

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

"If you think research is expensive, try disease."

— Philanthropist Mary Lasker (1901–1994)

DMS's new dean is a pediatrician and a pharmacologist

It's not unusual that the newly appointed dean of Dartmouth Medical School is a pediatrician—15 current medical school deans trained in pediatrics, more than in any other specialty except internal medicine. But what is unusual is that the new dean also holds a doctorate in pharmacology and is coming to DMS from industry rather than—at least directly—from another medical school.

Succeeds: On July 1, Stephen Spielberg, M.D., Ph.D., becomes dean of DMS as well as vice president for health affairs of Dartmouth College and a professor of pediatrics and of pharmacology and toxicology. He succeeds John Baldwin, M.D., who was dean from 1998 to 2002, and Ethan Dmitrovsky, M.D., who is chair of pharmacology and toxicology and served as acting dean during 2002-03.

Since 1997, Spielberg has been vice president for pediatric drug development at Johnson & Johnson's Pharmaceutical Research and Development branch in New Jersey. There, he oversaw the development of more effective labeling of children's medicines as well as of new approaches to conducting clinical investigations in the pediatric population. From 1992 to 1997, he was executive director of exploratory biochemical toxicology and clinical and regulatory development at Merck.

He has long been an advocate

for children's health and led pharmaceutical industry advocacy in Congress for the Best Pharmaceuticals for Children Act, which was signed into law in 2002. He has also led industry efforts to foster investigation of new medicines in pediatric populations; organized international efforts to harmonize children's drug development regulations; and helped initiate U.S. and international efforts to assure the highest ethical standards in pediatric clinical investigations.

Spielberg also has considerable experience in academic medicine. He was at Johns Hopkins from 1977 to 1981 and at the University of Toronto and its Hospital for Sick Children from 1981 to 1992. Even while working in industry, he has kept his ties to academe—as an adjunct professor at Jefferson Medical College in Philadelphia and at Robert Wood Johnson Medical School in New Jersey.

Perspective: Having worked in industry gives Spielberg a perspective not afforded many physicians. Overseeing clinical trials, for instance, means that he's traveled to medical schools all over the world. He thus recognizes that "one of the major gaps that we're facing, both in the United States as well as internationally, is a dearth of well-trained clinical investigators and translational scientists. We are often faced with a situation where we have a great new advance in therapeutics . . . [but] we can't even find investigators to properly carry out studies." Medical schools must recognize that the "translation of science

The cost of disease . . .

Annual direct and indirect costs for just a few diseases, as estimated by the National Institutes of Health



Mental Disorders

\$148 billion



Heart Disease

\$128 billion



Alzheimer's Disease

\$100 billion

. . . and of the search for cures

Annual funding for biomedical research in 2002

Extramural funding nationwide from the National Institutes of Health

\$19 billion

External grants and contracts income to DMS

\$111 million

into good clinical investigation, and, in turn, into clinical care, is a vital issue," he says.

Spielberg also appreciates the value of collaboration—an area where Dartmouth is already strong—in translating biomedical research discoveries into patient care. He believes that his industry experience “fostering the development of interactions among people with very diverse backgrounds and interests will serve very well in a medical school context. Industry is set up in such a way as to cut across disciplines, to cut across traditional silos between basic and clinical investigators.”

Attitude: Ensuring that scientific discoveries have an “impact in real-time patient care,” says Spielberg, “requires a very different attitude towards medicine and a very different attitude towards working together—basic scientists with clinicians; clinicians with their patients in the context of a community—to make sure that those advances really do impact the well-being of the people.”

He is pleased that translational research is already being emphasized at Dartmouth. In his new role as dean, Spielberg intends to “maintain the excellence that already exists in the basic sciences, . . . expand on what already is a very successful NIH-funding rate, and look for additional sources of funding to support basic science,” while also continuing to advance translational and clinical research and “building even further on things such as the Center for Evaluative Clinical Sciences, which looks

at outcomes in larger populations.”

Happiness: He’s impressed that “there is a level of happiness [at DMS] that I don’t think you find in most medical schools these days. It’s a real phenomenon,” he says. He attributes it to people’s feeling a “sense of both individual worth and of common purpose.”

And he’s impressed by the quality of DMS’s curriculum. “I want to assure that the quality of education which already exists is going on in a milieu of active investigation—basic, translational, clinical, and evaluative—and in an atmosphere where people truly believe in what they’re doing and are having fun doing it,” he says. “Because that, in fact, is going to produce the next generation of physicians who are going to lead in medicine.

“As a pharmacologist,” he adds, “I’m particularly impressed by the way therapeutics is taught [at DMS].”

During a visit to campus in May, he had a chance to meet some DMS students. He says that he was delighted by the “wonderfully open and frank questions” they asked him, and that—as a longtime member of a choral group—he was pleased to hear about the student *cappella* group, the DMS Dermatones.

Spielberg earned his A.B. from Princeton and his M.D. and



DMS’s new dean, pediatrician and pharmacologist Stephen Spielberg, is animated about the opportunity ahead of him.

FIXING SQUIRREL GRAPHICS

worked in public health in the U.S. and Canada and most recently was an associate professor of epidemiology at Drexel. She will work part-time—doing research and teaching—in Dartmouth’s Department of Community and Family Medicine. They have two sons: David, 20, a sophomore at Princeton; and Jeff, 15, a sophomore at Hanover High School.

Critical time: “This is really a very critical time in the history of American medicine,” says Spielberg, “a time when we really need to think strongly about educational issues, about research, about

how great institutions contribute to their communities.”

