

# Spectrum

August 9, 2004

## Medical Simulation A Valuable New Tool

It takes a great deal of practice to learn how to respond to emergencies such as cardiac arrest or respiratory failure. When a “code” like this occurs, the patient is often under severe stress—and every action taken by the health care team is critical to the outcome of the situation.

Historically, doctors and nurses learned these skills through observation and eventually caring for their own patients. But in an era where patient safety is paramount, hospitals are rethinking tradition. At Lahey Clinic, the up-and-coming field of medical simulation is allowing health care teams to practice responding to critical care situations without putting an actual patient at risk.

“Simulation technology is amazing in its ability to replicate a true human emergency,” said David M. Barrett, MD, chief executive officer. “It allows us to educate incoming residents and nursing personnel in the methods of handling acute emergencies such as cardiac arrest. Without simulators, experience would only be gained in a live situation.”

The 43 General Internal Medicine residents who began their rotations at Lahey Clinic this summer have been using “SimMan” in the MAST (Minimal Access Skills and Training) laboratory to simulate responses to medical codes. In addition, the Nursing Department is using simulation in the nurse orientation and re-entry programs and preparing to use it in the newly designed critical care nursing orientation. According to Michael Rosenblatt, MD, MPH, MBA, General Surgery, director of the simulation program, “The goals are to improve patient safety and the effectiveness of how we teach residents and nurses.”

SimMan is an interactive human mannequin that can imitate a number of highly realistic scenarios, such as respiratory distress or unexplained hypotension. The mannequin is hooked up to a patient monitor, and has dozens of life-like features, including physiologically correct pulses and “lungs” that pump air.



*“Simulation technology is an invaluable resource, because it allows residents an opportunity to practice their skills”*

The simulation team programs critical care scenarios into the computer that controls SimMan and watches to see how doctors and nurses respond. After the simulation, a debriefing is held to discuss any errors or how the situation could be managed better. The residents then repeat the simulation, and in most cases, marked improvements in teamwork and treatment methodology can be seen throughout the day. “They are tested on their medical knowledge and trained to be more efficient in using the information they pick up about the patient’s condition. At the same time, team members are developing their intercommunication skills,” said Rosenblatt.

“One of our goals is to change the culture so that people understand that every member of a code response team has valuable knowledge. The person who leads the group should be the one who is an expert in the skills called for in the situation,” said Michele Bettinelli, RN, clinical educator, Nursing Education. “We want people to know they can ask for help, and to recognize that patient illnesses are very complex and working together will result in better outcomes.”

Over the past year, Bettinelli and Rosemarie DeLacy, RN, MS, Research Department, attended a number of simulation programs and conferences nationwide to expand their knowledge of simulation. “This exposed us to a lot of other facilities, and we were able to consider elements from other programs that

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## Pharmacotherapy Services Expand to Lahey North

When Sienna Boyd, a patient of the Asthma Center at Lahey Clinic Medical Center, requested an appointment closer to home to go over the proper use of her inhaler and new medications recently, she was pleasantly surprised. Boyd was told that she could visit Lahey Clinic Northshore (LCN) rather than drive all the way to Burlington from her home in Ipswich. Subsequently, she became the first patient to receive services at LNC’s new Pharmacotherapy Clinic.

### *The Philosophy behind the Practice*

According to the American College of Clinical Pharmacy (ACCP), the traditional system of providing drug therapy to patients—in which only certain health care professionals are authorized to manage drug therapy—can contribute to avoidable drug-related problems, poor patients outcomes and increased medical costs. An interdisciplinary approach to patient care, also known as collaborative drug therapy management, is an emerging

*“Some patients require more attention than others when it comes to medications.”*

solution that sees drug therapy decision-making and management as a coordinated process involving physicians, pharmacists and patients.

With this philosophy in mind, LCMC opened the Pharmacotherapy Clinic in 1996. “Many integrated health-care systems across the country have clinical

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## Medical Simulation Continued...

were applicable at Lahey Clinic," said DeLacy. "We had the opportunity to consider ideas we may not have otherwise thought about, such as working with schools of nursing to help supplement their curriculums. Nursing students can learn here in a simulated environment, where they can make mistakes and discuss them. They are also given the chance to practice working as a clinical team."

The general sentiment among residents is that the simulations are stressful because of how realistic they seem. "When a code occurs, the patient is in severe stress and in critical condition, and dealing with this situation can be a challenge for new doctors. We are teaching people how to react to these situations and work together in a stressful environment to accomplish goals," said Paul Dellaripa, MD, Rheumatology, director of the Code Committee and associate director of the residency program in General Internal Medicine.

As part of the simulation team, Inna Gudelman, CMA, MAST lab coordinator, sets up the simulation area to look exactly like a patient room. During each scenario, she then plays the role of a family member asking questions or standing nervously by the bedside. Phil Codyer, Research Department, provides the technical and audiovisual support. "Our goal is to make each simulation as close to reality as possible," said Gudelman. "We are lucky to have this technology because it's a great tool. It gives an opportunity for hands-on learning, rather than just sitting and hearing a lecture."

