When airline pilots experience severe wind shear conditions for the first time, it’s not aboard a jumbo jet filled with hundreds of passengers, but in a simulator, where their mistakes won’t cost lives. If they crash the plane, they just hit the reset button and take off again.

Those same principles of aviation safety education are being used to train a new generation of surgeons at the Goodman Simulation Center at Stanford Hospital, which opened in May of this year.

“The Goodman Simulation Center is a natural evolution of how we train medical professionals,” said Thomas M. Krummel, MD, chair of the Department of Surgery at Stanford. “In the current learning environment, education happens by random opportunity. With the Simulation Center, Stanford can build a curriculum and an experience without being dependent on which patients come through the doors of the hospital.”

The $4 million facility is located on the third floor of Stanford Hospital, across the hall from the real operating room suites. Inside are a myriad of virtual reality mannequins and boxes that allow interns and residents from Stanford and Lucile Packard Children’s hospitals to develop and refine their core surgical skills, such as suturing, knot tying, guiding laparoscopic instruments and inserting central lines.

In an adjacent room lies the hub of team training activities—an exact replica of an OR suite, complete with a mannequin that breathes, bleeds and can be programmed to reflect any number of surgical complications. In this area, medical students and new interns can experience surgical situations for the first time in an environment that looks, sounds and feels amazingly real. The simulation room can also be used to train residents and attending physicians on

Simulation Center creates real-life medical scenarios

Medical resident Aria Barzin, MD, practices surgical techniques in the simulation center.
SoundBites

“I personally do not believe menopause is a disease state or that the decline in estrogen contributes to disease, with maybe the exception of bones.”
—Marcia Stefanick, PhD, professor of medicine at the Stanford Prevention Research Center, on how the issue of hormone treatment for menopause continues to be hotly debated five years after the publication of a landmark study from the Women’s Health Initiative. Stefanick is chair of the national steering committee for the WHI study. Philadelphia Inquirer, July 29.

The Philadelphia Inquirer

“The end of next month, we expect 80 million people to be roughly the size of the country of Germany.”—S.V. Mahadevan, MD, assistant professor of surgery, on the medical school’s partnership with the Emergency Management and Research Institute to develop a 911-type emergency medical system in India. Palo Alto Daily News, May 10.

Palo Alto Daily News

“We can start to sort the language of the brain using optical excitation.”—Karl Deisseroth, MD, PhD, assistant professor of bioengineering and of psychiatry and behavioral sciences, on a technique that uses light to control the activity of brain cells. The remote-control technology may someday serve as a treatment for neurological and psychiatric disorders. New York Times, Aug. 14.

The New York Times

“It’s very difficult for folks to move away from something that has been so widely accepted.”—David Cornfield, MD, professor of pediatrics, on a new study that found that universal tuberculosis testing in kindergarten-age children is outdated and a waste of money. San Francisco Chronicle, July 7.

San Francisco Chronicle

“This is arguably the most important topic anyone will have in life, and education about it stops in high school unless you pursue a health-care career.”—Paul Auerbach, MD, clinical professor of surgery, on the importance of paying attention to medical symptoms. Forbes.com, July 31.

Forbes

Elite care for weekend warriors

Ask any sports medicine doctor at Stanford what he or she is doing this fall, and the answer is likely to include watching the San Francisco 49ers. The 49ers have selected Stanford to provide orthopedic and sports medicine care for the team, offering medical assistance at home and away games, and providing orthopedic care for the athletes off the field to maintain their health and improve their performance.

The same extraordinary care afforded to these elite athletes is available to anyone with a sports medicine or overuse injury through Stanford’s Sports Medicine Clinic—Super Bowl ring or not.

“When it comes to injury management, all of our patients receive the same level of care we provide the San Francisco 49ers,” said Gary S. Fanton, MD, chief of the Division of Sports Medicine and clinical professor of orthopedic surgery at Stanford. “Everything we learn from caring for these top athletes translates to improved care for all of our patients.”

Fanton, along with Tim McAdams, MD, an assistant professor of orthopedics, will be spending every weekend on the sidelines with the 49ers this fall and winter. But they are not alone in caring for such a select group of athletes. Each of the physicians in the Division of Sports Medicine at Stanford has extensive experience working with professional athletes. According to Professor of Orthopedics Marc R. Safran, MD, that level of expertise has a dramatic effect on patient care at Stanford.