He was attracted by the fact that at Dartmouth, there’s “a real dedication to looking at how health care impacts a community. Medicine [must be] very integrated and very collegial, and needs to be oriented towards a community of care. The nidus of these things exists here, at least in part because of scale, location, but mostly because of people. The kinds of people who have a vision of what medical school, medical education, research, and health care should be.”

He’s here, he adds, because the “opportunity to participate in that process and be a leader in that process was irresistible.”

Laura Stephenson Carter

Endocrinologist from UC-Irvine to head medicine

"I found it exhilarating to consider working in one of the best designed hospitals in the U.S. as a member of a Department of Medicine that is strong and vibrant and blessed with superb clinicians, educators, and researchers," says distinguished endocrinologist and cancer biologist Murray Korc, M.D.

Chair: Korc, who will become chair of medicine at DMS on September 1, succeeds Harold Sox, M.D., both as the head of the department and as the Joseph M. Huber Professor of Medicine. Donald St. Germain, M.D., has been the department's acting chair since Sox left in July 2001 to become editor of the *Annals of Internal Medicine*.

Korc has been a member of the faculty at the University of California at Irvine (UCI) since



Murray Korc is coming from UC-Irvine to chair medicine at Dartmouth.

JON GILBERT FOX



Radford Tanzer, an internationally known plastic surgeon and long-time member of the DMS faculty, holds Hanover's Boston Post cane.

This cane isn't candy, but it is sweet

For Radford Tanzer, M.D., holding Hanover's *Boston Post* Cane "feels pretty good," according to the 97-year-old professor emeritus of plastic surgery.

Tanzer, as the oldest citizen of Hanover, is the bearer of the town's historic *Boston Post* cane—one of 700 original canes that date back to 1909. Made of Gaboon ebony from Africa, the elegant walking stick has 14-carat gold sheeting wrapped around its top and is inscribed: "Presented by the *Boston Post* to the oldest citizen of Hanover." Tanzer has his own theory about a few small dents in the cane's top. "It has been used for cracking nuts," he surmises.

Edwin Grozier, publisher of the *Boston Post* newspaper, started the tradition in 1909 when he had the canes manufactured and distributed to 700 towns in New England, requesting that they be presented to the town's oldest male citizen. When that individual died, the cane was to be passed on to the next oldest male in town. It was not until 1930, after considerable pressure, that women were officially eligible for the honor.

The cane was presented to Tanzer by Brian Walsh, head of the town's Selectboard, to a standing ovation last spring. The ceremony took place at a special service at St. Thomas Episcopal Church, where Tanzer has been a member since 1921, when he was a freshman at Dartmouth College.

After joining the DMS faculty in 1939, Tanzer achieved international renown as the "Father of Ear Surgery," for his development of the standard technique for total ear reconstruction. He retired in 1970, and in 1991 the plastic surgery suite at DHMC was named in his honor.

M.C.W.

Sadly, Rad Tanzer died on June 12, after a brief illness, just as this issue of the magazine was about to go to press.

1989. He heads UCI's Division of Endocrinology, Diabetes and Metabolism and its diabetes and osteoporosis programs.

Nationally known for his research on the molecular underpinnings of pancreatic cancer—one of the five deadliest cancers in the U.S.—Korc explores disruptions in cell signaling pathways caused by growth-stimulating factors. He also studies the mechanisms of peptide hormones and diabetes mellitus.

His interest in endocrine-exocrine interactions in the pancreas grew out of his postdoctoral work in the late 1970s at UC-San Francisco, where he studied physiology, cell biology, and molecular biology.

Relevance: He wanted his work to have clinical relevance, too. He was particularly interested that people with type II diabetes mellitus have a higher incidence of pancreatic cancer. So he combined his clinical and research interests into a lifelong study of pancreatic cancer.

His early research focused on epidermal growth-factor receptors in pancreatic cancer. Growth factors are molecules that stimulate cell growth; receptors, on the cell surface, bind specific molecules outside the cell. In the 1980s, Korc proposed that mitogenic signaling (signals for cells to divide and grow) is enhanced in pancreatic cancer cells. He found that human pancreatic cancers overexpress many growth factors—and their associated receptors—which, in turn, overactivate the mitogenic pathways. "These alterations are akin to a car going out of control

with the accelerator stuck to the floor," he says.

Later, he found the signaling abnormalities were due to defects in growth-inhibiting regulators. Using the car analogy again, he says it's like a broken brake. And further discoveries suggested that "not only is the brake broken, but it has turned into a second accelerator." Eventually, these findings may lead to "novel therapeutic strategies for this deadly disease."

Korc is a past president of the American Pancreas Association, well-funded by the National Institutes of Health, and the author of more than 200 publications. He serves on the editorial boards of several journals, including *Pancreas* and the *Journal of Biological Chemistry*. He previously held posts at the University of Arizona and UC-San Francisco, after receiving his M.D. (1974) and training (1974-1977) at Albany Medical College.

Collaborations: At DMS, Korc says, "I hope to move the Department of Medicine forward in a collegial manner that respects the accomplishments, goals, and aspirations, as well as the concerns, of the clinicians, clinician-scientists, and administrators . . . in an environment that fosters intra- and interdepartmental collaborations." He is a strong believer in "excellence in scholarly activity in order . . . to excel in education, patient care, and service."

Korc is married to Antoinette Korc, M.D., and they have three children—Paul, 23; Melissa, 19; and Ashton, 15.

