

**F A C T S & F I G U R E S**

**Of mission and money**

**6%**

of all U.S. hospitals are major teaching hospitals

**35%**

of inpatient care for patients with rare conditions is provided at major teaching hospitals

**41%**

of neonatal intensive care units are located at major teaching hospitals

**54%**

of pediatric intensive care units are located at major teaching hospitals

**58%**

of Level I trauma centers are located at major teaching hospitals

**88%**

of bone marrow transplants are performed at major teaching hospitals

**100%**

of NCI-designated Comprehensive Cancer Centers are affiliated with a major teaching hospital or medical school

**\$227**

billion is the estimated five-year cut in Medicare payments to teaching hospitals as a result of the 1997 Balanced Budget Amendment

**\$2.5**

billion in charity care annually is provided by major teaching hospitals (which amounts to 45% of all charity care nationwide)

**\$8.4**

million in charity care was provided in 2000 by Dartmouth-Hitchcock Medical Center

**\$19.5**

million in additional community benefits (outreach, education, subsidized services, etc.) was provided in 2000 by DHMC

Sources: Association of American Medical Colleges and DHMC

**In memoriam:  
Former DMS dean  
Carleton Chapman**

Carleton Chapman, M.D., the dean of Dartmouth Medical School from 1966 to 1973, died on December 10, 2000. Chapman had played a historic role in the development of the School by leading the reestablishment of the M.D.-degree program.

When Chapman arrived in Hanover, he was already a nationally known cardiologist; he had been chief of cardiology at the University of Texas Southwestern Medical School and president of the American Heart Association. He was one of the early researchers who focused on "how the heart works in people," according to Andrew Wallace, M.D., also a former dean of DMS as well as a cardiologist.

Wallace says Chapman's papers on how the heart responds to exercise and stress still represent fundamental work in the field. Indeed, one study Chapman initiated at Southwestern on the "circulatory and pulmonary reaction to stress" is still, 40 years later, funded by the National Institutes of Health.

**Intellectual breadth:** Chapman also brought with him to DMS a breadth of intellectual interests; in fact, he almost became a professional organist.

As James Strickler, M.D., Chapman's successor as dean of DMS, remembers the story, Chapman was studying the organ overseas when he asked his teacher for a completely frank appraisal of his ability. The in-

structor told him, "You are very, very good, but you probably will not achieve the ranks of a truly great professional."

"With that," recalls Strickler, "he decided to change his career." And he went on to become, by any measure, a "truly great professional" in medicine. After graduating from Davidson College in 1936, he won a Rhodes Scholarship to study physiology at Oxford University, then earned both an M.D. and an M.P.H. at Harvard. He did his residency at Boston City Hospital and served in the U.S. Public Health Service from 1944 to 1946. After a stint on the faculty at the University of Minnesota, he was appointed a professor of medicine at Southwestern.

**Goal:** At DMS, Chapman's primary goal was to reestablish an M.D. program. He recruited Strickler to be associate dean in 1967, and the two developed an entire curriculum leading to the new degree. Strickler says that Chapman "was one of my mentors. He was an extraordinarily creative, brilliant man, who I think did a great deal for the Dartmouth Medical School in conceptualizing the degree program, in instituting some curriculum reforms, and persuading the Trustees to move ahead with the M.D. program."

The second-year curriculum that Chapman helped author, called Scientific Basis of Medicine, was "way ahead of its time and has been copied by many other medical schools," notes Wallace. He also points out that Chapman's prominence in national organizations—particular-

ly as chair of the Association of American Medical Colleges' Council of Deans—was important in getting Dartmouth recognized as a new but serious M.D. program.

Chapman pioneered other innovations as dean. For one, he “espoused and articulated the role for a rural medical school,” says Strickler. “Carleton felt strongly that a medical school—especially in a rural area—should be highly relevant to the practice of medicine in the region.” He supported the Department of Community and Family Medicine and developed outreach programs and community-based clerkships for DMS students.

**Vision:** Richard Karl, M.D., who was recruited by Chapman as chair of surgery, remembers him as one of the major reasons why he came to DMS. “I was attracted to his vision and to his sense of leadership,” says Karl. He notes that there were inevitable challenges in guiding an institution through such a period of change. People had “different expectations” about developing the clinical departments, Karl recalls. But he credits Chapman with giving him and the rest of the surgery department free rein to develop their program, as well as with understanding the requirements for maintaining first-rate clinical care.

Mahlon Hoagland, M.D., chaired biochemistry from 1967 to 1970, and he appreciated the support that Chapman gave him in implementing curricular innovations. Hoagland also knew Chapman as a neighbor in Thetford, Vt., and says that the two of



*Carleton Chapman (right, and at the far left above) oversaw several major building projects and reinstated the M.D. program at DMS.*

them enjoyed “enthusiastic conversations about all sorts of subjects. He was very broadly educated. . . . I found him very stimulating to be around as a conversationalist. He enjoyed just relaxing and being outdoors.”

During Chapman’s years at the helm, the DMS faculty expanded from 60 to over 100, the student body doubled, sponsored research grew, and funds were raised for the construction of Vail and Chilcott, as well as for an addition to Dana Biomedical Library.

**Innovations:** Chapman left DMS in 1973, the same year that Dartmouth graduated its first M.D.’s since 1914. He went on to the presidency of the Commonwealth Fund in New York City. Margaret Mahoney, Chapman’s successor in that post as well as a former DMS Overseer, says that his primary concern at the Commonwealth remained medical education. He was in-



terested in the question of “How broad a person should you be before you become a medical student?” she says. He worked with medical schools, including DMS, to institute innovations in admissions policies and curriculum. Mahoney points out that the system of medical education has changed in the years since in ways that align with Chapman’s vision.

Yet despite his focus on medical education, Chapman’s eclectic background showed through. For example, while at the Commonwealth, he initiated funding for an English translation of *The Digest of Justinian*, a fundamental text in the legal field. Ma-

honey at first found this an idiosyncratic program for the health-care-oriented Commonwealth Fund, but the completed translation was a great success for the organization as measured in worldwide sales. Mahoney also says that Chapman “championed” her appointment as the first woman president of a major foundation. “He was in medicine, but he was truly a renaissance person,” she adds.

**Inquiry:** Chapman left the Commonwealth Fund in 1980 and focused on historical inquiry, with an appointment as a professor of the history of medicine at Albert Einstein College of Medicine and a visiting professorship at Johns Hopkins. In 1994, he published *Order Out of Chaos*, a biography of John Shaw Billings, a 19th-century physician, medical bibliographer, and scholar. Other titles to his credit include *Physicians, Law, and Ethics* and a history of DMS published in 1973, *Dartmouth Medical School: The First 175 Years*. He also wrote a feature for the Fall 1990 issue of *Dartmouth Medicine*, a literate discourse on the medical and historical aspects of his experience walking the length of Hadrian’s Wall in Great Britain.

Even after he stepped down as DMS’s dean, Chapman and his wife, Ruth, maintained a home in the Upper Valley, and they returned to the area to retire. When they moved into the Kendal retirement community in Hanover a few years ago, they donated to the facility an organ that Chapman had built.

Jonathan Weisberg

## DMS Rhodes Scholar is heading off to Oxford's "towers city"

Investigating how to regenerate damaged nerve cells and how to revitalize the health-care delivery system are among the aspirations of Dartmouth's newest Rhodes Scholar, second-year DMS student Courtney Voelker. Voelker is one of 32 Rhodes recipients in the U.S. and approximately 95 worldwide in 2001. She will use the award to work toward a doctorate in the physiological sciences.

**Grueling process:** Her goals are ambitious, but the Rhodes Scholarship provides an opportunity to study in what 19th-century poet Gerard Manley Hopkins called the "towers city" of Oxford, England—a place that has bred many great scientists and thinkers. And, besides, anyone who can endure the grueling Rhodes selection process can probably do anything. Not only did the application itself take months to complete, but it was followed by two solid days of state interviews and two equally long days for regional interviews, with only one day off in between for travel.

After Voelker's state interviews, the jury deliberated for eight hours, leaving the applicants to wonder who would move on. "We were sitting for eight hours together in this room . . . and we actually got to know each other quite well," she says. "Every once in a while, one of the judges would come back into the room and say, 'You may need



NASIR HAMID / COURTESY OXFORD UNIVERSITY



JOSEPH MEHLING

*Courtney Voelker, left, a second-year Dartmouth medical student, was one of 32 U.S. recipients of a Rhodes Scholarship this year. She will study nerve regeneration at Oxford University, pictured above.*

college (she's an alumna of Brown University), she spent a summer at the National Institutes of Health studying the herpes simplex virus's effect on the trigeminal nerve, and this sparked her research interest in neuroscience.

