly. After undergoing disaster training through the disaster medicine internship and elective programs, he explained, students are usually more motivated to pursue emergency medicine residencies, volunteer to practice overseas, or be interested in contributing to international humanitarian missions with groups like Doctors Without Borders. Providing medical care in these extreme and non-traditional settings can be very rewarding and satisfying. In the practice of disaster and austere medicine, physicians get "a variety of clinical opportunities to treat clinically severe illnesses and injuries and quickly see how the correct treatment can improve the quality of life for patients," explained Dr. Reilly.

"The opportunities afforded to students at the Clinical Skills and Disaster Medicine Training Center are boundless," concluded Dr. Koestler. "Our ability to allow students to practice clinical skills—from taking a medical history, refining his/her physical examination skills, to practicing procedural technique—has expanded tremendously. We have already engaged our clinical partners to develop relationships to further enhance training of residents and practicing clinicians to ensure that all members of the NYMC community can take advantage of this amazing resource." ■