Laura Stephenson Carter

Trip from Norway ends a lifetime of coping with seizures

After suffering from seizures for almost 50 years, Eva Sibbern is finally able to do what she enjoys most in life—spend time with her family, ride horses, and go cross-country skiing—all seizure-free, thanks to DHMC's Epilepsy Program.

Sibbern, a native of Oslo, Norway, started having seizures at age six. They were fairly well controlled for many years, occurring only once or twice a month. She graduated from the University of Oslo Law School, married, and raised two daughters. But when she reached her forties, the seizures became more severe—so much so that she was afraid to go out in public and had to take a leave of absence from her job as deputy director of Norway's Ministry of Education, Research, and Church Affairs.

Sibbern sought help from Dr. Olav Henriksen, a top epilepsy specialist in Norway. Henriksen diagnosed Sibbern as having frontal lobe complex partial seizures—a type of seizure that affects only about 20% of epilepsy patients. Through medication, Sibbern was able to limit her seizures to the evening hours, but she still had six to eight a night.

Bizarre: "They are very bizarre seizures, where Eva would wake up out of sleep and start screaming and shrieking," explains Peter Williamson, M.D., director of the Epilepsy Program at DHMC. "It looks like a panic attack but it really indeed is epilepsy."



Eva Sibbern, left—pictured here with her daughters Christin, rear, and Maria—is now back in Norway, seizure-free.

Henriksen had met Williamson at conferences and knew of his research on frontal lobe epilepsy, so he asked Williamson to see Sibbern. When she arrived at DHMC, Williamson and his team administered many tests. The results of both the MRI and EEG were normal, but from her history Williamson's team was sure Henriksen's diagnosis was correct. The trick was to pinpoint the seizures' source.

The team then did SPECT (single-photon emission computerized tomography) scans, a neuroimaging technique that measures blood flow, which can indicate where seizures begin. The SPECT scan showing the area of the seizure is then correlated with an MRI (since the resolution of an MRI is much more detailed), to see precisely where the seizures originate. In Sibbern's case, they came from deep in her frontal lobe—above her right eye, straight back, toward the middle of her brain.

By placing electrodes on and

in Sibbern's head—some on the surface and some deep in her brain—and taking a series of daily recordings, the team was able to pinpoint the exact spot where the seizures began. DHMC neurosurgeon David Roberts, M.D., could then surgically remove that area. "We found abnormal tissue right at the [spot] that was most active for causing the seizures," says Roberts. "She had a condition called cortical dysplasia; that's just a little area of the brain that when it developed, developed abnormally."

Since the operation, Sibbern has had no seizures. "She was amazing. She was up and at 'em very quickly," says Roberts. "Apart from being a little tired, . . . she didn't turn a hair."

Team: It was a team effort that transformed Sibbern's life. The DHMC Epilepsy Program relies heavily on the collaboration of many people: neurologists, a neurosurgeon, a nurse coordinator, nurses, neuropsychologists, psychiatrists, radiologists, and electrodiagnostic technicians. "We're a good team, and we believe that everyone deserves a chance," says nurse coordinator Karen Gilbert, A.R.N.P.

Back in Norway, Sibbern is adjusting to her new life. She now enjoys spending time outdoors with her husband and her daughters. She may even return to work. "If I still keep seizure-free, I will have possibilities to do a lot more than earlier," she says. "But I think I have not quite got used to my new situation yet. For a while I will just think about how to live for the future."

Matthew C. Wiencke

Soon-to-be M.D.'s gather together to meet their matches

For the members of the DMS Class of '03, four years of classes and exams boiled down to one day, one moment, one white envelope. The day was Match Day, March 20, 2003, and the moment shortly before noon. Excited '03s gathered with their families, friends, and faculty members inside DHMC's Auditorium G, waiting to receive life-defining white envelopes containing word of the hospitals where they would train as residents.

By 11:55 a.m., the room resonated with the anxious chatter and laughter of students, babies in strollers, and well-wishers carrying balloons and bouquets of flowers.

"It's wild. It's hard to believe we're here. The last few days have been very busy—lots of presentations and finishing up classes," said Todd Barr, a fourth-year student who worked as a flight attendant for U.S. Airways for 10 years before enrolling at DMS. He had applied to residency programs in psychiatry all over the country, listing DHMC as his first choice. "I own a house in the Upper Valley," he said, "and would like to stay in the community."

Eager: The students were eager to open their envelopes, ready to accept whatever word was inside. "I just want to have it over with," said Paige Wickner. "I don't mind so much where I go." She had applied to general internal medicine programs in the North-



PATRICK SAINÉ



The emotions of Match Day ranged from **1** tension (for Michael Bartholomew, as he got his envelope from Susan Harper) to **2** quiet satisfaction (for David Gibbons and his family), to **3** jubilation (for Todd Barr), to **4** congratulations (for Vanessa Vidal and Leslianne Yen), to **5** indulgence, in a cake decorated with the DMS seal and the name of every '03.

east, to stay close to her family. "Brought the cell phone with me," she added, so she could share the news right away.

At 12:00 noon, a loud whistle caught everyone's attention as Assistant Dean Susan Harper, M.D., and Acting Dean Ethan Dmitrovsky, M.D., arrived with the tall stack of envelopes. Dmitrovsky opened the ceremony by congratulating the '03s and praising their hard work. Then without further ado he announced, to cheers and applause, "Let's get on with it!" Harper, envelopes in hand, told the students, "You will be very pleased with the results."

