

SAFE WAY: Reducing employee injuries is part of DHMC's safety effort. In 2007, its employee injury rate was almost half the U.S. average—just 4.4 injuries per 100 full-time-equivalent staff, compared to 8.7 per 100 FTEs nationally.



Ensuring safety, even in the middle of the night

"Safety is not centralized," says Dr. George Blike, DHMC's patient safety officer. "It's what happens in the middle of the night when nobody is watching." Patient safety is everyone's business, he insists. "You've got to empower your staff—that's where safety lives," says Blike, an anesthesiologist. "And you've got to invest in prepping people for that and help them have the tools and the means to be successful."

Errors: Patient safety has always been a concern of the medical profession, but efforts to improve quality and patient safety intensified after the Institute of Medicine issued a report in 1999 on medical errors; it estimated that 98,000 hospital deaths every year were due to medical errors. The report noted

It's essential to "empower . . . staff—that's where safety lives."

that the vast majority of errors weren't the fault of individuals, but of systems that didn't work. So medicine began using a systems approach—and an understanding of the interface between people and systems—to help prevent human error.

The aviation industry, for example, has long used a systems approach to safety. In fact, medicine had already looked to aviation; in the 1970s, anesthesiologists began using aviation-style checklists to ensure that they followed the proper steps in administering anesthesia.

Now checklists and many other concepts borrowed from aviation are common at DHMC,

as well as at other medical centers across the country.

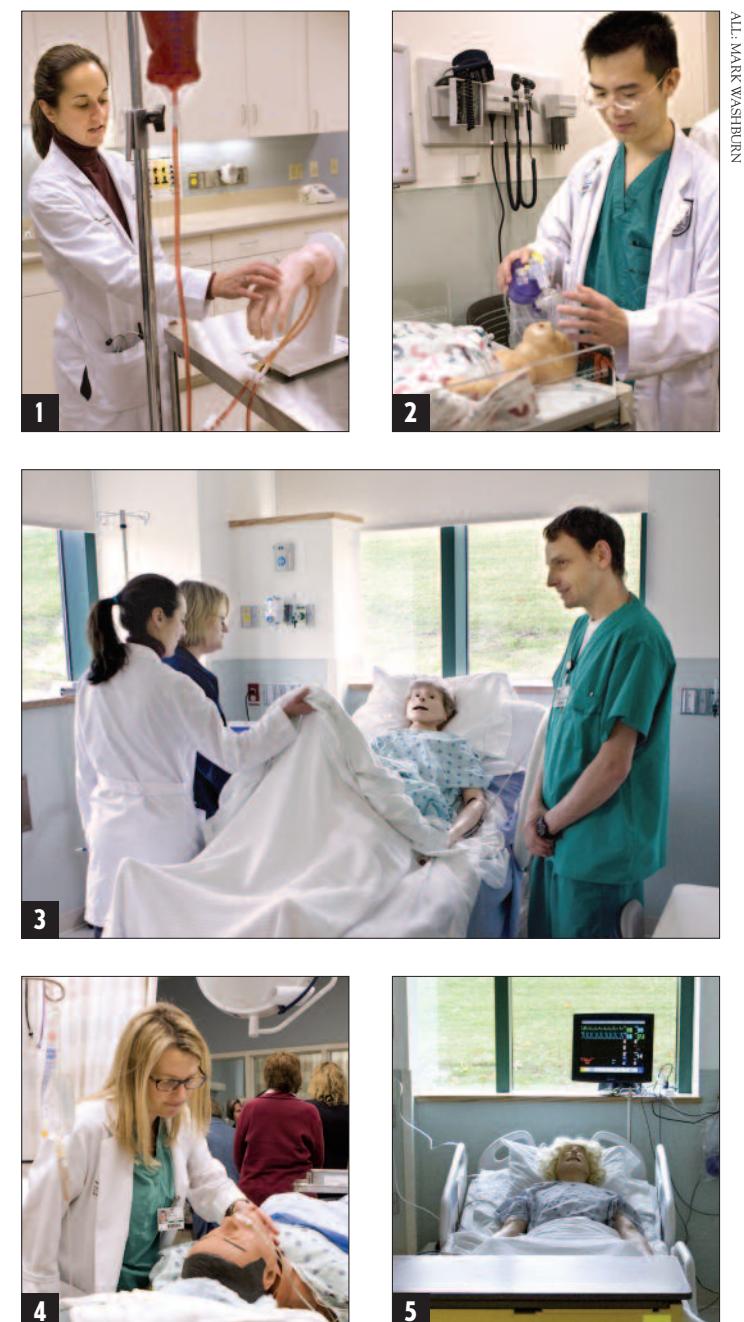
Another tactic that's made the transition from aviation to medicine is the creation of multidisciplinary teams and of a climate in which all members of a team feel empowered to speak up. "Systems engineering is enhanced by understanding the interplay between human operator and machine—like pilots and cockpit interface," says Blike.

