VITAL SIGNS

**Surgical stencil: A simple but inventive idea**

Dr. Lori Alvord is used to getting attention for being the first woman Navajo surgeon. But she wants to leave a legacy that goes beyond that. “I don’t want to be niched into one corner,” she says. So she’s decided to become an inventor—in addition to her roles as associate dean of student and multicultural affairs at DMS and a general surgeon at DHMC and the DMS-affiliated VA in White River Junction, Vt.

She recently received a patent for her first invention, a sort of stencil for laparoscopic surgery. In laparoscopy, a small incision of less than half an inch is made, usually in the abdomen, and a tunnel is cut through the body to the site in need of surgery. That tunnel, which is lined with a tube, serves as a pathway for the tiny instruments that the surgeon will operate with from outside the body.

While the instruments and tubes are specific sizes, says Alvord, surgeons “just look and guesstimate” how long to make incisions in the skin. “What we should be doing is making them just the right size,” she says.

**Seal:** If an incision is too small, the surgeon may try to force the instruments through, injuring adjacent tissues. If an incision is too big, that can cause problems, too. “The way we look at everything inside,” Alvord explains, “is we pump carbon dioxide into the abdomen to distend it . . . [so] we have a little place to work.” If there’s not a good seal between the skin and the tube, air can leak out, making the surgeon’s workspace inside the body smaller than is optimal.

Alvord’s stencil design has openings that correspond to specific instruments and sizes. It also has longer slots that can be used for non-laparoscopic incisions, which most surgeons also do freehand. The idea behind the stencil is “so amazingly simple.”

**Children’s Hospital at Dartmouth mascot is “as real a dinosaur as one will ever see”**

There have been recent reports of a big, blue, very friendly dinosaur wandering around the Children’s Hospital at Dartmouth (CHaD). This six-foot-tall creature is named Chad A. Saurus—Chad for short.

According to local folklore, a CHaD-a-saurus egg—dating back to the Cretaceous period, roughly 100 million years ago—was found in a big block of ice near DHMC in the early 1990s. A CHaD staff member cared for the egg until it hatched and then raised the baby dinosaur in a secret location at the hospital. The dinosaur liked the place so much he decided to make it his permanent home. These days, he’s often spotted socializing in and around CHaD.

The CHaD-a-saurus has a few wranglers who take him on walks and make sure he behaves so he doesn’t accidentally frighten anyone. Among them are Jonathan Strutt, Kari Vandenburgh, and Sarah Farley—all second-year Dartmouth medical students. They accompany Chad when he visits hospitalized children or represents CHaD at special events, such as the Dartmouth business school’s Tuck Run for the Kids; local March of Dimes fund-raisers; and CHaD family nights sponsored by the Fisher Cats, a minor league baseball team in Manchester, N.H.

“The kids are so excited when they see him,” says Sharon Brown, CHaD’s director of community relations. In fact, she adds, people of all ages “respond with such glee” when the dinosaur makes an appearance.

Chad’s favorite activities include doing arts and crafts projects, dancing, visiting patients, and playing hide-and-seek with doctors and nurses. Chad’s wranglers are sometimes asked who’s inside the dinosaur suit, and they assure all questioners—even inquisitive reporters—that Chad is as real a dinosaur as one will ever see.

There is no reason to fear the CHaD-a-saurus, they emphasize. He’s an herbivore, so he eats mostly grass and small plants—but that means he must be monitored around DHMC’s flower beds and shrubbery.

And he loves ice cream, too. So kids had better watch their ice cream cones carefully when the friendly blue creature is around! L.E.
**Harp Plucks Heartstrings**

Play me another good tune. I’m 73 and I know them all,” a smiling patient says to volunteer harpist Margaret Stephens. Stephens (below), a certified harp practitioner, plays a small, 23-string Celtic harp for patients and their families two days a week at Dartmouth’s Norris Cotton Cancer Center.

“I feel really privileged to have a little peep into people’s lives and to be able to give something to them,” she says. “It’s soothing—there’s something about the physics of sound of a plucked harp string that’s a very pure tone.”