Thrilled: As each name was read, to bursts of applause and raucous comments, the students approached Harper to get their envelopes—and a handshake or a hug. Some waited until the ceremony was over to open their envelopes, but others, like Todd Barr, could not contain their excitement. Barr pulled out his letter right away, paused a moment, then shouted "Dartmouth!" as he waved it above his head. "I opened the envelope," he explained afterwards, "and it took a long time to see the fine print, and then—wow, there it was! I feel like I've won the Academy Award." Paige Wickner was thrilled, too, by her acceptance at Brown.

Three pairs of '03s—including Steven Xanthopoulos and Amy Vinther—entered the Match as a couple. They were among 575 participants nationwide in the couples portion of the National Resident Matching Program (NRMP), a new record.

“It was nerve-racking having no idea going in where we would be going,” Xanthopoulos said. But both were elated by their acceptance, after a preliminary year, into programs at UCLA—he in anesthesiology and she in emergency medicine.

Of the 60 DMS '03s, 55 participated in the NRMP; three entered military programs; one will do residency at a hospital in Canada; and one obtained an early Match. Almost half are entering primary care specialties—internal medicine (15 students), pediatrics (8), or family medicine (4). The graduates will travel to 18 different states, though almost half are headed for California (10 students), Massachusetts (9), or New York (8). The DMS and Brown-Dartmouth graduates' residency assignments are listed in the adjacent box.

Crucial: It was a crucial day for the directors of DHMC's residency programs as well, for it is on Match Day that they find out who will join their ranks. (The incoming residents are listed on page 9.) According to H. Worth Parker, M.D., director of graduate medical education, all programs were very pleased with this year's results. All but one filled their positions completely in the Match, and that one has since filled its remaining position. Internal medicine, psychiatry, pediatrics, obstetrics, and general surgery did especially well.

“It will be a hard year to top,” said Parker. “All programs have expressed strong enthusiasm for their results and the new training year.”

MATTHEW C. WIENCKE

Outgoing Graduates

The DMS '03s who are doing residencies next year, and the programs that they will be going into, are:

Anesthesiology

Adrienne Williams, *Dartmouth-Hitchcock Med Ctr*

Emergency Medicine

Derek Barclay, *Brigham & Women's Hosp (Harvard)*

Family Practice

Rustan Adcock, *Mountain Area Health Ed Ctr (U of North Carolina)*

Sharon Johnston, *McGill U*

Amy Madden, *Maine-Dartmouth Family Practice*

Timothy Pieh, *Maine-Dartmouth Family Practice*

Internal Medicine

Sanjoy Bhattacharya, *U of Texas Southwestern Med Ctr (Dallas)*

Seth Crockett, *Stanford U Prog*

John Dick III, *U of Washington Affil Hosp*

Jonathan Goldstein, *Beth Israel Deaconess Med Ctr (Harvard)*

Tamas Gonda, *New York Presbyterian Hosp (Cornell)*

Todd Kerner, *Dartmouth-Hitchcock Med Ctr*

Jennifer Levy, *Virginia Commonwealth U*

Andy Mengshol, *U of Colorado*

Sara Pietras, *Mt Auburn Hosp (Harvard)*

David Polisner, *U of North Carolina*

Paige Wickner, *Brown U Prog*

Leslianne Yen, *U of Washington Affil Hosp*

Internal Medicine (Preliminary)

Robert Beck, *Naval Med Ctr, San Diego*

Douglas Franz, *U of Arizona Affil Hosp*

Bruce Fuller, *Brown U Prog*

Sara Inati, *Lenox Hill Hosp (NYU)*

Brady McKee, *St Vincent Hosp (U of Massachusetts)*

Amy Vinther, *Martin Luther King, Jr., Med Ctr (Charles R. Drew U)*

James Welsh, *Dartmouth-Hitchcock Med Ctr*

Steven Xanthopoulos, *UCLA-VA Greater Los Angeles Prog*

Internal Medicine (Primary Care)

Agnes Graves, *Cambridge Hosp (Harvard)*

Adam Hersh, *UCSF Med Ctr*

Vanessa Vidal, *Mt Auburn Hosp (Harvard)*

Obstetrics-Gynecology

Lisa Chong, *Kaiser Permanente Med Ctr (Stanford)*

Orthopaedics

Katherine Bardzik, *Hosp for Special Surgery (Cornell)*

Daniel Bullock, *Dartmouth-Hitchcock Med Ctr*

David Gibbons, *Med Coll of Wisconsin Affil Hosp*

Jason Grassbaugh, *Madigan Army Med Ctr*

Pathology

Theodore Friedman, *William Beaumont Hosp (Wayne State U)*

Matthew Leavitt, *Stanford U Prog*

Yongping Wang, *Hosp of the U of Pennsylvania*

Pediatrics

Linda Armstrong, *Kaiser Permanente Med Ctr (UCSF)*

Michael Bartholomew, *U of Wisconsin Hosp*

Elizabeth Bassett, *Children's Hosp of Oakland (UCSF)*

David Ciminello, *Phoenix Children's Hosp (U of Arizona)*

Katherine O'Donnell, *Children's Hosp of Boston (Harvard)*

Jennifer Plant, *Children's Hosp of Oakland (UCSF)*

Melissa Woo, *New England Med Ctr (Tufts)*

Pediatrics (Primary Care)