More immediately prefiguring Voelker's current path was a year she spent studying at Oxford as an undergraduate. She had one neuroscientist as her tutor and worked in the lab of another. Both encouraged Voelker to apply for a scholarship to return. "I really enjoyed the lab I was working in and the subjects," Voelker says. "So I thought I'd give it a shot—it's such a shot in the dark."

Now that Voelker has hit the mark, she'll begin work on a project that combines her two Oxford mentors' studies. While the central nervous system (CNS) can't regenerate in animals after

birth, it has shown regeneration in utero. "What I'm going to be looking at," explains Voelker, "is basically doing a genetic screen of the fetus and a genetic screen of the adult at different stages, and comparing where the genes change—so trying to target which genes are responsible for CNS regeneration."

That's the first step, which she admits is "huge." The next step will be learning how to manipulate the genes that permit or prevent nerve regeneration. "It's very exciting. I'm really looking forward to it," she says.

Although Voelker has been to Oxford already, she expects this stint to be enriching because of the chance to expose herself to new perspectives. "The department that I'll be working in is very diverse," she says. "Each of these people is trained in such a different type of system, and it brings together different ways of thinking about a problem."

**Diversity:** This is something the Rhodes program fosters in drawing students from all over the world to Oxford. Even at her interviews, Voelker met people with wide-ranging interests in politics, art, and literature, as well as in other areas of science.

Voelker's second major interest—improving how the health-care system treats people—also grew from her observation of her sister's disability. Her family moved from Denver to Portland when Voelker was nine in order to facilitate treatment for her sister, and ever since then she has "been motivated by the good physicians and the bad physicians that you see."

“My goal,” Voelker says, “is really to attack medicine . . . to put an emphasis on combining the research aspect and the clinical aspect, because we’re at a stage in medical technology when the two are separating.” She envisions an institute where scientists and clinicians in different fields work as a team for the benefit of patients.

But first she has to complete her training. After her studies at Oxford, she’ll return to the United States to finish the clinical part of her education at Brown Medical School in Providence, R.I.; Voelker is a member of the Brown-Dartmouth Program, under which students spend their first two years of medical school at DMS and their second two at Brown.

**Triad:** DMS not only provided Dartmouth with its most recent Rhodes Scholar but also boasts three faculty members with a Rhodes on their résumé. They are John Baldwin, M.D., a professor of surgery and DMS’s dean [see page 65 in this issue for his thoughts on Voelker’s award]; pediatric ophthalmologist Susan Pepin, M.D., an assistant professor of surgery; and parasitologist Elmer Pfefferkorn, M.D., who joined the DMS faculty in 1967 and is now an emeritus professor of microbiology.

Pfefferkorn was struck by Voelker’s “exceptionally strong academic background [and her] well thought-out plan for her studies at Oxford. . . . I had a splendid two years at Oxford,” he recalls. Voelker has no doubt but that she will as well.

Jonathan Weisberg



## Biking across America for the NCCC

Last year, Raymond Book (pictured above) turned 60, retired after 38 years of working in the microbiology lab at DHMC, and bicycled coast-to-coast across the United States.

Book left Everett, Wash., with 49 other cyclists on June 18 as part of a program called “Coast-to-Coast Challenge,” and he ended up in Gloucester, Mass., on August 19—4,200 miles later. Local people provided meals along the way, and the riders stayed at campgrounds and schools. The concept appealed to Book, who likes meeting people and camping out. Since he would miss the annual Audrey Prouty Century Ride, a fundraising event for Dartmouth’s Norris Cotton Cancer Center (NCCC), he decided to raise money en route for the NCCC, as well as the Dayspring Pregnancy Center in Lebanon.

The trip lasted nine weeks, with the riders averaging 75 miles a day. An “off day” was scheduled each week, so there were six days of riding and then a day of relaxation. The group traveled through 11 states and one Canadian province. They also saw four of the Great Lakes and crossed Lake Michigan by ferry.

Book enjoyed the other riders in his group, as well as all of the people he met along the way. The first day out in Everett, in a gym where a group meal was being served, he met a Korean girl wearing a Dartmouth sweatshirt. In Wyoming, he was just getting ready to leave a rest spot after filling up his water bottle when a rancher stopped his truck to ask what was going on. Book explained that they were biking coast to coast. The rancher asked if it was a benefit, and Book told him about his two charities. The rancher whipped out a \$10 bill. “He didn’t know me from Adam,” says Book.

“I started out knowing no one, but we were all like a family at the end,” he adds. “I had a blast.”

A.R.W.

## New endowed chair bridges genetics and pharmacology

Alan Leslie, M.D., a 1931 graduate of DMS, and his wife, Fannie, recently made a commitment to fund a new endowed chair—in a new cross-disciplinary field—at Dartmouth Medical School. The Fannie and Alan Leslie Professorship in Medicine will be devoted to the study of genetics, with particular emphasis on pharmacogenetics.

The gift is part of a larger commitment, totaling \$16 million, that the Leslies made to Dartmouth College last fall; it was one of the largest individual gifts in Dartmouth’s history. Alan Leslie, also a 1930 graduate of the College, practiced internal medicine for many years, first in New York City and then in Los Angeles. And Fannie Leslie, who holds a bachelor’s degree from Rice and a master’s from Tulane, also has Dartmouth roots; her grandfather, William Fellows Swain, was an 1850 graduate of the College.

“The DNA sequence of the human genome is now freely accessible to all,” notes DMS Dean John Baldwin, M.D. “The Leslie Chair will greatly accelerate our ability to create new knowledge based on our work here in genetics and pharmacology. We stand on the threshold of transforming medicine with what we learn, and this tremendously important gift from Fannie and Alan Leslie helps accelerate our ability to make great contributions to science in return.”

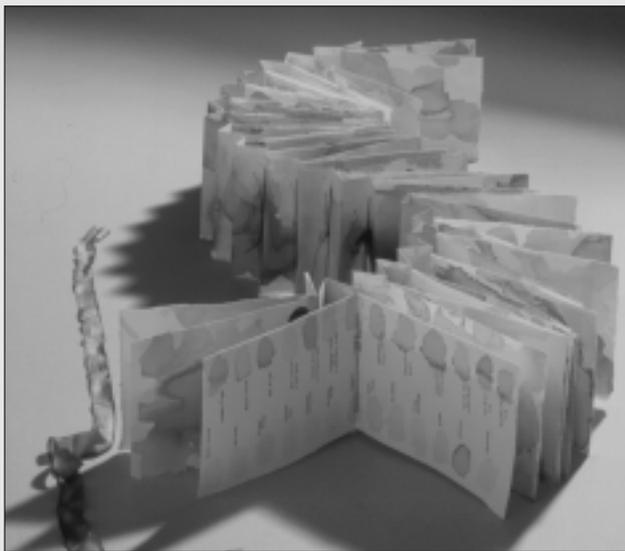
Actually, the Leslies' original plan was a bit different. "We had in mind a professorship in pharmacology," says Alan Leslie, explaining that he was an instructor in pharmacology at Columbia early in his career. However, he adds, "during talks last spring, [Dartmouth College] President [James] Wright mentioned genetics as an endowment possibility, and we came up with the integrative idea of combining genetics with pharmacology."

**Timely:** It was a timely idea indeed. Pharmacogenetics involves the study of genetically determined responses to drugs and has become an essential part of current research in genetics.

Genetic differences can have serious clinical consequences, notes Jay Dunlap, Ph.D., chair of genetics at DMS. Knowing how particular drugs react to certain genetic constructions can help to reduce or eliminate adverse effects that may lead to serious illness or death. Dunlap explains that scientists know from basic research in genetics and pharmacology that this sort of "personalized medicine" will be possible with more research.

"The Leslie Professorship reflects a gratifying degree of foresight by the Leslies," says Dunlap, "by promoting work in some of the most topical areas of current research. Their investment will help foster the creation of new knowledge from basic research that will guide the development of truly 'personalized medicine'—treatments and therapies that are individualized to one's own genetic makeup."

Sandy Adams



## Healing the heart with creativity

Color, texture, words, and shapes all intertwine in the book-art of Martha Hall. Constructed of handmade paper, some of her books of poetry unfold in accordion flaps or large, flat planes, and some in conventional leaves. Each is a personal creation.