Stephens’s repertoire ranges from operatic arias to Irish ballads to country-and-western tunes. She creates an individualized “cradle of sound”—for example, gradually slowing down the tempo to help reduce a patient’s breathing rate or choosing pitches and keys that resonate with the listener. “When the music starts,” says Deborah Steele, coordinator of patient services, “it’s as if a new environment is created, a bubble of protection and healing.”

See [http://dartmed.dartmouth.edu/fall06/html/vs_harp_we.php](http://dartmed.dartmouth.edu/fall06/html/vs_harp_we.php) for some about Stephens and her harp.

**Teatime Brews Teamwork**

If you caffeinate them, they will come: That appeal works Monday through Thursday at 3:00 p.m. at Dartmouth’s Norris Cotton Cancer Center. The sixth-floor atrium starts buzzing as doctors, researchers, and students emerge from their labs and offices to partake of coffee, tea, cookies, and conversation.

When people from different labs get to know each other in an informal setting, they are more apt to find ways to team up—to share equipment, supplies, and ideas—says the Cancer Center’s director, Dr. Mark Israel. The interlude is a valuable place to network for novice researchers and seasoned investigators alike.

The turnout at the teas has been consistent since they began three years ago, says Israel. People “exchange ideas informally with others who work in related but oftentimes different disciplines,” he says. The Cancer Center facility was actually designed to foster collaboration, with open labs, glass-walled meeting rooms, and atriums. “When scientists working on different aspects of the cancer problem relax together . . . sparks just naturally fly,” Israel adds. “Minds open, new ideas tumble forth, new research pathways and collaborations emerge.” L.E.

**Genetic testing may reveal a quagmire of complex questions**

The test results are in: You carry the gene for a hereditary liver disease, hemochromatosis, in which the body absorbs too much iron.

And so are the questions: Does having the gene mean that you will develop the disease? Since the disease is hereditary, do you or your doctor have a duty to warn your family members? Will you have to disclose this information the next time you apply for health insurance?

**Realms:** There are often more questions than answers when it comes to genetic testing, and the questions span the scientific, legal, social, and ethical realms.

That’s why “people need to have a very clear understanding of what purpose a test serves” before ordering it, says Dr. Dirk van Leeuwen, a liver specialist at DHMC. Van Leeuwen has co-authored a paper on the implications of genetic testing for Hepatology, the journal of the American Association for the Study of Liver Disease (AASLD).

Genetic testing has become increasingly common in hepatology and in medicine in general. Yet, as van Leeuwen discovered—with the assistance of his coauthor, Dr. James Bernat, a DHMC ethicist and neurologist—he and his colleagues were “only to a limited extent educated to really oversee the implications of all this genetic testing.”

So van Leeuwen and Bernat made several recommendations to the AASLD. They suggested the creation of guidelines for the use of genetic testing in clinical and research settings. And they called for better professional education in how to provide pre- and post-testing counseling, how to understand test results, and how to address privacy concerns.

There are many benefits from genetic testing and research for both individuals and society, but also many ethical and social concerns. For example, 21% of people surveyed by the Centers for Disease Control and Prevention said they were “unwilling under any circumstances to allow donation or storage of blood or tissue samples for current or future research,” point out van Leeuwen and Bernat.

Research scandals such as the federally funded Tuskegee study, in which poor black males were denied effective treatment in order to study the natural history of syphilis, diminished public trust. And recent misuse of genetic tests by employers added to fears. Scientists, clinicians, and policy-makers must address society’s concerns, says van Leeuwen, if the benefits of genetic testing are to be fully realized.

Jennifer Durgin
Researchers document the ills of marketing illness

It’s harder and harder to be well,” says Dr. Steven Woloshin. For years, he and his collaborator, Dr. Lisa Schwartz, have studied the effects of, as he puts it, shrinking “the boundaries of health.”