According to Chief Resident Stephanie Lenzi, DO, General Internal Medicine, "When residents first come in, they have a lot of questions about what their roles will be in caring for critically ill patients. Simulation technology is an invaluable resource, because it allows residents an opportunity to practice their skills in an environment where they don't have to worry about adverse outcomes."

The idea of using simulation in medicine is relatively new. Only in the last couple of years has the "safety culture" developed in other industries, most notably aviation, become a steady focus in health care. An article appearing in the journal *Current Opinion in Critical Care* this month describes simulation as a "fundamental change" in medical education, and notes that "the use of simulation in medical training is spreading rapidly."

*At Lahey Clinic, simulation has become a vital component of efforts to enhance patient safety. "It is my hope that at some time in the future, every person at Lahey Clinic who could be confronted with an acute care situation will be educated through simulation," said Barrett. "I foresee that simulation may eventually be used to test competency in responding to codes—rather than using a written format that doesn't replicate the stress or physical component of emergency response."*

The aim of the simulation program is to have residents and nurses take part in simulations about four times per year. "We've come a long way from setting up the simulation lab to where we are actually integrating it into the educational program for the residents," said Rosenblatt. "The value of having this simulation lab right in the main hospital is that we should be able to have colleagues participate in simulations more frequently."

## Biodefense and Infectious Disease Expert Joins Lahey

Lahey Clinic has a new weapon in the fight against bioterrorism and infectious diseases. Daniel Shapiro, MD, recently became medical director of the clinical microbiology laboratory in the Department of Laboratory Medicine.

**Daniel Shapiro, MD**



Shapiro comes to Lahey from Boston University Medical Center, where he directed the microbiology, immunology and molecular laboratories for the past 12 years. He was also an attending physician in the infectious diseases section.

"I'm delighted to join Lahey Clinic," said Shapiro. "The opportunity to provide both high-quality clinical microbiology and molecular diagnostics testing in an environment where the focus is on patient care is something that I particularly look forward to."

One of Shapiro's primary interests is the readiness of clinical

laboratories to respond to acts of bioterror. He is a member of the working group of the American Society for Microbiology (ASM) and has co-authored several protocols outlining response procedures for hospital labs.

Shapiro is also one of the nation's leading experts on zoonoses, or diseases such as malaria that can be transmitted from animals to humans. He is currently completing a textbook on zoonotic infections.

"We are very fortunate to have someone of Dr. Shapiro's stature join our team," said Charles F. Arkin, MD, chair of Laboratory Medicine. "His knowledge and experience in clinical microbiology and infectious disease will undoubtedly be of great benefit to Lahey's patients. In addition, his expertise in biodefense and emerging diseases will help keep us at the forefront of these important health-related issues."

Shapiro received his undergraduate degree from MIT in 1981 and his medical degree from the University of North Carolina in 1986. After completing a residency in internal medicine at Massachusetts General Hospital, he returned to the University of North Carolina for a fellowship in both infectious diseases and clinical microbiology. He is an associate professor of Medicine at the Boston University School of Medicine.

## Welcome New Physicians

Lahey Clinic recently welcomed the following new staff physicians. More new doctors will be featured in upcoming issues of Spectrum.

<b>Lahey Clinic Medical Center, Burlington</b>	
Yana Levin, MD	Anesthesiology
Mollie A. MacCormack, MD	Dermatology
Vonzella A. Bryant, MD	Emergency Medicine
Erica L. Frank, MD*	General Internal Medicine
Aaron J. Notestine, MD	General Internal Medicine
Laurence M. Solberg, MD	Geriatric Medicine
Anne P. Shapter, MD**	Gynecology
Daniel S. Shapiro, MD	Laboratory Medicine
Richard M. Thomas, MD*	Nephrology
Brian J. Jolley, MD	Orthopaedic Surgery
Lawrence M. Specht, MD	Orthopaedic Surgery
Adriana D. Neagoe, MD	Psychiatry and Behavioral Medicine
Geoffrey A. Gardiner, MD	Radiology
Hongyu Shi, MD	Radiology
Tina J. Elias-Todd, MD	Rheumatology
Michael E. Minor, MD	Vascular Surgery
<b>Lahey Clinic Northshore, Peabody</b>	
William A. Charini, MD	General Internal Medicine
<b>Lahey Pediatrics at Arlington</b>	
Diane L. Pigula, MD	Pediatric and Adolescent Medicine
<b>Lahey Billerica</b>	
Paul M. MacDonald, MD	General Internal Medicine

\*Drs. Thomas, Frank and Elias-Todd were residents at Lahey Clinic.

\*\*Dr. Shapter was on staff at Lahey Clinic from 1997 to 2002.

## Pharmacotherapy Services Continued...

pharmacist practitioners (CPPs) available as a standard part of patient care,” explained Pamela Sherry, PharmD, ambulatory clinical pharmacist manager, Pharmacy. “At Lahey, patients are referred to CPPs for assistance in monitoring medication changes for the treatment of chronic disease states, such as hypertension, hyperlipidemia, diabetes and asthma. We also get many referrals for patient education, medication review, and assistance with medication compliance issues.” After a patient meets with a CPP, all suggestions are communicated back to the referring physician, and medication changes are made only upon the written approval of the physician.