In a talk at DHMC as a part of the "In Poetry and Prose" series, Hall recently discussed how the art of making books has helped her to heal. A graduate of Dartmouth's Tuck School of Business, a weaver, and a businesswoman, Hall was diagnosed with breast cancer while she was a student at Tuck. She received treatment at DHMC in 1993 and began making her books a few years later. Since then, she has had shows all over New England and some of her books are now in the permanent collections of museums.

One set of 12 books rests inside a black box—a Pandora's box, she calls it—representing all of the things that were released when she was diagnosed with cancer: the chemotherapy, the illness, the information, the feelings that changed her life. "Part of healing is coming to know where you are," said Hall, adding that she experiences a process of "self-discovery" in creating each book. One thing her books have taught her is that "I'm not angry because I have breast cancer . . . I'm sad that so many women do."

Some of Hall's books have been means for having a "new kind of conversation." One, called "Test Day," deals with the process of having a mammogram, and Hall believes that sharing it with her doctors has improved their communication with each other. Her books are deeply personal reflections of her own experience, but she hopes that because of this, paradoxically, they have a universal message. "I think it heals the heart," she says of creative expression. J.W.

## Egyptian outreach is two-way street for DMS urologist

Marc Cendron, M.D., a pediatric urologist at DHMC, may have gone to Egypt to share his medical expertise with nurses and physicians there, but he learned almost as much as he taught.

For one thing, he says, he learned "how to be more efficient in the operating room, use a lot less equipment, [and] operate faster." Scarce resources force Egyptian doctors to make do with less—they use only two sutures for a procedure for which the U.S. standard is four, for example—but they are often just as successful as their American colleagues.

And polluted air in cities like Cairo seeps into operating rooms, quickly rendering them unsterile, so surgeons have had to adapt by performing procedures faster than they might in a U.S. hospital. "The air, the environment, is basically cloudy, dusty, dirty," says Cendron. "The longer the patient's incision is open to the air, the greater the chance of . . . infection," he explains, "even though we do use antibiotics."

**Expertise:** As a volunteer with Physicians for Peace (PFP), Cendron traveled to Egypt last November with a team of specialists who shared their expertise with their Egyptian counterparts and helped children suffering from serious urological problems caused by birth defects, acquired conditions, and trauma.

Physicians at upscale, state-

of-the-art university hospitals, as well as at less-well-equipped hospitals, were all eager to learn from the Americans' demonstrations in the OR. One case involved a three-year-old boy born with three bladders; the U.S. surgeons successfully combined two of the bladders into one and turned the third into a urethra.

The PFP volunteers were also invited to lecture on up-to-date urological techniques to the Egyptian Urological Association. U.S. physicians feel it's important to correct urological problems in children at a very young age, for example, because they heal much better. "About 25 percent of birth defects involve the urinary tract,"

Cendron explains. But surgeons in Third World countries are reluctant to operate early because "they do not have the adequate anesthesia support to take care of these newborns," he says.

**Overseas:** Even before Cendron made this trip, he was an experienced overseas medical volunteer; he'd traveled to Egypt once before, in 1998, and had made two trips to Vietnam. He was surprised to learn that medical care in Vietnam was 50 years behind that in the Western world. "I was amazed to see techniques and procedures that had been in the textbooks a long time ago, but not anything that we practiced anymore," he says.

Physicians there were still using primitive techniques to drain pus from infected kidneys, for example. "They had never seen percutaneous drainage of a kid-



*Cendron, at left in an OR in Egypt, operated there on this little boy born with three bladders.*

ney," he says. They would do "a big operation to essentially open the area where the kidney is and drain out the pus." He was delighted to find an unused but functional ultrasound machine hidden in a closet. "We turned it on and we taught the physicians there how to insert a tube inside the kidney through the skin without having to make an incision in order to drain the kidney," he says.

**Missions:** Cendron would love to return to Vietnam and hopes PFP will send a team there one day. So far, since 1984, the organization has conducted over 200 medical missions in the Middle East (including 18 to Egypt), Central America, South America, Africa, Eastern Europe, the Caribbean, and parts of Asia. PFP also arranges for doctors, nurses, and technicians from

these regions to visit U.S. medical schools and hospitals.

"I think this is an experience that every medical student and physician should have, just to put things in perspective . . . to illustrate how good we have it over here and how much we can contribute," Cendron says.

"It's a learning experience both ways," he adds. "Not only do you learn how these people work, how they learn, how they want to improve their ways of working, but they also learn from what you bring to them. I think the marvelous thing is that you really make friends with the people who are over there. The memory of having worked with these people under very different but difficult conditions is one that I think has improved my skills as a physician."

Laura Stephenson Carter

## Seeking treatment consensus for babies with HLHS

The 1990s were a busy decade for Pamela Jenkins: After finishing up her M.D. at the University of North Carolina and a residency in pediatrics at Dartmouth-Hitchcock Medical Center, she completed a Ph.D. in 1999 at Dartmouth's Center for the Evaluative Clinical Sciences (CECS). While she was at it, she had two children and is expecting her third in May.

**Malformation:** Crowning these accomplishments, Jenkins was recently awarded two grants—one from the Doris Duke Foundation and the other from the federal Agency for Healthcare Research and Quality—to support her investigation of outcomes for children born with a congenital malformation of the heart called hypoplastic left heart syndrome (HLHS).

The condition, in which the left ventricle of the heart fails to develop properly, can be successfully treated in some babies—about half of the children born with HLHS now have good long-term outcomes. This is a dramatic change; 15 years ago, according to Jenkins, there was virtually no treatment for the condition and it was considered invariably fatal.

**Twofold problem:** The problem Jenkins is working on is twofold: Which babies will do well? And which treatment works best? Because the condition is rare, affecting fewer than 1,000 newborns a year in the United

States, information on it is scarce. Some hospitals, Jenkins has found, do not even collect data on HLHS outcomes.

Also in part because of the condition's rarity, there is no consensus about the likely outcomes of surgical intervention or even about when it is advisable to operate. Treatment choice for HLHS, Jenkins explains, "is highly practitioner-dependent. Some offer only comfort to these babies, some offer all the options.

"We know that a high degree of babies who survive have neurological impairment," she adds, but the source of the impairment is not clear. There is controversy about whether such damage is usually preexisting or is a result of surgery. "It looks like the majority already had impairments before the surgery," Jenkins explains, "perhaps because of reduced blood flow *in utero*. There might be multisystem problems prior to birth."

**Anomalies:** One approach to this uncertainty is to do diagnostic tests before surgery, using MRI and EEG to identify babies who already have anomalies in order to untangle which outcomes are the result of surgery and which existed before the intervention. Such information may help to clarify which babies are most likely to benefit from intervention, as well as which intervention has the most promising outcomes in terms of both reducing neurological and other side effects and increasing long-term survival.

If there is little consensus about what to do for babies with



FRANK SQUIRREL GRAPHICS

*In her clinical work, pediatrician Pam Jenkins sees a lot of basically healthy children like this one, but her research focuses on outcomes for babies born with a congenital malformation of the heart that used to be invariably fatal.*

HLHS, there is even less about where to do it. Some hospitals do not treat these babies at all; at other hospitals, staged surgery is used to repair the defects in the heart. A third option is heart transplant, but it is not common because donor hearts for neonates are scarce.

There is, in addition, controversy about whether such babies should be treated only by surgeons who specialize in the treatment of HLHS. "There are a lot of different numbers coming from a lot of different places," Jenkins says, which has contributed to "a phenomenal amount of heat" within the profession about which babies to treat and how to treat them.

She feels that her position as a pediatrician who is neither a

cardiologist nor a surgeon is probably the best platform to work from, since she is not a stakeholder in the debate.

In fact, Jenkins observes, it is pediatricians, not cardiologists or cardiac surgeons, who have shown the most interest in her work to date. She thinks this is because "pediatricians have to deal with these babies now, because they're living—15 years ago they weren't. Survival rates and functional outcomes are important. Although pediatricians are usually not the ones who advise parents when the babies are born, they do have to care for these children long-term."

**Long-term outcomes:** "It is essentially 15 years since treatment for this condition started," Jenkins explains. "We don't know of any

surviving 15-year-olds, but we do know of 10-year-olds." Studying long-term outcomes in these children will help identify prognosticators for good outcomes and make clearer which surgical approaches are superior, Jenkins predicts.