In 1999, the physician-researchers published one of the earliest papers on this topic. In it, they calculated the number of Americans who would be labeled “diseased” or “sick” under several proposed changes in the definitions for diabetes, high blood pressure, high cholesterol, and overweight. They found that by relaxing the thresholds for these conditions, 85.7 million more Americans would have at least one chronic condition, and 75% of adult Americans would be considered diseased.

Harms: Such expansions of disease definitions are worrisome, they say, because “the extent to which new ‘patients’ would ultimately benefit from early detection and treatment” is often unknown. And diagnosis and treatment are not without harms, physical and psychological.

Their latest paper on the subject was published in the April issue of PLoS Medicine, the journal of the U.S. Public Library of Science. The issue included seven articles on “disease mongering”—the expansion of disease definitions to increase the market for a treatment or drug. Schwartz and Woloshin’s article focused on restless legs syndrome (RLS). RLS is defined by four criteria: 1) the urge to move the legs due to an unpleasant feeling in them; 2) onset or worsening of symptoms when at rest; 3) relief from movement; and 4) symptoms that occur primarily at night and interfere with sleep.

Between 2003 and 2005, the drug company GlaxoSmithKline (GSK) ran an RLS awareness campaign and funded several studies on RLS and its treatment with the drug ropinirole. GSK also supported the RLS Foundation, a nonprofit advocacy group.

In 2005, the Food and Drug Administration approved ropinirole for treatment of RLS. Sold by GSK as Requip, ropinirole had already been approved to treat Parkinson’s disease. After gaining approval for RLS, too, GSK spent $27 million advertising the new use, according to the Washington Post, and sales of Requip rose 34%, to £156 million (about $270 million).

Saga: To examine the media’s role in the RLS saga, Schwartz and Woloshin studied all the articles on RLS in major newspapers from late 2003 to late 2005; there were 33. Almost two-thirds used RLS prevalence figures from GSK and the RLS Foundation—that it affects 12 million Americans, about 10% of the adult population. But these estimates “overstate the prevalence of clinically meaningful disease,” say the researchers. Those figures are from a study that used only one of the four criteria to define RLS and that included people with leg symptoms from other causes, such as diabetic neuropathy. Schwartz and Woloshin estimate the actual prevalence of RLS to be well below 3%.

While almost half the articles (15) mentioned ropinirole, only five noted its side effects. It has several, including nausea (40% with ropinirole versus 8% with placebo), dizziness (11% versus 5%), and, ironically, sleepiness (12% versus 6%). One-fifth of the articles mentioned the RLS Foundation but “none reported that the foundation is heavily subsidized” by GSK. From 2001 to 2006, the firm donated at least $850,000 to the foundation.

Huge: “It is easy to understand why the media would be attracted to disease-promise stories,” say Schwartz and Woloshin. “The stories are full of drama: a huge but unrecognized public health crisis, compelling personal anecdotes, uncaring or ignorant doctors, and miracle cures.”

“The problem lies in presenting just one side of the story. There may be no public health crisis, the compelling stories may not represent the typical experience of people with the condition, the doctors may be wise not to invoke a new diagnosis for vague symptoms that may have a more plausible explanation, the cures are far from miraculous, and healthy people may be getting hurt” through unnecessary treatment.

The bottom line for Schwartz and Woloshin, who are based at the VA in White River Junction, Vt., is giving the public balanced information, which they do in a regular column they write for the Washington Post. “Otherwise,” says Woloshin, “we may be harming people.”

Jennifer Durgin
How much is it? That’s a question consumers ask whenever they make a major purchase. But when it comes to health care, the answer is often hard to find. And even though individuals are being asked to take on more responsibility for their health-care choices—through health savings accounts and high-deductible insurance plans—an essential problem remains: how can consumers shop wisely for care without having clear information from providers about its cost?

DHMC is working to fix this problem. In June, it launched a new feature on its website called the out-of-pocket estimator. The estimator, which is available at http://www.dhmc.org/goto/charges, tells patients approximately how much they will owe for office visits or various diagnostic, surgical, and medical services—after factoring in their own insurance coverage (or lack thereof). Patients can also call DHMC at 800-368-4783 to get more information or a more precise estimate, a service that was available before. So far, the estimator has drawn about 500 users a month from outside of the DHMC computer network.