“Some patients require more attention than others when it comes to medications,” explained Patrick Lam, RPh, manager of outpatient systems, Pharmacy. “Take a patient diagnosed with hypertension, for example, whose blood pressure is up and down, whose cholesterol is constantly fluctuating. These patients need to be watched very closely and most doctors are too busy to do it. Fortunately, they can refer to a CPP.”

### **Lahey Pharmacotherapy: Key Points to Remember...**

- There is no co-pay for patients requiring pharmacotherapy services.
- All patients must be referred by a physician.
- CPPs require physician's consent and sign-off for any medication changes.

## Educating a New Generation of Pharmacists

Members of the Pharmacy Department at Lahey Clinic Medical Center in Burlington are gearing up to welcome their first pharmacy resident. Jennifer Sanden, PharmD, a recent graduate of the Massachusetts College of Pharmacy and Health Sciences, joined the team on August 2.

Although the Pharmacy Department at LCMC has been welcoming pharmacy students for rotations for years, the residency option is brand new. “It’s exciting,” says Pamela Sherry, PharmD, ambulatory clinical pharmacist manager, Pharmacy Department. “Residencies offer focused, practical experience for graduates while benefiting Lahey and our patients at the same time. We hope to expand the program to include other residents in the future.”

While the Burlington facility welcomes Sanden, Lahey Clinic Northshore has also broken new ground by taking on its first pharmacy student. Danielle Colagiovanni, a pre-pharmacy undergraduate from the Massachusetts College of Pharmacy and Health Sciences, recently completed a practical rotation at LCN. It must have gone well; she’ll be returning to Lahey in February 2005 to join other certified pharmacist practitioners (CPPs) at LCMC in a rotation through Ambulatory Care.

Pharmacy Resident.  
Jennifer Sanden, PharmD



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### **Laser Vision Correction**

Thursday, August, 19 6 to 7:30 pm  
LCN

Join refractive surgeon Sarkis H. Soukiasian, MD, to learn about new and exciting advances in laser vision correction. See if you are a candidate for laser vision correction at this free screening. For room location and to register, please call 978-538-4567.

### **Lahey Employee Golf Tournament**

Saturday, September 11  
Boxford Mass.

This year’s employee golf tournament will be held at Far Corner Golf Course, one of the most scenic golf courses in New England, located about 40 miles north of Burlington. For more information or to reserve a foursome, please contact Bob O’Brien at 781-744-2136 or Steve Pietchel at 781-744-2512. The cost of the tournament, which is “scramble” format, is \$80. The price includes green fees, a golf cart, food and prizes.

### **ACLS Recertification Course**

Monday, October 4 9 a.m. to 5 p.m.  
Alumni Auditorium  
LCMC

Lahey Clinic will be offering an all-day advanced cardiac life support (ACLS) recertification course. Pre-requisites include BCLS certification and experience reading telemetry rhythms. Registration begins on Monday, August 16. To obtain a registration form, please call Nursing Education at 781-744-8725.

## Noteworthy

### Tarlov Named President-Elect of Neurosurgical Society

*Edward C. Tarlov, MD*, Neurosurgery, was recently named president-elect of the Neurosurgical Society of America (NSA).

The NSA was founded in 1948 to create a forum where ideas and information could be exchanged among leaders in the field of neurosurgery. "At our meetings, members and guests present papers and take part in symposia, where different subjects of current interest in neurosurgery are addressed," said Tarlov.

As leader of the NSA, Tarlov will oversee the various committees that handle affairs of the society and appoint representatives to attend meetings of the National Board of Neurosurgery, the Society of Neurological Surgeons and other national organizations. "I feel it is quite an honor to be on the executive committee," said Tarlov, who has been a member of the NSA since 1978 and occupied various offices including program chairman and vice president.

As president-elect, Tarlov will take over as president of the NSA in 2005.

Other Lahey physicians who have been members of the NSA include Charles A. Fager, MD, who served as president in 1975 and 1976, and Carlos A. David, MD, who was recently elected to the society.

Edward C. Tarlov, MD  
President Elect



### JCAHO to Visit Lahey in September

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) will be visiting Lahey Clinic in September to conduct a Periodic Performance Review (PPR). Colleagues should be aware that the survey will be different than those in the past, since JCAHO recently rolled out a new survey process that puts a heavy emphasis on "patient tracers."

Patient tracers, which will account for more than half of the evaluation, involve tracking the care pathways of current patients. The care will be evaluated for its consistency with requirements for meeting national patient safety goals. These goals include:

- 1) Improve the accuracy of patient identification.
- 2) Improve the effectiveness of communication among caregivers.
- 3) Improve the safety of using high-alert medications.
- 4) Eliminate wrong-site, wrong-patient, wrong-procedure surgery.
- 5) Improve the safety of using infusion pumps.
- 6) Improve the effectiveness of clinical alarm systems.
- 7) Reduce the risk of health-care-acquired infections.

Look for the August 23 edition of *Spectrum* for more information about JCAHO's upcoming visit!