The model for her research is that of her mentor, Gerald O'Connor, Ph.D., associate director of the CECS; a decade ago, he helped to organize a collaborative research effort looking at outcomes of heart surgery in adults. "His approach is what I've hoped to achieve," Jenkins explains, "on a much smaller scale, because the number of patients with HLHS is so much smaller. But Gerry started with the same approach, taking one disease category and then branching out."

**Scarce information:** What Jenkins hopes to do is to show "some kinds of gains or results of the research for this one disorder, and then work on creating an improvement group that can move into other areas."

Both O'Connor's mentorship and Jenkins's own work at the CECS have convinced her of the value of this kind of research—collecting scarce information on thorny problems.

"The utility of one-on-one patient encounters, in these very rare and difficult situations, is limited," she observes, because singular incidents don't add up to a useful knowledge base. "The value of this research is that it can extend our knowledge," she says, and, in the long run, improve outcomes for babies.

Megan McAndrew Cooper

## Reaching out to Russia's strapped medical libraries

Keeping up to date with medical journals and texts is hard enough for busy physicians when they have the materials handy. In a country where national library systems have suffered near-stagnation for 10 years, it would be impossible—were it not for technology and goodwill.

Those two elements are now being supplied to several beleaguered medical libraries in Russia courtesy of Dartmouth Medical School and the University of Pennsylvania. Heading up the effort for DMS are Ellis Rolett, M.D., a cardiologist who has had extensive experience as an adviser to the National Library of Medicine, and William Garrity, M.A., director of Dartmouth's biomedical libraries.

**Lag:** In post-Soviet Russia, medical libraries are faced with a decades-long lag in their journal collections—a result of the old philosophy of centralization and of today's severe shortage of funds to remedy the situation. The medical library in Petrozavodsk, for example, a city northeast of St. Petersburg, serves not only the medical school there but also the whole region of Karelia—yet, says Rolett, it is no larger than DMS's Dana Biomedical Library. And much of the collection reflects the Communist-era method of disseminating Western journals. Before 1990, Russia was not a signatory to international copyright laws. The central national library,



*The DMS visitors to Russia found this architecturally impressive reading room at the National Library of the Republic of Karelia in Petrozavodsk, but shelves that were nearly devoid of current medical journals and texts.*

strapped for funds, bought single subscriptions to journals and made photocopies for the regional libraries. Thus the stacks in these libraries, Rolett says, are filled with white binders containing these illegal copies—and not much else.

What the Russian libraries have on their side is the development of Internet technologies, which provide a new way of disseminating information. Instead of trying to fill in the gaping holes in the Russian holdings with actual books and journals, the American librarians have turned to electronic versions. They've had help from the Soros Foundation, which among other charitable activities in Russia is working to provide libraries with the hardware necessary to read and download printable copies of current publications.

**Cartons:** Rolett's son was in St. Petersburg, working for the Ben and Jerry's ice cream company, when Rolett became aware of the problem. At first, he says, "we sent medical textbooks

through Ben and Jerry's shipments," but the impossibility of addressing the problem with cartons of books was evident from the very beginning.

"We began thinking more of the electronic ways of delivering literature," Rolett explains. A model library partnership project began in the fall of 1999, with funding from the U.S. National Library of Medicine (for more information on the project, see [www.dartmouth.edu/~libnet/](http://www.dartmouth.edu/~libnet/)).

**Skills:** First, of course, it was necessary for the Russian librarians to develop the skills to make the new system work. The process began with a visit to the U.S. by two Russian librarians in October of 1999. They spent two weeks at DMS and a week at the University of Pennsylvania. The Russians were charged with going back and training other librarians, so eventually access to online services could be made available to faculty, students, and the public.

A conference in St. Petersburg in May of 2000 provided an

opportunity for Dartmouth's envoys (including Rolett's wife, Virginia, and Garrity's wife, Deborah, who helped to organize the event) to get to know the Russians involved in the project and to assess local resources and capabilities. One thing was clear, says Rolett: the kinds of cooperative relationships that exist among universities here had been actively discouraged during the Soviet era.

**Sharing:** Introducing the idea of such cooperation was part of the Americans' task. "Since every library has limited resources, it's necessary to share," says Garrity, something that's taken for granted in this country. "But information isn't free," he adds. Although there are enormous amounts of medical information available online, text and journal services charge substantial sums for access. To the rescue came an American company that markets online books and journals; they agreed to make their materials available to the Russian libraries in Petrozavodsk and St. Petersburg without charge.

Plucking a library from thin air—with the help of technology—is probably the wave of the future for most biomedical libraries, according to Rolett and Garrity. "The half-life of medical information is so short, and the cost of building paper-based libraries so high, that this offers a great alternative delivery system," Garrity says. In fact, it's the sort of progress that might have been known in Communist times as a Great Leap Forward.

Megan McAndrew Cooper

## Zuni Pueblo elective: Lessons learned, from singing to sonography

Ilona Csapo, the first DMS student to take advantage of a new elective at the Zuni Indian Hospital in New Mexico, did a four-week family practice rotation there last fall. Her experience encompassed more than just medicine, however.

"The place is really special," Csapo says. The hospital is located on the Zuni Pueblo, a few miles from the town of Zuni and within sight of Dowa Yalanne, a large mesa sacred to the Zuni people. She spent a month there—working at the hospital, learning from the doctors who live in Zuni, exploring the Southwest's buttes and mesas, and gaining insight into a culture that retains elements of pre-Columbian times.

**Rotations:** "We go through all these one-month rotations or two-month rotations," says Csapo, a fourth-year student, "and none of them really change you—but that one did."

She describes, for example, meeting her preceptor on her first night in Zuni. "Somebody at the hospital told me where his house is, and I go to the house, and the door is open, so I just walk in. . . . Everyone is out in the backyard and they're having . . . a bonfire and a party." There was music and singing. "It made me immediately feel comfortable," she recalls.

The Zuni Hospital serves as the primary source of medical care for the Zuni people, and



### Addressing hidden health illiteracy

**K**lots gshur 4 spo shiurf; po juvne weemps wism: Imagine if that's about as much sense as you could make of the label on your prescription bottle. Unfortunately, this isn't an imaginary situation for a significant number of patients.

Illiteracy is a broad social problem, but its role in health care is often overlooked. "Health literacy" is considered the ability to read, understand, and act on health-care information, and as many as 45% of adults in the United States may not meet this standard. That gap can lead to misunderstood medication or dietary instructions and result in poor health outcomes.

At Dartmouth, the Area Health Education Center (AHEC) is addressing the issue. The mission of AHEC, a federally funded initiative, is "to improve access to health care, especially in underserved and rural areas," according to Rosemary Orgren, Ph.D., the program's director. The northern New Hampshire branch of AHEC held a conference a few months ago to teach health-care providers how to improve their communication skills. Anne Conner, an AHEC outreach librarian, says patients with health literacy problems can "have difficulty following recommended treatments or keeping appointments." They also may not know the names of medications they have taken for a long time or may need help filling out forms.

Conner describes a few of the strategies recommended in the AHEC conference. When handing out written materials, she says, providers should ask questions that require patients to find information on the page. If need be, they can review the materials and emphasize key points. "They might highlight or circle the most important information," Conner says. Giving patients an audiotape with the information they need can be helpful in important cases. Conner notes that her office also offers to evaluate the reading level of any health materials.

Illiteracy can be very embarrassing, she explains, so much so that people often won't admit to having a problem reading, even to their own spouses—or doctors. J.W.

Csapo was involved in all aspects of this care. The hospital primarily provides outpatient services, but it also has about 30 inpatient beds. It has a fully staffed lab, as well as x-ray and sonography services, although patients with serious conditions and those requiring advanced diagnostic services are transferred to larger hospitals in Gallup or Albuquerque.

**Range:** As a family practice student, Csapo worked with patients ranging from "babies to 100-plus," serving on the inpatient wards as well as rotating through the hospital's specialty clinics—such as prenatal care, well-child services, diabetes care, and elder care—and its general clinics.

The differences between New Mexico and New Hampshire in terms of the case mix weren't as significant as Csapo had expected, although she did see more severe diabetes and more trauma at the Zuni Hospital than she had seen on her rotations at Dartmouth-Hitchcock.

However, Csapo did observe some major cultural differences. She was struck, for example, by one young woman who came into the clinic suffering from a cold and never mentioned that she was pregnant. "You kind of have to ask," Csapo explains. "Or maybe she was embarrassed. . . . So that was my ignorance of the culture."