Charges: While many hospital associations and medical practices now post pricing information online, often they post only “charges.” Charges represent neither the actual cost of services nor what insurers pay providers for those services, because both government and private insurers negotiate large discounts with health-care providers. And at some places, such as DHMC, uninsured patients receive discounts, too. Also, charges may or may not include professional fees—money that pays for clinicians’ services—as well as hospital fees. DHMC’s out-of-pocket estimator accounts for both kinds of fees, as well as discounts and the details of various insurance plans. So patients can get a sense of what they personally will owe.

“This is what the patient wants to know,” says Mary Kay Boudewyns, vice president for revenue management at DHMC, who helped develop the estimator. “The patient wants to know how much [a service] is going to cost them.”

Boudewyns and her colleague Melanie Mastanduno, director of quality measurement at DHMC, are proud of the estimator, developed by in-house software engineers. But, they caution, the estimator still has room for improvement. For example, right now in order to get an accurate estimate, patients with private insurance need to put in details of their plans, such as the co-pay and deductible amounts. “The average person just doesn’t know” that information, says Boudewyns. So she and her colleagues are working with insurers to better incorporate those details into the estimator. They also plan to add more services to the list.

Creed: The estimator will continue to evolve, they say, guided by their unofficial creed: “Good information leads to good decisions.”

“That’s the most basic [reason] why we are doing this,” emphasizes Mastanduno.

Jennifer Durgin

VITAL SIGNS

Price check in radiology room three

These screens show the out-of-pocket estimator’s results for a screening mammogram—$150 for a patient on Medicare (top), and $179 for someone without insurance (bottom).
Data drives improvement in cardiac surgery

Some people’s eyes glaze over when they look at graphs. Donald Likosky’s light up. Likosky, a Ph.D. who’s a statistician and epidemiologist in Dartmouth’s surgery department, points to a graph with a zigzag blue line that peaks at a red dot. A red dot “indicates to the viewer something is different,” explains Likosky. “Different can be good. Different can be bad.”

A good dot is cause for celebration, while a bad one means “you ought to tweak something,” he says. The dot he’s pointing at shows a rise in the percentage of patients given aspirin within seven days of a coronary artery bypass graft (CABG). That’s good, so no tweaking is needed in this case.

The graph is on a large poster featuring 21 similar graphs, each displaying data on DHMC CABG patients from 2002 through 2006. The graphs chart details such as patients’ median age, rates of post-operative bleeding, and average hospital stays. And this poster is just one of five, each of them focused on a different type of cardiothoracic procedure. Likosky’s team produces them all.

OR: The data provides information both to DHMC’s cardiothoracic surgery section and to the public. The system draws daily from two patient databases: a clinical registry (with information about patients and procedures) and the hospital’s administrative records (with information like the OR schedule). The clinical registry is in a database that’s compatible with independent graphing software, so Likosky and the department’s database manager, John H. Higgins, can design the graphs quickly. That enables them to present current data at monthly meetings of the section’s clinical staff. The latest graphs are then posted prominently on a wall that staff walk by regularly.

News: “We need to provide information that is relevant and contemporaneous,” says Likosky, “We can’t tell them how they did six months ago, because that’s old news.”

“The nice thing about this kind of data wall,” agrees section chief William Nugent, M.D., is that “when you decide there is a problem . . . you are in a great place to change that.”

In many of the graphs, DHMC’s rates are plotted against regional rates from the Northern New England Cardiovascular Disease Study Group (NNE). The NNE is a voluntary consortium based at DHMC of eight institutions throughout New Hampshire, Maine, and Vermont. Likosky’s team recently published a paper based on NNE data in the journal Annals of Thoracic Surgery and expects to soon publish details of the DHMC data project.