Blair Seidler, *Mt Sinai Med Ctr*

Plastic Surgery

Nilton Medina, *Rhode Island Hosp (Brown)*

Psychiatry

Todd Barr, *Dartmouth-Hitchcock Med Ctr*

Jennifer Rhodes, *NYU*

Radiology

Kara Waters, *Maine Med Ctr (U of Vermont)*

Surgery

Sarah Greer, *Dartmouth-Hitchcock Med Ctr*

Junko Ozao, *Mt Sinai Med Ctr*

Surgery (Preliminary)

Paul Farris, *Dartmouth-Hitchcock Med Ctr*

Jason Johnson, *U of Minnesota Med Sch*

Transitional

Heidi Becker, *Texas Tech U Affil Hosp*

Aaron Kirkpatrick, *William Beaumont Army Med Ctr*

Clarence Miao, *Harbor-UCLA Med Ctr*

Michael Morris, *Good Samaritan Regional Med Ctr (U of Arizona)*

Paul Sanchez, *John Peter Smith Hosp (U of Texas Southwestern Med Ctr)*

Urology

Amy Amend, *Albany Med Ctr*

Sarah Conley, *Cleveland Clinic Foundation*
(Case Western Reserve)

This year's Brown-Dartmouth graduates plan to go into the following residency programs next year:

Family Practice

Saragrace Alvarez, *New York Presbyterian Hosp*
(Columbia)

Katrin Bergeron-Killough, *Maine Med Ctr* (U of Vermont)

James Lynch, *Tripler Army Med Ctr*

Brandi Mendonca, *Valley Med Ctr* (U of Washington)

Internal Medicine

Quang Bui, *Hosp of the U of Pennsylvania*

Alexander Feller, *Yale-New Haven Hosp*

Internal Medicine (Preliminary)

Rebecca Fisher, *St Vincent Hosp* (U of Massachusetts)

Erin Hattan, *McGill U*

Terrance Healey, *Roger Williams Hosp*
(Boston U)

Jason McBean, *Brown U Prog*

Obstetrics-Gynecology

Ben Lannon, *Beth Israel Deaconess Med Ctr*
(Harvard)

Ogochukwu Okpala, *Brigham & Women's Hosp* (Harvard)

Orthopaedics

Matthew Plante, *Rhode Island Hosp* (Brown)

Psychiatry

Michelle Conroy, *Butler Hosp* (Brown)

Surgery (Preliminary)

Patricia Ramaley, *Brigham & Women's Hosp*
(Harvard)

In addition, these students have already been accepted into advanced programs that they will start in 2004:

Anesthesiology

Steven Xanthopoulos, *UCLA Med Ctr*

Dermatology

Bruce Fuller, *Yale-New Haven Hosp*

Emergency Medicine

Amy Vinther, *UCLA Med Ctr*

Neurology

Douglas Franz, *U of Arizona Health Science Ctr*

Sara Inati, *Columbia Presbyterian Med Ctr*

Radiology

Paul Farris, *Dartmouth-Hitchcock Med Ctr*

Brady McKee, *Lahey Clinic* (Tufts)

James Welsh, *U of Arizona Affil Hosp*

Incoming Residents

The first-year residents entering Dartmouth programs this summer, and the medical schools where they received their degrees, are:

Anesthesiology

Michelle Parra, *U of Iowa*

William Surber, *Northwestern*

Adrienne Williams, *Dartmouth*

Family Practice (Maine-Dartmouth)

Ahmed Aldilaimi, *Mustansiriyah Med Coll* (Iraq)

Pamela Courtney, *U of New England Coll of Osteopathic Med*

Amy Madden, *Dartmouth*

Timothy Pieh, *Dartmouth*

Jenny Pisculli, *Ben Gurion U* (Israel)

Gayle Smith, *Philadelphia Coll of Osteopathic Med*

Jan Ryszkowski, *American U of the Caribbean*

Ferdinand Saran, *Beheshti U* (Iran)

Karen Sokol, *U of Vermont*

Family Practice (New Hampshire-Dartmouth)

Kristin Anderson, *Marshall U*

David Kehas, *Tufts*

Lori Richer, *U of Utah*

Mathew Sawyer, *U of Vermont*

Jon Vore, *U of New England Coll of Osteopathic Med*

Internal Medicine

David Alonso, *Temple*

Adam Bernstein, *Boston U*

Ryan De Lee, *Loyola*

Duc Do, *U of Vermont*

Jonathan Duffy, *U of Missouri-Kansas City*

Kevin Fleming, *Case Western Reserve*

Kevin Floyd, *Ohio State*

Rebecca Freitas, *U of Connecticut*

Stephen Grant, *U of Colorado*

Karen Hartman, *U of Oklahoma*

Todd Kerner, *Dartmouth*

Randy Loftus, *U of Iowa*

Sarah McCombs, *U of Massachusetts*

Matthew McDonald, *Northeastern Ohio U*

David Talmadge, *U of New Mexico*

Wenshu Yu, *U of Massachusetts*

Internal Medicine (Preliminary)

Jeffrey Liou, *Nova Southeastern U Coll of Osteopathic Med*

Daniel McGinley-Smith, *Harvard*

James Welsh, *Dartmouth Internal Medicine (Primary Care)*

Laura Barre, *Dartmouth*

Lisa Call, *Virginia Commonwealth U*

Alex Gifford, *Pennsylvania State*

Obstetrics-Gynecology

Susan Kearing, *U of Arizona*

Laura McGuire, *E Virginia Med Sch*

H. Sidney Mitchell, *U of Vermont*

Rachel Ware, *U of Kentucky*

Orthopaedics

Daniel Bullock, *Dartmouth*

James Genuario, *Northwestern*

Karl Koenig, *Baylor*

Pathology

Scott Dufresne, *Tufts*

Timothy Williams, *Flinders U*
(Australia)