“By treating elite athletes, we learn a lot about the limits of the human body and what we can do to get people back to their former level of activity quicker without causing further injury,” he explained. “We learn about what the body can do from these fine-tuned athletes, and we apply those principles to the care of all of our patients, most of whom are recreational athletes such as weekend tennis players, softball players, skiers, cyclists and runners.”

The Stanford sports medicine team consists of orthopedic surgeons, fellowship-trained sports medicine physicians, physical medicine and rehabilitation specialists, and physical therapists, all working collaboratively to help patients recover as quickly as possible and return to their former level of activity safely. Together they treat a full range of sports injuries, including arthroscopic and surgical management of knee injuries (anterior cruciate ligament and cartilage tears); sports-related shoulder trauma (rotator cuff tears and instability); arthroscopic repair of the hip, wrist, elbow and ankle; and overuse injuries of the lower extremity (groin, hamstring, patellofemoral, iliotibial band, shin splints, Achilles tendinitis, plantar fasciitis and stress fractures).

Stanford’s sports medicine doctors also play a big role in helping Stanford athletes stay healthy. Through the Department of Athletics, the Stanford sports medicine team provides medical services to 850 Stanford athletes on 35 intercollegiate teams. Services to Stanford Athletics include diagnosis, treatment and rehabilitation for acute and overuse musculoskeletal injuries, as well as diagnosis and treatment of medical illnesses that are prevalent among active sports participants, such as exercise-induced asthma and runner’s anemia.

“We treat any medical problem that interferes with performance, from cardiovascular disease to eating disorders,” said Gordon Matheson, MD, PhD, director of the Sports Medicine Program for Stanford Athletics. The program operates out of a new facility that houses physicians and physical therapists, and a biomechanics and physiology lab where serious athletes receive individualized care, testing and counseling.
Modernizing Medicine

Hospitals’ improvements will accommodate patient needs

While heading to downtown Palo Alto on a weekday morning, Nancy Peterson was thrown to the pavement when her bicycle collided with a car. She was spared from a head injury by her bike helmet, but she suffered painful fractures to two vertebrae in her spine.

Brought by paramedics to Stanford’s Emergency Department, Peterson waited to see a doctor while other patients with more urgent needs were treated. Stanford Hospital was completely full that day, so following the initial treatment, Peterson waited in the ER until evening to be admitted. Four days later she was released from the hospital, outfitted with a custom body brace.

“Even before my accident I was a proponent for the hospital improvements, and now my resolve is even stronger,” said Peterson. “I left the hospital well positioned to heal properly. Our community is fortunate that Stanford plans to expand to serve our health care needs.”

The hospital improvements Peterson and other Peninsula residents can look forward to are detailed in a plan submitted in August to the City of Palo Alto. The plan assures that community members needing medical services will be able to count on Stanford Hospital & Clinics and Lucile Packard Children’s Hospital having the room to care for them whenever they are sick or injured.

Patient access, comfort

The plan was initiated both by the need to bring the medical center’s 50-year-old facilities into compliance with California’s seismic safety laws and by the growing demand for services that has forced both hospitals to send patients elsewhere. The opportunity to rebuild and renovate facilities will also ensure that the local community has ready access to 21st century medical technologies and patient care practices.

“At every step, what we have discovered is that in all aspects of clinical care, technology requires more clinical space,” said Mark Tortorich, vice president of planning, design and construction for Stanford Hospital and Packard Children’s.

Under the proposal, Stanford Hospital would add 144 beds and increase space for operating rooms, patient waiting areas, imaging and other patient services. The Emergency Department, which serves both hospitals in addition to being the only Level-1 trauma center between San Francisco and San Jose, would triple in size.

Lucile Packard Children’s Hospital, which serves both hospitals, would add new operating rooms and 104 beds to accommodate its growing patient needs. Both hospitals now are operating at full capacity; in 2006, some 700 patients were sent to neighboring hospitals because of lack of bed space.

In the new facilities, all patients would be housed in single-bed rooms, which have become the standard for hospitals nationwide, Tortorich said. “Having a private room limits the spread of infection,” he added. “It creates a quieter environment for rest, which is a big issue for patients. And it accommodates the family and visitors, which is important to the healing process.”

Room for technology

Modernized facilities will enable the two hospitals to accommodate rapidly advancing technology that will directly benefit patients. For instance, the new Emergency Department will be equipped with its own imaging equipment so that physicians can diagnose and treat problems faster. The operating rooms, which are currently 60 percent of the standard size nationally, would be expanded to accommodate large monitors and other tools that surgeons use to visualize tissues in the body.