The team at DHMC focuses on factors they have the most control over—factors “we can change tomorrow,” says Likosky—and those that have a direct effect on patient care. These include use of aspirin after surgery, intra- and post-operative transfusions, or whether the graft vessel for a CABG is taken from the...
New students boast top scores and service, too

They spent their childhoods in lands near and far—from the backwoods of Maine to the coast of the Black Sea, from the West African nation of Nigeria to the Central American nation of Honduras. In college, they studied subjects as diverse as biochemistry, engineering, history, music, and studio art. But in August, they all came together as students at Dartmouth Medical School.

The 183 new DMS students include 82 in the M.D. program (including 6 M.D.-Ph.D.’s); 31 Ph.D.’s in the basic sciences; 46 M.P.H.’s; and 19 M.S.’s and 5 Ph.D.’s in the evaluative clinical sciences. The matriculants were drawn to Dartmouth for diverse reasons, including the “closeness and camaraderie” many said they felt among the faculty and students. DMS’s rural location was also a major draw.

“When I visited Hanover,” M.D. student Joo Choo wrote to introduce herself to her classmates and the faculty, “one of the very first things I noticed was its geographical similarity to South Korea, where I was born and raised until 11. The mountains and the trees were strikingly similar. Reminiscing on my fond memories of roaming the hills and rivers as a kid, I soon grew comfortable at Dartmouth. I am very happy to be a [DMS ’10] because I truly felt a part of my essence in Hanover.”

**Color** This year’s admissions were highly competitive for the M.D. program, which had more than 4,600 applicants. The new medical students—44% of them women and about 40% people of color or from countries other than the U.S.—brought a wealth of accomplishments and experiences. The class’s average combined MCAT score was 32, one of the highest in DMS’s history. (See the adjacent box for more facts about the M.D. class.) The new students have worked as emergency medical technicians and in clinics and laboratories all over the world, and many have held Fulbright scholarships or already earned advanced degrees.

They also evidence a strong commitment to service. They have volunteered to renovate a school for the deaf in Mexico, organize a book drive for children in Western Samoa, recruit staff for a clinic in Kenya, teach in South Central Los Angeles, and raise funds for an orphanage in Bulgaria. A few have also served in the U.S. military.

The class has no shortage of extracurricular talent either. Among its members are painters, sculptors, dancers, musicians, and several athletes who played intercollegiate varsity sports.

**Programs:** Admissions to the basic science graduate programs and the Center for the Evaluative Clinical Sciences (CECS) continue to be very competitive as well, due to the prestige of both programs. For example, DMS ranks 12th out of 126 U.S. medical schools in funding per basic science faculty member, according to the Association of American Medical Colleges. And CECS is home to several of the country’s most prominent researchers in health-care policy and variations in health utilization, quality, and spending.

“The next years will be exciting ones for you, challenging intellectually, emotionally, and physically,” Dr. Stephen Spielberg, DMS’s dean, told the incoming M.D. students in August. In fact, his remarks apply to all the new members of the DMS community. “DMS was founded by one visionary physician, Nathan Smith,” he continued, and “its success now is dependent on many scientists and physicians working together, challenging each other, and striving to make health care better for all. Individual excellence in a setting of community.”

Jennifer Durgin

Gold Society honors giants of the past and of the present

There were giants of medicine present at the inaugural induction ceremony in June of a new DMS honor society. There in the memory of many was Dr. Thomas Almy, for whom the society is named—the Thomas P. Almy Chapter of the Gold Humanism in Medicine Honor Society. His daughter, Susan Almy, was at the event. So were many faculty and students who had known Almy, who came to DMS as chair of medicine in 1968 and died in 2002.

The 11 inductees, all DMS ’06s, did not have that opportunity. However, physicians who worked or studied with Almy have continued to pass on what mattered to him—especially the essence of what he called “the healing bond” between physician and patient. Almy, in fact, was one of the exemplars cited by noted physician-author Dr. Lewis Thomas in his book The Youngest Science.