Pediatrics

Alexis Cirilli, *U of Wisconsin*

Clare Drebtko, *Yale*

Kimberly Gifford, *Pennsylvania State*

Todd Poret, *U of North Carolina*

Elizabeth Richards, *Tulane*

Eric Shamansky, *Med Coll of Wisconsin*

Karen Wright, *Temple*

Psychiatry

Todd Barr, *Dartmouth*

Jason Coles, *Michigan State*

David Crites, *U of Illinois*

Brent Homoleski, *Finch U*

Andrew Horrigan, *Med Coll of Ohio*

Wendy Martin, *U of Mississippi*

Brian Shiner, *Pennsylvania State*

Eric Ulland, *Loma Linda U*

Surgery

Justin Dumouchel, *U of Pittsburgh*

Sarah Greer, *Dartmouth*

David Hughes, *Creighton U*

David Mancini, *U of Pennsylvania*

Surgery (Preliminary)

Melanie Donnelly, *U of North Dakota*

Paul Farris, *Dartmouth*

Farsad Khashayar, *Yale*

Oscar Ho, *U of Arizona*

David Kelley, *Kirksville Coll of Osteopathic Med*

Stuart Lollis, *Columbia*

Christopher Marrocco, *Trinity Coll*
(Ireland)

Jennifer Mitchell, *U of Alabama*

Peter Steinberg, *U of Pennsylvania*

A baby aspirin a day helps to keep adenomas away

Baby aspirin is growing up: It can do more than alleviate pint-sized aches and pains, a DMS team has found. The Dartmouth researchers discovered that 81 milligrams of aspirin a day—the equivalent of one baby tablet—can reduce the risk of developing colon adenomas, benign tumors that can turn cancerous if they're not removed.

Although other clinical trials have shown similar findings, the DMS-led nationwide study was the first to confirm them in a randomized, double-blind study of over 1,100 patients with previously diagnosed adenomas. The results of the seven-year study were published in the *New England Journal of Medicine*.

Neoplasia: "It's fascinating that 'everyday' drugs like calcium and aspirin can reduce the risk of colorectal neoplasia," says John Baron, M.D., who headed the study and also was part of a research team that discovered similar protective benefits from calcium supplements.

Interestingly, the researchers learned that although a baby aspirin provided a protective benefit against adenomas, an adult aspirin—325 milligrams—resulted in little or no benefit. According to Baron, this effect was even more pronounced for advanced adenomas, which have a high tendency to progress to cancer; study participants who took a baby aspirin reduced their rate of polyps by 19% and their



John Baron, seated, leads a research group that recently found that a baby aspirin a day may help prevent colon cancer.

risk of the more aggressive adenomas by more than 40%.

The national press leapt on that finding. Although Baron is pleased that the work has been noticed, he worries that the media may misinterpret the results and discourage patients from getting regular colon-cancer screenings. Though he sees positive aspects to the publicity, "on the other hand, I'm worried that the press may get it wrong and end up saying something that will be misleading for the readers.

"For example," Baron says, "if a major newspaper implied that by taking aspirin someone can forget about colorectal screening and follow-up, then it's possible the publicity could cause a net harm." Not only are researchers still debating the appropriate role for aspirin in preventative therapy, he cautions, but patients should always consult their own physicians before starting or

changing any medication.

Baron says the team has to conduct more research in order to understand the genetic mechanisms underlying the effect shown by the recent study. They plan to follow its subjects to see if there are delayed effects, and they will also track how

long the positive effects last. Finally, they would like to investigate characteristics of the adenomas that do occur to look for molecular clues to the development of colorectal cancer.

Baron and his team want to find answers to still more questions, but the patients who took part in the seven-year study are thrilled with the positive effects they've experienced so far.

Awareness: "Having been diagnosed with polyps, I suddenly became aware of its implications in a way that I otherwise wouldn't have been," explains Janet Mark, a study participant who received aspirin and was polyp-free in her follow-up evaluation. "And, because of that awareness, when the option of becoming a participant in a clinical trial was offered, I was pleased to be a participant. This study will help us all, now and in the future."

KATRINA MITCHELL

DMS researchers fight melanoma on many fronts

The summer sun makes gardeners and hikers think about skin cancer, but several DMS researchers are thinking about melanoma—the deadliest form of skin cancer—year-round.

"Melanoma is a frightening disease," says epidemiologist Linda Titus-Ernstoff, Ph.D., who presented the results of a study on melanoma risk factors at the Mediterranean Melanoma Conference in May. "Millimeter by millimeter, it is a very aggressive human tumor. At the present time, surgical removal of an early lesion offers the only certainty for a complete cure. To defeat this disease, we need to focus on potential causes . . . as well as prevention of precursors and early melanoma detection."

Titus-Ernstoff actually disagrees with the notion that sun exposure increases the tendency to develop moles, which can lead



Linda Titus-Ernstoff researches risk factors for the deadly cancer melanoma.

to skin cancer. She cites evidence from many studies that point to the true culprits: individual pigmentation characteristics and unusual sensitivity to the sun. She theorizes that there is a “constitutional susceptibility” for certain people to develop moles—even if they experience normal sun exposure.