Tortorich noted that surgical technology has evolved in much the same way as technology in the home, where elaborate entertainment centers that require more space have replaced low-profile television sets with rabbit ears.

“It’s the same for surgeons,” he said. “They may blow up an image on a large TV screen to better visualize an area of the body.”

STANFORD MEDICINE NEWS

SEE HOSPITALS ON PAGE 6
The drug dealer of the future is sleek, efficient, sophisticated—and WiFi enabled. As highlighted in a U.S. Senate Judiciary Committee hearing in April, the once-distinct worlds of drug dealing and the Internet are merging, resulting in unprecedented access to potent painkillers like Vicodin and Oxycontin for non-medical use. The fear this situation generates knows no partisan limits: liberal Sen. Dianne Feinstein and conservative Sen. Jeff Sessions are reaching across the aisle to promote greater controls on Internet drug trafficking.

Addictive and potentially lethal medications are available without prescription from more than 2 million Web sites around the world, according to studies conducted by the Treatment Research Institute at the University of Pennsylvania. Many of them are based in countries that impose few legal controls on pharmaceuticals. A no-prescription pharmacy in Tajikistan or Tanzania—which might be little more than a truck with a well-stocked medicine cabinet and a wireless-enabled laptop computer—can sell painkillers to Americans with no fear of local law enforcement.

This growing phenomenon may be fueling the rising tide of prescription drug abuse among adolescents. The 2006 Monitoring the Future survey by the University of Michigan found that 12th graders are five times as likely to have used Oxycontin and 12 times as likely to have used Vicodin as they are to have used heroin in the past year. The average parent or teen probably considers abuse of these drugs less dangerous than abuse of heroin, but in fact they are pharmacologically quite similar, all being potent opiates with high risk of addiction and overdose.

Tech-savvy world
Most adolescents are more tech-savvy than their parents and understandably have less fear of ordering a drug on their home computer or cell phone than they would of venturing out into the street to find a dealer. Many a teenager is home alone when the mail comes, and it takes only a few teens to supply a large number of young people with Internet-purchased drugs.

What to do? Feinstein and Sessions should be commended for taking the important first step of amending the Controlled Substances Act, which was originally passed when Steve Jobs and Bill Gates were 15 years old, to cover the Internet trade of abusable medications. The next step is to develop strategies that limit Internet trade in dangerous non-prescription drugs, while preserving the right of patients with legitimate prescriptions to purchase needed medications online.

The Drug Enforcement Agency has pursued the traditional law enforcement approach of arresting dealers and seizing drugs. This works well for pharmacies physically based in the United States, but most Web-based drug dealing originates in other countries. Even if we were fortunate enough to put all domestic illegal Internet pharmacies out of business, the traffic would simply shift entirely overseas at the speed of a few mouse clicks. Traditional border control methods likewise will have little impact: U.S. Customs and Border Protection can’t inspect more than a fraction of the foreign mail that enters the country each day.

Track transactions
To succeed at suppressing this new form of drug dealing, we will have to recognize a fundamental difference between street and Internet drug deals. Tracking financial transactions on the street—for example, the names and addresses of all the people who contributed to the $5,000 in small bills found on an arrested drug dealer—is very difficult for law enforcement. In contrast, on the Internet, even the smallest financial transactions are electronic, creating a traceable record.
Law enforcement agents could pose as teenagers wanting to buy painkillers without prescription over the Internet, much the same way they currently catch online sexual predators. Once the phony transaction was processed, the information on the seller could be immediately shared with the credit card company and its associated bank. These entities, in turn, could cancel the ability of the seller to do any further electronic transactions online. This process would involve some cost for the credit card companies and banks, but it would benefit them by getting them out of a dirty business.

Policing the financial transactions rather than the drugs themselves may seem an unusual departure from traditional enforcement approaches. But just as the Internet has demanded new ways of thinking about every other area of life, it also requires new ideas for combating dangerous drugs. Efforts to seize Internet-purchased drugs at the border or in far-off nations will have minimal effect, but we don’t need those familiar tools to tackle this problem. The best approach was well summarized by one of the witnesses at the Senate hearing, Dr. Thomas McLellan of the Treatment Research Institute: Just follow the money.

Keith Humphreys, PhD, is a professor of psychiatry and behavioral sciences at Stanford University School of Medicine and an expert on addiction medicine. This opinion piece originally ran in the San Jose Mercury News on May 28, 2007.