**Qualities:** DMS’s senior advising dean, Dr. Joseph O’Donnell, spearheaded the creation of the Dartmouth Gold Society chapter, the 53rd in the U.S. He says Almy exemplified the qualities that are fostered by the Gold Society, whose goal is to recognize medical students, residents, and faculty who demonstrate humanistic qualities.

The 11 founding members of the DMS chapter were selected by their peers, clerkship directors, and the assistant deans for

**Student Stats**

A few figures about the 82 new M.D. students

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VITAL SIGNS

Worthy of note: Honors, awards, appointments, etc.

Ethan Dmitrovsky, M.D., a professor of pharmacology and toxicology, was named associate scientific director of the Samuel Waxman Cancer Research Foundation.

Gregory Tsongalis, Ph.D., an associate professor of pathology, was elected president of the Association for Molecular Pathology.

Charles Wira, Ph.D., a professor of physiology, has been tapped as president-elect of the American Society for Reproductive Immunology.

Madeleine Dalton, Ph.D., a research associate professor of pediatrics, received the Alfred University Alumni Award for Distinguished Achievement.

David Robbins, Ph.D., an associate professor of pharmacology and toxicology, was appointed to the editorial board of the Journal of Biological Chemistry.

Lori Alvord, M.D., an assistant professor of surgery and associate dean for student and multicultural affairs, received an honorary doctorate of humane letters from Drexel University.

Marie Bakitas, D.N.Sc., a nurse practitioner in palliative medicine, received the Anthony Di Guida Delta Mu Prize for Excellence in Scholarship and Dissertation from the Yale University School of Nursing, in recognition of her doctoral research in chemotherapy-induced peripheral neuropathy.

Diane Harper, M.D., M.P.H., a professor of community and family medicine, was named the 2006 New Hampshire Family Physician of the Year by the New Hampshire Academy of Family Physicians. For more on Harper, see page 56.

Joseph Annis, M.D., an adjunct associate professor of anesthesiology, was elected to the American Medical Association board of trustees.

George Little, M.D., a professor of pediatrics, was named New Hampshire Pediatrician of the Year by the New Hampshire chapter of the American Academy of Pediatrics. A specialist in newborn care, Little developed the regional perinatal system for New Hampshire and Vermont.

Three pediatricians with DMS ties were chosen as officers in the New Hampshire Pediatric Society: Charles Cappetta, M.B.B.S., an adjunct associate professor, as president; Patricia Campbell, D.O., an adjunct assistant professor, as secretary; and Christine Rosenwasser, M.D., an adjunct assistant professor, as treasurer.

DHMC’s Norris Cotton Cancer Center was named one of the top 50 hospitals for cancer care by U.S. News & World Report in its 2006 “America’s Best Hospitals” issue.

DHMC and the VA Medical Center in White River Junction, Vt., were named among the nation’s 100 most wired small and rural hospitals, according to Hospitals & Health Networks magazine. The annual survey focuses on hospitals’ use of information technology to address quality, customer service, public health and safety, and workforce issues. DHMC has been a “Most Wired” hospital for six of the last seven years.

Clarification: In the feature about AIDS in our Summer 2006 issue, the directory of faculty and alumni involved in HIV/AIDS was an effort to encapsulate (in only 30 to 40 words each) contributions to research and care by 20-some individuals—historical milestones as well as recent work. That resulted in a few descriptions that did not clearly reflect some faculty members’ current work. Alexandra Howell, since making the seminal 1997 finding described in the article, has studied heterosexual transmission of HIV, the influence of sex hormones on HIV infection, and the replication of HIV within the female reproductive tract. Charles Wira heads a National Institutes of Health Program Project Grant that is designed to increase knowledge of immune protection in the human female reproductive tract and provide information regarding the prevention of local infection in the genital mucosa; such knowledge will be useful in managing sexually transmitted diseases and in understanding heterosexual HIV transmission. And Susana Asin studies heterosexual HIV transmission, the influence of sex hormones and of inflammation triggered by sexually transmitted pathogens on HIV infection, and viral replication in the female reproductive tract.