Alterations: To understand this propensity, Titus-Ernstoff has investigated alterations of p16, a tumor-suppressor gene that, when it functions normally, prevents uncontrolled growth. She and a colleague were the first to show that p16 alterations can occur in benign moles.

They have started analyzing the risk factors for melanoma and so far have found strong associations between melanoma and atypical moles, as well as melanoma and benign moles. Until the work is completed, Titus-Ernstoff encourages people to practice self-screening. “My interest in the feasibility of self-screening was born years ago,” she says. “At that point, our data showed that only a minority of melanomas were first detected by a physician. Most were first noticed by a patient, spouse, friend, or family member.”

Levels: While Titus-Ernstoff is looking at risk factors for melanoma, Dartmouth oncologist Christopher Tretter, M.D., is investigating new immunological treatments for the disease. Having identified improved survival rates in patients with high levels of melanoma-specific killer cells in their blood, Tretter is hoping to discover the key to enhancing this immune response in all

MARK AUSTIN-WASHBURN



“Bingo Bob” Kirk, right, has been a faithful volunteer for 18 years.

“What do you say we play bingo?”

Being late is not an option for “Bingo Bob.” It’s 1:50 p.m. on a Tuesday, and volunteer Robert Kirk is on his way to the DHMC production studio. He enters, takes a seat at a long table covered with green felt, and hooks up a microphone. A production assistant says, “Five seconds—stand by.” Kirk turns to face the camera, smiles, and says, “Good afternoon, everyone. It’s two o’clock and time for hospital bingo.”

Kirk—known as Bingo Bob—has hosted a weekly hour-long bingo session at DHMC for 18 years. The game is televised, so patients all over the Medical Center can play. Bingo cards are delivered on meal trays, and patients who want to play tune their TV to the in-house channel. They follow along as Kirk tumbles a wire basket holding numbered bingo balls.

“If you get bingo,” Kirk tells viewers, “give us a ring at 5-4945 and we’ll chat. Then at three o’clock we’ll come around with a basket of prizes. . . . Now, what do you say we play bingo?”

The numbers come fast and furious. “Check out the neighborhood of N-31,” Kirk says. “How does I-18 look to you?” He estimates he’s hosted more than 6,500 games of bingo—seven games an hour, 52 weeks a year, for 18 years. It’s a hard post to fill; the volunteer has to be highly dependable, have a sense of humor, enjoy meeting patients, and be comfortable in front of a camera. “I’ve tried to retire several times, but they won’t let me,” jokes Kirk. But his daughter, Nan Carroll (pictured with him above), fills in if he’s sick or out of town.

At the end of this hour, there are 15 winners. DHMC’s Pink Smock Gift Shop donates the prizes—such as puzzle books or stuffed animals. Today, a patient in the neuroscience unit is glad to pick some playing cards; she’s a big card player and forgot to bring a deck from home. Meeting the patients is one of the joys of the job. “They look you right in the eye,” says Kirk, “and say, ‘God bless you. You’re doing a good thing.’”

L.J.W.

patients who have melanoma.

He is focusing on dendritic cells, which play a central role in presenting cancer cells to the immune system. “Melanoma is not a passive bystander,” Tretter explains. “It actively suppresses the immune system. The immune system will try to eradicate the tumor, but its response is inefficient because . . . dendritic cells in a cancer-bearing host are not working properly.”

Tretter’s work on dendritic cells builds in turn on 20 years of research by immunologist Marc Ernstoff, M.D. (who is married to Titus-Ernstoff). Ernstoff has studied how to stimulate immune system signalers to enhance their cancer-fighting activity.

Focus: He believes the focus at Dartmouth on multiagent therapy will help overcome traditional barriers to immunological treatment. “There are places all over the world that are exploring these approaches,” he notes, but “only a handful of places [have] the breadth of research that focuses on all the different areas like we do.”

Tretter says DHMC’s growing reputation for novel tumor immunotherapy is leading to national and international patient referrals. This fact encourages him to push on with his research.

“What excites me about this is being able to think out of the box in tumor immunotherapy,” Tretter says. “It’s interesting to understand how these cells interact, and how tumors can inhibit their function. It is such a young field, and there is so much we can do in it.”

KATRINA MITCHELL

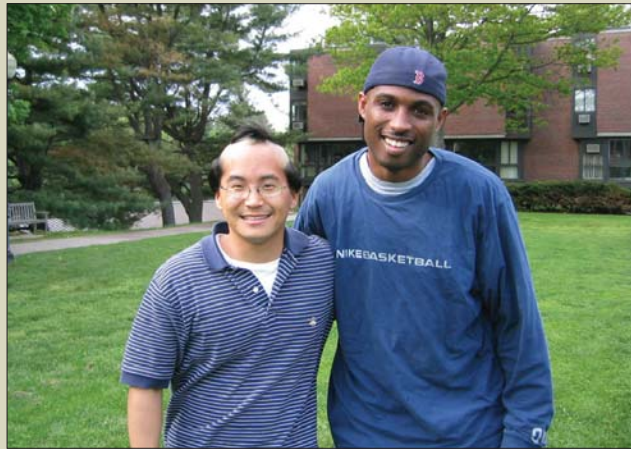
Helping doctors ask their patients “How’s your health?”

How well do doctors know their patients? Not well enough, says John Wasson, M.D., DMS’s Herman O. West Professor of Geriatrics. A typical office visit may last 10 minutes, but Wasson observes that within “about 30 seconds” the physician will probably interrupt the patient.