**Unique language:** Some of the older patients do not speak English, she adds, but translators were readily available. Zuni is a unique language, unrelated to any other native Southwestern

tongue. Csapo notes that young children in Zuni are still taught the ancient language—a practice that is representative of the efforts at cultural preservation that the community makes.

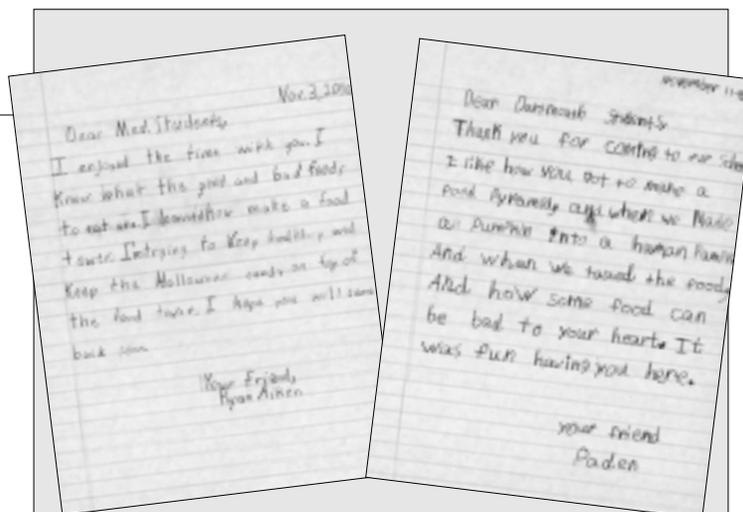
“It’s very interesting that the religion still lives very strongly,” Csapo notes. She saw one patient who, when doctors at the hospital weren’t able to ease his pains, informed them that he was going to see a traditional healer. “I think that was one of the neater things about the culture,” Csapo adds. “They’re in some ways straddling the old and the new.”

She also had a chance to accompany a caseworker on home visits to patients with chronic diseases. “We spent an hour or two [at each patient’s house]. And so you’re sitting in their kitchen and you get to talk to them about *them*—rather than so much talking to them about their *condition*. That’s what I enjoy about medicine.”

**Festival:** In addition, Csapo got to explore the town on her own. She attended a festival in the town plaza, where she saw a ritual dance depicting the Zuni creation myths, as well as the mission church, where murals depict the same mythic tale, about how the Zuni people emerged from a lake and wandered to find their homeland.

Beyond the town, Csapo explored the landscape of mesas and wide-open skies. “It was stunning. . . . September is the perfect month to go, because all of the flowers are in bloom.”

She even hiked all around the sacred Dowa Yalanne, al-



### **Sending a healthy message to third-graders**

Second-year medical students Elizabeth Bassett and Sharon Johnston have a freewheeling approach to community service: “We try things one time, and if it works we make it a regular event. If not, we move on to something else,” says Johnston. “Our goal is to identify community needs and to get medical students involved interactively with the community.”

One such effort—a rousing success, as it turned out—was a nutrition fair held at a Lebanon, N.H., elementary school last fall. About 60 third-grade students attended the fair, which was organized into five stations with information on nutrition and healthy eating habits. The two most popular stations, Johnston says, were the “make your own healthy snack” stop (with groceries provided by the Hanover Coop and Shaw’s supermarkets) and the “human food pyramid.”

“It was cool when some of you stacked on each other and made a pyramid. Why did you guys and girls fall down? Is it when we get it in the wrong order?” wrote one student in his thank-you letter. Indeed it was; the medical students, dressed (roughly) as vegetables, asked the students to say how they should stack themselves to form a correct food pyramid. If the children got the costumed medical students in the wrong order, the pyramid collapsed.

The students’ food costumes reflected the not-too-organized approach to the event. “The costumes were very funny,” wrote another student. “Some kids thought that the carrot was a strawberry.” Johnston admits that they could use “slightly better costumes. I don’t know what a Davy Crockett hat had to do with being a potato, other than it happened to be in somebody’s closet.”

But although the planning for the event may have been a little loose, its lessons nevertheless found a receptive audience. As one appreciative attendee concluded, “I had a ton of fun learning how to keep my body healthy!” M.M.C.

though she was careful to heed the injunction not to climb to the top of it. Three hundred years ago, the Zuni people sought shelter on this mesa after Coronado led the Spanish to the Zuni land in search of the fabled Seven Cities.

**Opportunity:** DMS Dean John Baldwin, M.D., was instrumental in establishing this new elective for DMS students. According to Allen Dietrich, M.D., one of the directors of the Zuni clerkship, the quality of the medical care and the first-rate community service at the hospital are “an excellent model for Dartmouth students to see.”

Dietrich, who has been a family practitioner at Dartmouth since 1990, was the clinical director at the Zuni Hospital about 20 years ago. He and his wife, pediatrician Ardis Olson, M.D., who is also now on the DMS faculty, “left part of our hearts there,” he says. “We are great admirers of the Zuni people.”

Csapo says that she would love to return to Zuni or a similar situation someday. The example that she saw there of how medicine can be practiced has changed her perspective. “I felt how much you can personalize [medicine],” she says, “rather than having this ‘doctor-patient relationship.’”

**Mindful:** Furthermore, she adds, the doctors she worked with in Zuni “were absolutely models for being doctors and being people. . . . Besides doing a good job at work, they were very mindful of doing things to help the community.”

Jonathan Weisberg

## Research from DMS underpins "leap" in health-care quality

John Birkmeyer, M.D., may have realized the ultimate researcher's dream—he doesn't have to wait years to see his work put into practice; it's in use now. A consortium of major businesses called the Leapfrog Group is using its purchasing clout—and Birkmeyer's analysis showing how implementing three safety standards would save more than 58,000 lives a year and prevent some 522,000 medication errors—to drive the health-care industry into immediate adoption of patient-safety and error-prevention strategies.

**Vacuum:** "Researchers often face prospects of doing their work in a vacuum," says Birkmeyer, an assistant professor of surgery who practices at the Veterans Affairs Medical Center in White River Junction, Vt. "I leapt at the chance to actually begin to apply some of these things. The thing that's exciting about the Leapfrog Group is the immediacy and the high probability that it's actually going to happen. Most attempts to regulate and improve health-care quality have occurred at the legislative and political level. Thus by its very nature, it's often held hostage to the interests of all parties involved, which don't necessarily represent the interests of individual patients.

"The Leapfrog Group, because they're private-sector payers and basically can just say 'We're going to do this,' . . . has

side-stepped all of the delay and political intrusion."

The 60-member Leapfrog Group includes several Fortune 500 companies as well other large private and public health-care purchasers. Together, they spend \$40 billion a year on health benefits for 20 million Americans. They have decided to base their purchase of health care on three patient-safety standards—chosen because they promise to yield significant health benefits, can be implemented fairly quickly, and can be monitored effectively:

- **Computerized physician order entry (CPOE):** Physicians would use a computerized prescription system to eliminate or reduce errors due to illegible handwriting, decimal-point errors, and failure to check for drug interactions and allergies. Such a system could reduce serious prescribing errors in hospitals by more than 50%, according to Birkmeyer's analysis.

- **Evidence-based hospital referral:** Physicians would be required to refer patients needing certain high-risk surgeries and pregnant women facing high-risk deliveries to hospitals offering the best survival odds based on scientifically valid criteria—such as the number of times a hospital performs these procedures each year. Birkmeyer's research indicates this could reduce a patient's risk of dying by over 30%.

- **ICU staffing:** ICUs would have to be staffed by physicians with credentials in critical-care



FIXING SQUIRREL GRAPHICS

*John Birkmeyer, left, has marshalled the data underlying the national Leapfrog Group with help from several Dartmouth colleagues, including economist Jonathan Skinner, seated; internist Joshua Lee; and statistician Chris Birkmeyer.*

medicine. It's expected that this would reduce the risk of patients dying in the ICU by 10%.

Although the Leapfrog standards will apply only to hospitals in metropolitan areas, Birkmeyer notes that DHMC already meets most of the criteria. The Medical Center is currently developing a CPOE system, for instance, and physicians certified in critical-care medicine staff its ICU.

**Effect:** "I personally think that Leapfrog will ultimately have its greatest effect just by its ability to exert a fair amount of peer pressure among hospitals," says Birkmeyer. "Just by going public, before any of the safety standards have ever really been implemented, they've already had a significant effect just by making . . . patients aware that there are these things that are heavily correlated with hospital quality that they can then ask about."