Dedicated blood donor makes a giving record

Woodside resident Dick Tagg walked into the Stanford Blood Center for his 500th donation in late August and faced a phalanx of media who were there to witness the landmark event.

But Tagg, whose donation set a Stanford Blood Center record, took it in stride. “It’s not like I ran a four-minute mile or something,” he said. “All I had to do was go down there, and they took care of it. It’s easy.”

A retired geologist, Tagg said he began donating blood products some 35 years ago after reading a notice in the newspaper about the need for white blood cells for children with leukemia.

“It seemed like the right thing to do. The fact that we had kids the same age made a difference—that we had healthy kids and there were others who didn’t,” said Tagg, who later met some of the ailing youngsters who had benefited from his donations.

Since then, he has been coming regularly to the blood center, mostly to donate platelets, which are needed to help control bleeding in patients with cancer and other ailments.

Years ago, Tagg said, the donation process took as long as four hours, because the technology was relatively unsophisticated. But today, he can donate two units of platelets in an hour and a half, just enough time to catch a short film from the center’s DVD collection.

Tagg also has worked as a volunteer recruiter for the center, for he recognizes the pressing demand for blood. “It’s serious stuff. People who need blood are really injured or sick,” he said. “We have to keep the blood program going so if we have a big need, the supplies will be there. If we don’t give blood, how can we expect the blood to be there if we—or someone in our family—need blood?”

Blood center officials say they’re very grateful for Tagg’s dedication, particularly in these times of short supplies. “It’s amazing to think about how many patients’ lives have been saved by his donations, and we hope it will inspire others to give blood,” said Michele Hyndman, spokeswoman for the blood center.

“if we don’t give blood, how can we expect the blood to be there if we—or someone in our family—need blood?”

Dick Tagg

Many a teenager is home alone when the mail comes, and it takes only a few teens to supply a large number of young people with Internet-purchased drugs.
The project also includes the replacement of 50-year-old laboratory space in the School of Medicine with state-of-the-art facilities to speed up research, helping to turn new discoveries into treatments for patients. The Hoover Pavilion, original site of the 1931 hospital, will be renovated to house community physicians now located on Welch Road and for related clinical uses.

Community benefit

To accommodate the redevelopment, the medical center has proposed rezoning the area around the project as a new hospital district. The district would acknowledge the special requirements of the hospitals and would ensure that the project does not set a precedent for other developments in Palo Alto, Tortorich said.

The project is now making its way through the City of Palo Alto’s environmental review process. The review process will address traffic issues, and visual and other impacts, and will ensure that the public has numerous opportunities to comment on the proposed project.

“Stanford University Medical Center believes these changes will bring important benefits to the community. We are grateful for the support many community members already have expressed for assuring the availability of health care for local residents, and we look forward to continuing to work with the community,” said Shelley Hebert, executive director of public affairs for Stanford Hospital & Clinics.

Community members who have comments or questions or who would like to schedule a presentation can contact Kay Wilson at KayWilson@stanfordmed.org or 650-725-2960. For more information or for updates, see the project Web site, www.stanfordpackard.org.
Health information is widely available on the Internet. "Google" any ailment, and you’re likely to receive thousands of links to medical wisdom, all espousing the truth about your particular illness or injury. But what information can you actually trust? How do you know the Web site you find is legitimate, accurate and current?

One way to ensure the safety and accuracy of your health information search is to start with the Stanford Health Library’s Web site—healthlibrary.stanford.edu. This virtual branch of the Stanford Health Library has more than 17,000 reviewed links to free scientifically based medical information on the Internet, a large selection of health videos, and over 850 full-text health and medical books available for use.

“Stanford provides a trustworthy service to navigate health information on the Internet,” said Nora Cain, director of the Stanford Health Library. “Everything on the Web site has been reviewed and is scientifically based.”

The Stanford Health Library also has three physical locations to serve medical consumers. The main branch, located at the Stanford Shopping Center, has been in existence since 1989. Open to the public six days a week, the library is lined with floor-to-ceiling bookshelves, filled with an extensive collection of books, medical manuals and journals, health letters and periodicals. A second branch is located in Stanford Hospital, offering a convenient resource for hospitalized patients and their families. The third branch is located in the Stanford Cancer Center; it contains information on all health-related subjects, as well as a collection specifically focused to meet the needs of cancer patients.