At DHMC, the goals of the patient safety effort include reducing the number of hospital-acquired infections; increasing medication safety; improving

communications and coordination; and reducing work-related employee injuries (such as back injuries from lifting patients or blood-borne injuries from needle sticks).

Simple: Some of the solutions are simple. For instance, at DHMC putting soap and sanitizer gel in more convenient locations has brought hand-hygiene compliance before and after caregivers see patients to 86%—which has led to a 27% reduction in health-care-associated infections; the eventual goal is 100% compliance. And increasing the number of employees who get flu shots has helped to prevent the spread of flu.

Other solutions are more complex. Another DHMC initiative—empowering nurses to take action when a patient begins to decline, rather than requiring them to wait for a doc-



At the new 8,000-square-foot Patient Safety Training Center, part of a many-pronged safety effort at DHMC, staff and students can practice procedures on life-like manikins: 1 Ob-gyn resident Erron Kinsler has just inserted an IV in this hand. 2 Medical student John Hui is practicing bag-mask ventilation. 3 Technician Gene Streck, right, observes an exam of a pregnant manikin that can actually give birth. 4 Nurse-midwife Lucy Wilson checks a manikin's vital signs. 5 The room layouts are also totally realistic, and the hospital beds and vital signs monitors the real thing.

tor's okay—has meant that fewer patients have had to be transferred to the ICU.

DHMC also uses training on simulated patients, another concept borrowed from aviation. Dartmouth-Hitchcock recently opened an 8,000-square-foot, state-of-the-art Patient Safety Training Center, where employees can practice procedures on lifelike manikins that are programmed to respond just as real patients would. Their blood pressure and respiration change in response to interventions, for example, and they cry, drool, sweat, and bleed.

Try: Providers can try anything from lifting a patient safely to delivering a breech baby. Practice sessions on the manikins can also be videotaped and assessed afterward by trained evaluators.

And it's not just doctors, nurses, and students who make use of the training center. Security and housekeeping personnel can practice procedures there, too. For example, security officers can rehearse techniques for "helping with patient restraint when patients are delirious and combative," explains Blike. And housekeeping staff, he says, can learn techniques for "making sure resistant organisms are not left on guardrails [or] knobs, where a lot of bugs live."

But the training center—which Blike likens to a "crash-test" facility—is only part of the safety effort. Safety, he says, "starts with good people who are given the means to be successful and an organization that really values these things."

LAURA STEPHENSON CARTER

CLINICAL OBSERVATION

In this section, we highlight the human side of clinical academic medicine, putting a few questions to a physician at DMS-DHMC.

Donald Miller, M.D.

Assistant Professor of Surgery (Ophthalmology)

Miller specializes in cataract, corneal, and LASIK surgery and is medical director of the Laser Vision Center at DHMC. He joined the Dartmouth faculty in 2003 and is a 1991 graduate of DMS.

What got you interested in medicine?

I grew up surrounded by bankers and business executives. I never understood what they did. Medicine seemed much more interesting and fulfilling. And it didn't require that I sit at a desk, live near a big city, or travel all the time.

If you weren't a physician, what would you like to be?

A high school science teacher. I did that for a year before medical school and enjoyed it tremendously.

What is the greatest frustration in your work?

Tending to all the bureaucratic requirements that accompany teaching and patient care.

And the greatest joy?

I am lucky to specialize in surgical procedures that have an immediate positive impact on people's quality of life—I get to help them see well.

They notice it literally seconds after I'm done. That's really cool.

What music do you listen to most?

Classic rock. My iPod is loaded with Grateful Dead. People smile when they learn this. I

don't exactly fit the stereotype of a Deadhead. There are much more passionate fans than I, but I do love the feel of their music, especially the way they interweave the rhythms and motives when transitioning from one song to the next.



What was your first paying job?

During high school, I set up a summer business with a buddy. We weeded a zillion gardens. I bought a stereo with the money I earned.

What do family and friends give you a hard time about?

Two things: I lose track of time and I'm too fussy about the details of any project I do.

What's the hardest lesson you ever had to learn?

You can be really good at only a few things.

Who is your hero—from either fiction or real life?

Hero may be the wrong word, but I sure admire my father. Growing up poor and fatherless during the Depression, he worked his way through college, changed careers twice, and built a comfortable, secure, and fun life for our family. I never felt limited in pursuing my interests. I'd like to have my kids feel that way.

What historical event would you most like to have been present at in person?

With the recent inauguration, I've been thinking about the Constitutional Convention. It's amazing how those guys worked through their differences to create such a new and durable blueprint for government.

What advice would you give someone going into your field?

Be prepared to sweat the smallest details. For instance, we make clinical distinctions based on the characteristics of individual cells we observe floating in the fluid of the eye, whether they are white cells, red cells, or flecks of pigment. In ocular surgery, incisions and movements must be controlled to within a fraction of a millimeter. While this precision is not unique to ophthalmology, it is characteristic of most of what we do on a daily basis.

What do you think makes for a successful physician?

Ultimately, our medical school instructors were right. It is very tempting to pursue money, or convenience, or some other interest as the grind of a career plays itself out. But everything we do should be about what is best for our patients.