Not everyone is thrilled with the Leapfrog approach, however. "Now that the Leapfrog Group has raised these worthy goals, maybe they'll help pay for them," Rick Wade, senior vice president of the American Hospital Association, was quoted as saying in one news article. Indeed, the up-front costs of developing and implementing a CPOE system can be substantial; hiring intensivists to staff ICUs can be expensive; and referring surgery elsewhere can mean lost revenue for the sending hospital.

**Change:** "It's fair to say that hospitals and physicians are overwhelmed by regulatory attempts," Birkmeyer says. "And this is, to many people, just the latest and most intrusive one."

In addition, there are fears that the changes could threaten the viability of small hospitals and thus limit access to health care for some patients. "The Leapfrog Group anticipated this as a common criticism, which is why at least in phase one . . . they're basically exempting rural areas," says Birkmeyer. "Some people within the quality-improvement camp would argue that rather than focusing on external measures, . . . essentially moving people around to the best hospitals, that instead we should be focusing on mechanisms for how to internally improve the care at all hospitals.

"I think that there's room for both approaches," he adds.

Laura Stephenson Carter

## A helping hand for hospitalized undergraduates

Improving patient care and enhancing medical education: Those are continuing goals of an academic medical center like DHMC. Sometimes a single, simple idea can accomplish both at once. That's the premise behind a new community service program that matches up medical students with Dartmouth undergraduates who need to be transferred from the College infirmary, Dick's House, to Dartmouth-Hitchcock.

Paul Testa, a second-year DMS student and a cofounder of the Medical Peer Advocates program, explains how it works: "We set up weekly rotations with a first- or second-year student who carries a beeper." The student with the beeper is alerted whenever a patient being transferred to DHMC wants a companion. The medical student meets the patient at the hospital and stays as long as the helping hand is needed. "The idea is to offer them some support while they're over there," says Testa.

**Support:** First-year medical student Anthony Perrone describes a call he went on. He says the patient had never before had a serious health problem. She "just wanted somebody else there," he says. The pace at the hospital can be "fairly slow going," he adds. "If you're there alone, it just becomes a little more ominous than it really is."

Testa mentions another way the medical students can help

undergraduate patients: "It's much easier if the patient is still there when some of the x-rays are being read in radiology, [but] they don't like to sit there for an hour and a half," he says. "We can sit there and interact with them . . . and facilitate the process a little bit."

Charlene Bradley, the director of nursing at Dick's House, says she also advises medical students going on a call to ask questions on the patient's behalf. "I just felt horrible sending . . . an 18-, 19-year-old kid off to the Medical Center when they are feeling lousy in the first place," Bradley says. "Without there being anyone there to encourage them to ask questions . . . it can be pretty overwhelming."

College students in particular can use the support, because they're at a transition point in their relationship to the health-care system. Most undergraduates have never interacted with a hospital or doctor on their own, and now suddenly they have to make independent decisions. Testa describes them as being "on the cusp of autonomy. . . . For the first time, they're experiencing their own autonomy as medical consumers," he says. "We can be there and let them bounce ideas off [us]."

**System:** The program is a special help to students who come to Dartmouth from other countries, because they may not yet



FIXING SQUIRREL GRAPHICS

*Leaving the intimacy of Dick's House, the Dartmouth infirmary, for DHMC can be scary for undergraduates experiencing the health-care system on their own for the first time. But now there's help from these and other DMS students who are "medical peer advocates."*

be familiar with the American health-care system.

So far, the program has handled mostly trauma cases, such as sporting mishaps and knee injuries, as well as a few medical problems. Though real emergencies are diverted to the emergency room, patients in the program have had to face some serious diagnoses. And Bradley reports that they have been very happy with the service the program provides.

But the medical students who participate in the program gain something as well. "What we get out of it," says Testa, "is we can be present for the medical intercession . . . and sort of insinuate ourselves into some of the caregiving—so it becomes a learning thing for us." During the textbook-laden first two years of medical school, this gives stu-

dents another chance to get into the hospital, see actual procedures and specialty consultations, and interact with caregivers. And by acting on behalf of one patient, the medical students also gain a perspective on the patient's experience amid all the activity.

**Twist:** "It gives you a different exposure," explains Perrone, "a different twist on your first year of medical school, rather than being chained to a desk. . . . It's one of the more rewarding things to get involved [in]."

The program is run by medical students, primarily Testa and his classmate Melissa Woo, in conjunction with Dick's House, and it is supported by the Medical School's Community Service Committee. Medical Peer Advocates is only in its second year, and the students are trying to improve their communications with Dick's House and to expand the program. Calls still come in fairly infrequently, so there is an element of luck in whether the student holding the beeper will actually get a chance to go to the hospital.

But whenever he does get to go out, Perrone takes advantage of the opportunity to watch doctors at work and observe "their positive qualities and, maybe, try to emulate those. . . . This is going to be me in five years," he concludes.

Jonathan Weisberg

## Biochemist explores mysteries of mitosis and motor proteins

Duane Compton, Ph.D., an associate professor of biochemistry, is deeply involved in the study of a life process that is as fundamental as it is murky.

Prior to cell division, the last phase of the cell cycle, the newly replicated chromosomes produced in the synthesis (S) phase are partitioned equally into separate parts of the cell. The cell then divides in such a way that each daughter cell has an identical set of chromosomes.

**Spindle:** During that process, the cell first constructs and then disassembles an elaborate structure in its interior called a spindle; this structure exists only temporarily, for the sole purpose of capturing, aligning, separating, and strategically locating the two sets of chromosomes. The spindle has a distinctive appearance when viewed microscopically and gets its name from its similarity to a tapered pin, or spindle, used in spinning.

At the start of mitosis, subcellular structures called centrosomes migrate to opposite sides of the nucleus and begin assembling long tentacles of microtubules, which are organized by a group of accessory proteins. Identifying those important accessory proteins and elucidating their precise function is what occupies Compton and the corps of eager graduate students and postdoctoral fellows in his lab.

He describes the process of spindle-formation "as similar to

picking a bouquet of flowers, which are held together in one hand. The hand that holds the stems represents a structure that is called the spindle pole, which evolved from the centrosome, the stems represent the microtubules, and the blossoms represent the chromosomes."

The organization of the "hand," or spindle pole, involves the contributions of specific proteins that are of interest to Compton's lab.

The short ends of the stems/microtubules are anchored to the interior of the cell wall, while the nuclear membrane disintegrates so the long ends can reach the chromosomes.

After the DNA strands have been duplicated in the S-phase of the cell cycle, they remain attached to each other in a constricted region called the centromere, forming an X-shaped structure called sister chromatids. The centromere on each chromosome has a specialized structure called the kinetochore, which is the precise target for its specific microtubule.

**Strands:** When each microtubule is attached to its kinetochore, the stage is set to pull the sister chromatids apart and separate the twin strands of DNA. Some theorists have imagined the microtubules as cables that act in concert to pull the strands apart and tow them into the separate regions of the cell destined to become the daughter cells.



Duane Compton is investigating aspects of cellular division—work that may lead to new cancer therapies.

FIXING SQUIRREL GRAPHICS

begin moving to their respective poles. A better analogy for the process than tow-cables may be railroad tracks, says Compton.

What he calls "little locomotives" move the DNA strands along the microtubules. The "locomotives" are either kinesin or dynein, two motor proteins that can utilize the energy of the nucleoside ATP. These motor proteins not only are involved in the movement of chromosomes, but also are a

general intracellular transport mechanism, shuttling a wide variety of organelles from one location in the cell to another.

**Cycle:** "We are studying a very visual and mechanical process," Compton says. "How do you assemble a complicated apparatus from its component parts, and then take it all apart and store it away until it is needed for the next cell cycle?"

The tools of his trade include light, fluorescent, and electron microscopy, coupled with specific antibodies to identify, or "knock out," proteins involved in the process. His office wall is lined with no less than seven scientific journal covers that have featured his stunning images. A leading textbook of molecular cell biology contains an illustration of his model for the interactions of motor proteins and microtubules.

Although many of his experiments involve intact human cells, he and his colleagues made

But no little "elves" pulling on the ends of the cables have ever been identified, so this tug-of-war analogy was scrapped.

Approximately 22 microtubules in a human cell must grow from each spindle pole and attach to each kinetochore, forming a shape somewhat like a football—the spindle.

For reasons that are not entirely clear, the chromatid sisters are first aligned together at the equator of the cell. The failure of a single microtubule to attach to its kinetochore is enough to stop the entire process—though cancer cells are not as particular about this as normal cells are. As a result, cancer cells show more errors in chromosome number, which may contribute to the malignant process through the loss of tumor-suppressor genes in one daughter cell.