The Stanford Health Library boasts one of the most comprehensive collections of consumer health information and the largest collection of Chinese-language consumer health information in the country. Each location is overseen by a medical librarian and is staffed by specially trained volunteers who can help patrons navigate the resources to find what they need. The library staff is also available by phone: They will conduct comprehensive medical searches and send out information to individuals who are unable to come into a branch, completely free of charge.

“Our objective is to give away as much good information as we can to people who need it, when they need it,” said Cain. “Today, patients are expected to be active participants in their own health care. The Health Library is here to give them the information they need when they have to make a decision about their health.”

The Stanford Health Library serves more than 10,000 walk-in patrons annually among its three branches, and receives between 1 million and 2 million visits per month on its Web site.

As part of its mission to inform, the Stanford Health Library offers a series of community education talks on relevant health topics, all presented by Stanford physicians and researchers. (See events listings, page 6.)

Housing the Goodman Center on the surgical floor of the hospital is part of its ultimate goal. Krummel sees the center as a place where residents and attending surgeons can practice surgical maneuvers before heading into the OR, much as a pianist would play scales before a concert.

“By using simulation as a way to warm up or rehearse, it becomes the ultimate safety and quality component for the hospital,” said Krummel. “Stanford is inventing the future of patient safety and quality, and the Goodman Center is part of that larger movement.”
Helping kids connect
New Web site calms fears, uncertainties

Lucile Packard Children’s Hospital’s new Web site, the Packard Kids Connection, is an engaging online way for children ages 5 to 12 to learn what to expect during a visit to the hospital. Entirely child centered, the playfully animated bilingual site is filled with interactive games and demonstrations: what to pack, what to wear, what to expect for various tests and treatments, and whom a child might meet.

Content was developed by a team of Packard Children’s experts in Web marketing and in Recreation Therapy and Child Life; members of the Family Advisory Council; pediatric nurses, doctors and therapists; and other staff members.

“The new Web site lets kids know that Packard Children’s is a friendly place,” said Debra Monzack, CCLS, a child life specialist. “Most importantly, the site lets kids familiarize themselves with the hospital experience. As a result, they feel more confident and in control during what could be an unknown and possibly threatening experience.”

Web site visitors can personalize their own avatar to lead them through activities such as a doctor’s kit matching game that familiarizes them with medical equipment and a packing game that encourages them to select items from a virtual bedroom to bring to the hospital. They’ll also spend time with a virtual roommate while they check out the features of their hospital room and learn about having visitors.

Kids see what happens step-by-step in each of the animated test and treatment sections, which include blood draw, IV, X-ray, CT scan, MRI scan and anesthesia. Each section has opportunities for interaction: decorate your IV, choose a relaxing daydream, select the right outfit for the day of your scan and more. Power Penguin takes on the role of a patient’s stuffed toy, sharing experiences throughout the hospital.

Finally, other resources available for children at Packard Children’s Hospital—the Forever Young Zone playroom, library, school, outdoor spaces and cafeteria—are presented as brochures for kids to peruse, with photos and on-location videos.

Volunteers needed for clinical research

Antioxidants, omega-3 effect on heart health

People at risk for heart disease are being sought to participate in two new studies that will examine whether antioxidants and omega-3 fats help prevent heart disease.

Both studies will be led by Christopher Gardner, PhD, an assistant professor of medicine in the Stanford Prevention Research Center.

“Although antioxidants and omega-3 fats are thought to be good for you, there is little agreement among scientists—and little understanding among the general population—about how much to take and where to get those nutrients from,” Gardner said. “We will be studying the questions of ‘how much’ and ‘where from.’”

> Interested volunteers must fill out an online questionnaire to determine whether they qualify. The questionnaire is available at nutrition.stanford.edu. For more information, contact Project Coordinator Antonella Dewell at 650-736-8577.

Diabetes: Increasing the risk of TB?

A new study will investigate how diabetes increases a person’s vulnerability to infection with tuberculosis, or TB.

“The risk of a person with diabetes becoming ill with TB appears to be three to 11 times as high as that of someone without diabetes, and they often have more severe forms of the infection,” said Alicia Chang, MD, an infectious disease scholar. “What we still don’t know is why or how this happens.”

Researchers will examine the immune responses to the TB vaccine in people with and without type-2 diabetes.

> Volunteers must be nonsmokers 30 to 65 years old, in good general health, uninfected with TB and previously unvaccinated with the TB vaccine, and born in the United States. For more information, contact Chang at 650-724-4941.