At the point when alignment occurs at the cell's equator, there seems to be a brief pause in the process before the chromosomes

a giant leap forward when they duplicated the process of spindle formation in a cell-free system. This obviates the need to make intracellular injections of antibodies to identify which proteins are doing their job at various times. And each new protein identified as part of the mitotic process represents a new potential target for chemotherapeutic intervention in cancer—for it is a well-known principle that useful anticancer drugs have the ability to interfere with cell growth. Other labs have begun to develop small molecules with the ability to target mitotic proteins that Compton's group has identified.

**Clinical relevance:** Another area of clinical relevance involves the development of the human ovum. Down's and Klinefelter's syndromes, for example, are known to involve errors in the segregation of the chromosomes during meiosis.

Before coming to DMS in 1993, Compton earned his Ph.D. at the University of Texas and pursued postdoctoral training at Johns Hopkins, where he was named an Outstanding Young Investigator. Last year, he co-chaired a scientific session of the American Society for Cell Biology on the subject of spindle duplication and function.

But at any suggestion that his career seems poised to take off, Compton modestly credits the little elves in his laboratory—who may not pull on the microtubules, but otherwise pull together to make his whole research enterprise go.

Roger P. Smith, Ph.D.

**M E D I A M E N T I O N S : D M S**

**A**mong the people and programs coming in for prominent media coverage during recent months was a Dartmouth study on smoking in the movies. From a report on BBC Brasil to a story by Agence France-Presse, from a page-one item in *USA Today* to a feature in the *London Daily Mail*, the study made the news worldwide. Wrote Associated Press: "Smoking clouds the silver screen about as much as it did more than a decade ago,



when tobacco companies agreed to stop paying filmmakers to feature their brands, a new study shows." And, explained the *Los Angeles Times*, "The Dartmouth team found that 87% of popular movies contain tobacco use. . . . 'We adults don't really notice how much smoking goes on in movies, unless we're looking for it,' says Dr. James Sargent, the pediatrician who led the study. . . . 'But kids are like sponges; they pick up all this stuff.'"

"The nationwide shortage of flu vaccine," charges of "profitteering" by drug companies, and what the federal government can do about it were the subject of a story in the *Detroit News*. "'There is no one person in charge [of distribution],' said Dr. John Modlin, a Dartmouth Medical School professor who heads a Centers for Disease Control committee on vaccines. 'I'm not sure the government has any constitutional right to step into private commerce like this.' Modlin knows of one hospital that paid \$3.50 per dose for its first batch of the vaccine, only to be told that the next batch would cost \$13.50 per dose. . . . Modlin said he's received calls from across the country complaining about inequitable distribution."



The *New York Times*'s Gina Kolata recently explored several efforts to improve patients' interactions with their doctors. The ideas range from new scheduling methods, to group visits for patients with the same condition, to the use of phone calls in lieu of office visits. "Based on the

early results," she wrote, "some medical groups across the nation are starting to incorporate the innovations. . . . 'This isn't rocket science,' said Dr. John Wasson, a Dartmouth doctor who invented one of the new methods. . . . He developed a study to see whether telephone calls from a doctor might substitute for some office visits. . . . Two years later, the patients who received the calls had 19% fewer office visits, used 14% less medication, and had fewer admissions to the hospital and shorter stays when they were admitted. Their medical costs were about 28% less."



*Redbook* magazine recently had some advice for women who have an abnormal Pap test result if their doctors recommend cryosurgery—they'll "probably tell you it's routine, tolerable, and quick," noted the item. "But 'most doctors don't adequately inform their patients about the uncomfortable and lengthy healing process,' says ob-gyn Diane Harper, M.D., of Dartmouth Medical School." She went on to explain exactly what women can expect following cryosurgery.



The syndicated column "Parent to Parent" turned to a DMS expert for advice on helping children adjust to a move. "Stuart Copans, M.D., a child psychiatrist on the faculty of Dartmouth Medical School, has worked with many children and adolescents for whom moving was a significant stressor. When children move, they lose a whole range of supports—the physical environment they are used to and the friends they have had in their old community, Copans says. It's crucial for parents to listen carefully to their child to diagnose accurately the sources of [the] difficulty."



The *Boston Globe* wrote recently about new technologies aimed at making the supply of do-

& D H M C I N T H E N E W S

nated blood safer. “Despite reductions in the risk of pathogen transmission by blood transfusion, there remains a residual risk of disease transmission from known and as-yet-undiscovered pathogens,” said Dr. James AuBuchon, a professor and acting chair of pathology at Dartmouth.”

The *Los Angeles Times* conducted a recent checkup on the annual checkup. “The fact is,” the article said, “many of us change doctors or health plans so often that the regular physical exam gets lost in the shuffle.” Yet, it went on, “in a 1997 study, researchers at Dartmouth Medical School surveyed 2,775 adults and found that those who got regular physicals were much more likely than those who didn’t to have had preventive tests such as mammograms and checks for colon cancer. ‘It’s not terribly surprising to see that result,’ says



Carol Sox, the study’s lead author, ‘but it does suggest the value in seeing a doctor regularly.’”

The director of DHMC’s Spine Center was asked to comment on a study about the effectiveness of back belts. Reported the *Los Angeles Times*: “Those ubiquitous back belts—however effective they may look—do nothing to prevent back injuries, according to a study of more than 9,000 Wal-Mart workers. . . . ‘It’s not really surprising to me that [back belts] didn’t make a difference,’ said Dr. James Weinstein a professor of surgery at Dartmouth Medical School. ‘The pressure makes you feel better—that’s why we do it. But that probably doesn’t prevent you getting injured.’”



*Self* magazine wrote about a recent rise in the use of natural family planning (NFP): “More women than ever are trying to prevent pregnancy by tracking their monthly cycle,” the magazine wrote. “Once the sole province of Catholics . . . NFP is gaining popularity beyond religious circles. . . . Cecilia Stuopis, M.D., an ob-gyn at the Dartmouth-Hitchcock Clinic in Nashua, N.H., has noticed a

similar secular trend in her practice: “The women who ask me about NFP are usually also the ones who want to know about herbs,’ she says.” Doctors’ illegible handwriting has been the subject of cartoons for years, but a recent Associated Press story reported that the matter is no joke, noting: “More than 1 million serious medication errors occur every year in U.S. hospitals, according to research released last week by Dr. John Birkmeyer, a Dartmouth Medical School faculty member. Some of them involve indecipherable prescriptions or decimal point mistakes in dosages.” How to “keep kids warm, safe in winter” was the topic of a recent *New York Times* story. When children are playing outside in winter, the article noted, “parents shouldn’t assume that because they’re feeling warm and toasty that their kids are also, says Dr. Charles Cappetta, a general pediatrician at the Dartmouth-Hitchcock Clinic in Nashua, N.H.” The article also listed early signs of frostbite, including “numbness, clumsiness, decreased alertness, and being flushed, Cappetta says.” Medicare recently decided to “begin paying for an expensive test called positron emission tomography (PET) for use in the diagnosis of nearly half the cases of cancer each year in America’s elderly,” reported the *Washington Post*. The “decision was a compromise between two extreme positions: giving doctors a blank check to use PET, or approving it only for the handful of uses in which its benefit has been proved.” The compromise came in for praise from a DMS expert. “I think the folks [at Medicare] tried very hard to do this in the most scientifically sound way, under very pressing time circumstances . . . I think they did well,’ said Dr. Harold Sox, chair of medicine at Dartmouth.”

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## DHMC makes public its offer to settle Lebanon tax dispute

After two years of confidential discussions between DHMC and the City of Lebanon, N.H., regarding the property tax status of the Medical Center’s Lebanon facility, Dartmouth-Hitchcock has decided to bring the negotiations out into the open.

**Offer:** DHMC recently offered the City of Lebanon annual payments in lieu of taxes starting at \$600,000, on the condition that the city end its challenge to DHMC’s charitable and educational tax-exempt status. The proffered payments—which would be increased by two percent annually—would amount to more than \$14 million over 20 years.

The matter dates back to March of 1998, when DHMC officials learned that Lebanon had denied the Medical Center’s tax-exempt status for 1997. Between then and 1999, DHMC paid, under protest, \$13.5 million in disputed tax bills, but since November of 1999 the Center has refused to pay any further property taxes—about \$5 million a year.

“We believe our proposal offers a fair and reasonable contribution to the city,” said James Varnum, the president of Mary Hitchcock Memorial Hospital, at a January 30 press conference at which the offer was announced.

The City of Lebanon would prefer to keep the negotiations confidential, but the Board of

Assessors, the body that revoked DHMC's property tax exemption, is willing to consider a "fair compromise," wrote Lebanon City Manager James McSweeney in a February 2 letter to John Collins, DHMC's chief executive officer. "With respect to the settlement of the tax litigation," wrote McSweeney, "the city firmly believes that contrary to DHMC's claims, New Hampshire law supports the board's position. . . . We wish to confirm here that the city intends, without any equivocation, to continue to defend the board's decision and to probe the operations of DHMC and compare them to for-profit counterparts."

**Mission:** "DHMC's tax-exempt status is not negotiable," was Collins's response, in a letter to the Lebanon City Council. "If the city is insistent that this is only about taxes and that any settlement must confirm that all or some of DHMC's mission-related facilities are taxable, then there can be no agreement to discuss, and we will continue to look to the courts to confirm our charitable and educational exempt status."

A trial is scheduled for a year from now, in New Hampshire Superior Court, unless the parties can reach an agreement before then. At press time for this issue of Dartmouth Medicine, Lebanon had not accepted DHMC's offer and had, instead, proposed settling for an unspecified amount based on some portion of the assessed value of the Medical Center's property.

David Nierenberg, M.D., associate dean for medical educa-



### Looking at the legal wrinkles in medicine

Medical students need to absorb more than just scientific facts to become effective doctors. A DMS fourth-year course called Health, Society, and the Physician emphasizes the social context in which medicine is embedded. One recent lecturer in the course was someone the soon-to-be-doctors might have pegged as an adversary—a health-care lawyer.

But Lee Dunn (at left in the photo above), who practices in Boston, emphasizes that "there's no element in the law that makes doctors more vulnerable [than] any other licensed professional." Students may envision "beady-eyed plaintiffs' lawyers waiting for them, [but] that simply isn't true."

Nonetheless, medical students need to learn certain essentials of the law, Dunn maintains. He structures his lessons around the doctor-patient relationship, exploring its inception and pointing out common issues that may arise within its context. Students are usually most interested, Dunn says, in questions about treatment consent, such as how to get consent for minors or for adults unable to give consent themselves. "Except in rare instances," Dunn explains, "just because someone is sick does not change his legal rights. He has a right not to be touched, treated, or in any way have his life changed simply because he is ill."

But this attorney's fundamental advice is almost folk wisdom: "Treat your patients in the way you would like to be treated." Dunn points out to the students that caring doctors are much less likely to be sued.

Students also commonly wonder about their legal responsibilities during residency. "I try to give them a series of little red warning lights," Dunn concludes. "All I really want is . . . when they're doing something, they'll say, 'Oh, boy, didn't that lawyer say there could be a problem here?' To consider the fact that the problem is not simply medical—that there are a number of different aspects to it." J.W.

tion, was among the Dartmouth-Hitchcock officials present at the January 30 press conference. He was disappointed that the media didn't ask him to discuss the importance of academic medical centers. "In virtually every state in the country, they are granted charitable and educational exemptions from taxes," he told Dartmouth Medicine. "What a lot of folks don't realize is that . . . when income exceeds expenses in the Medical Center, that money is pumped back into programs supporting teaching, supporting education, supporting research, and supporting care to patients."

Stephen Christy, a Trustee of Hitchcock Hospital and the Dartmouth-Hitchcock Clinic, as well as the president of Mascoma Savings Bank in Lebanon, was also prepared to field questions from the media at the press conference but didn't get any either. "Most of the businesspeople that I've spoken with have been kind of scratching their heads in terms of why the city is taking the approach that it is, why they're not trying to negotiate a reasonable contribution that's fair to all parties," Christy told Dartmouth Medicine.

**Agreement:** The only other academic medical center in northern New England, the University of Vermont's Fletcher Allen Health Care in Burlington, Vt., reached agreement in 1999 with the City of Burlington on an annual contribution of \$255,000, to be increased two percent a year during the 30-year term of the agreement.

Laura Stephenson Carter

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

Harold Sox, M.D., the Huber Professor and chair of medicine, has been appointed editor of the prestigious *Annals of Internal Medicine* by the American Col-



lege of Physicians-American Society of Internal Medicine. He leaves DHMC for his new position in May. He was

also recently appointed chair of the Medical Device Resolution Panel, which mediates scientific disputes between manufacturers and the Food and Drug Administration Center for Devices and Radiologic Health.

Barry Smith, M.D., an associate professor and chair of obstetrics and gynecology, was awarded the March of Dimes Tribute to Excellence Award for 2000. It was presented at the New Hampshire Health Leadership Awards Luncheon by national March of Dimes President Jennifer Howse, M.D.



Robert Santulli, M.D., an assistant professor of psychiatry, was elected to a second term as president of the New Hampshire chapter of the National Alzheimer's Association.

Paula Schnurr, Ph.D., a research professor of psychiatry, was elected to the board of directors of the

International Society for Traumatic Stress Studies.

George Little, M.D., a professor of pediatrics and of obstetrics and gynecology, was appointed to an expert panel on pregnancy and neonatal care; the group's primary goal is to



develop performance measures for three organizations: the American Medical Association, the National Committee for Quality Assurance, and the Joint Commission on Accreditation of Healthcare Organizations.

D. David Glass, M.D., a professor and chair of anesthesiology, was recently elected to the Accreditation Council of the Graduate Medical Education Executive Committee.

Glenn Johnson, M.D., an associate professor of surgery, recently received the Honor Award from the American Academy of Otolaryngology in recognition of his service to the organization.

Ronald L. Green, M.D., a professor of psychiatry, received honorable mention for Creativity in Psychiatric Education, in recognition of an innovative method, developed in collaboration with the pathology department, for teaching the neurological basis of emotions.



Annmarie McDonagh-Coyle, M.D., a research assistant professor of psychiatry, was recently named Psychiatrist of the Year by the

New Hampshire chapter of the National Alliance for the Mentally Ill.

Two assistant professors of psychiatry have been elected officers of the New Hampshire Psychiatric Association: Lisa Mistler, M.D., as newsletter editor and Sarah Ricketts, M.D., as secretary.

Walter Noll, M.D., a professor of pathology, was named to the Molecular and Genetic Testing Panel of the Food and Drug Ad-



ministration's Center for Devices and Radiologic Health. The panel will provide advice on the appropriate scientific criteria to use in approving diagnostic tests for human genes.

Marilyn Bedell, R.N., director of oncology patient-care services, won the 2001 Linda Arenth Excellence in Cancer Nursing Management Award.

Angeline Andrew, a graduate student in pharmacology and toxicology, received the Karen Wetterhahn Memorial Award from the National Institute of Environmental Health Sciences. The award honors Dartmouth chemistry professor Karen Wetterhahn, Ph.D., who died in 1997.

Paul Yang, a third-year M.D.-Ph.D. student, received a National Research Service Award fellowship from the National Institute on Drug Abuse.

Elliot Hospital in Manchester, N.H., and DHMC have signed an agreement to evaluate opportunities for joint planning and program development in areas ranging from primary care to

geriatrics. And Frisbie Memorial Hospital in Rochester, N.H., made an agreement with DHMC's Norris Cotton Cancer Center to provide enhanced oncology services to Rochester-area patients.

Corrections: Regrettably, several errors made their way into the Winter 2000 issue. On page 20, the feature on medicine in the media identified as being by Associated Press (AP) a headline on a newspaper story about a DMS researcher's work. The headline, however, was the work not of AP but of the newspaper that ran the story. Also, an article on page 8, about the identification of a new genetic disorder, contained this statement: "The foundation for this achievement was laid at DHMC in the 1960s, when Richard Hoefnagel, M.D., now a professor emeritus of pediatrics, established a chromosome analysis lab to look for genetic causes of birth defects." But Hoefnagel says that although he was instrumental in establishing the clinical genetics initiative at Dartmouth, the chromosome analysis lab was actually started by Kurt Benirschke, M.D., a former professor of pathology; also, Hoefnagel's full first name is Dick, not Richard. And on page 13, the "Media Mentions" section noted that Dr. Brian Remillard was interviewed on CNN about a kidney condition suffered by pro basketball player Alonzo Mourning; the disorder in question was actually "focal sclerosis," not "focal scoliosis." We strive for accuracy in Dartmouth Medicine, and we regret very much that these shots fell short of the basket. ■