An elderly man coming in with a complaint of joint pain, for instance, might have a host of other problems affecting his health, such as emotional stress or limited social support, that the doctor will never hear about. Wasson believes it is essential for doctors and patients “to get on the same page” in order to improve health care.

Online: Based on 20 years of research, Wasson has developed an inexpensive, effective means of promoting communication between patients and health-care providers. It’s been used around the country, including Mobile, Ala.; Long Beach, Calif.; and, most recently, Chicago. Called How’s Your Health (HYH), Wasson’s project is aimed at primary-care practices and their patients. Its key component is an online questionnaire, tailored to age and gender, that helps patients identify their individual health concerns, risk factors, and quality-of-life issues.

Topics range from symptoms to family history, from health habits to use of prescription medications. The survey also asks such questions as “Do you have



Ted Yuo, left, “bares” up after getting shorn by Roy Wade, right.

Tonsorial revelry on the Hanover Plain

Getting your head shaved is often a sign of rebellion, and sometimes even an indication of downright antisocial tendencies. A head-shaving that took place at DMS in May, however, was a selfless, community-minded act.

A satellite of the Upper Valley’s free clinic, the Good Neighbor Health Clinic, was due to open soon in the underserved Mascoma region. Under the auspices of a Schweitzer Fellowship, second-year medical student Amy Noack had located a site for the new clinic, scrounged up equipment, and talked doctors into volunteering their time. What she hadn’t been able to wangle was a source of funding for medications and other disposable supplies.

Enter Theodore Yuo, a first-year student. He and some of his classmates were brainstorming ways to raise the needed money, and the idea of a raffle came up. But what to raffle? Someone proposed chances on a head-shaving and, “as I have a reputation among the class for being the most ‘buttoned-down,’” says Yuo, “we thought it would be a hoot to see me a bit outside my comfort zone.

“We were pleasantly surprised by the results,” he adds. The group raised almost \$300 by selling \$2 chances to shave Yuo’s head “any way you want,” according to an e-mail promoting the raffle. “Mullets, mohawks, Friar Tuck style . . . the possibilities are endless,” said the appeal. Yuo promised to wear whatever outrageous “do” he ended up with for at least 24 hours.

His classmate Roy Wade (who, “ironically, encouraged me to try this out,” says Yuo) got to wield the shears. A crowd of about 40 people gathered to watch the fun, as Wade left his classmate semi-shorn. A day later, Yuo got rid of the locks that remained and reported that he was “discovering the joys of easier hair care, now that I’ve shaved it *all* off. We still need to raise more funds to make sure this project will continue,” he added, “but we consider this to be a very strong start.” A.S.

enough money to buy the things you need to live every day, such as food, clothing, or housing?” and “During the past four weeks, was someone available to help you if you needed and wanted help?” Aside from entering their zip code and the name of their hospital or clinic, respondents are anonymous.

The survey takes about 10 minutes to complete, and those needing assistance or lacking Internet access can fill it out at a participating health center. After putting in their answers, patients receive a computer-generated “action form,” which they can print out and take to their doctors. The form outlines health “assets” and “needs.” Assets might include not smoking or getting screening tests, while needs might pinpoint family history or unhealthy habits.

Patients are also directed to Web sites where they can learn more about such issues as exercise, eating well, or making health decisions. With this information in hand, Wasson says, patients are equipped to take more responsibility for their own care, with regard to both prevention and treatment.

Complaint: In response to the common complaint that doctors have too little time to get to know their patients, Wasson’s program helps participating clinics make the best use of staff. For example, a nurse’s assistant can gather information about a patient’s overall well-being and pass it along to the nurse or doctor who will see the patient at an office visit. In some cases—for a patient managing chronic pain,



The "How's Your Health" Web site includes a health-issues survey, feedback patients can share with their doctors, and links to health information.

say—periodic phone calls from the nurse can keep the patient on track and cut down on the number of office visits.

For the cities taking part in HYH, the composite results of the patient surveys contribute to a big picture that would be hard to get otherwise. In Chicago—where a six-week initiative to get patients to participate was sponsored by the Chicago Medical Society, the Department of Public Health, and the Chamber of Commerce—it was expected

that more than 10,000 people would fill out the survey.

In a preliminary assessment of 4,600 Chicago respondents, Wasson found that among patients whose daily activities are limited by pain, only 49% say a clinician is aware of the problem. Wasson says the three most frequently mentioned concerns, in Chicago and elsewhere, are exercise and nutrition, cancer and heart disease, and making the health-care system work better.

The success of the program—

with practices reporting patient satisfaction rates as high as 90%, up from lows of 30%—has even caught the attention of the U.S. military. HYH is now being used by the Army, Navy, and Air Force. The State of New Jersey is one of the newest locales to sign up. The Commonwealth Fund "is offering small matching funds to interested communities," says Wasson.

To take the survey, visit www.howsyourhealth.org.

CATHERINE TUDISH

DARTMOUTH COLLEGE ARCHIVES



Baseball was as popular 116 years ago (above) as it is today (right).



Rebekah Kim '05



Tom Kesman '05

ROTH, KATRINA MITCHELL

From the 1887 "Medics" to the 2003 "Scrubs," baseball lives on at DMS

For well over a century, DMS students have enjoyed swinging a bat and chasing line drives. The photo on the left is of an 1887 DMS baseball team known as the Medics, and the images on the right depict the DMS Scrubs in action this spring.

Second-year student Ben Mailloux is captain and pitcher of the Scrubs, the Class of 2005's intramural softball team. The Scrubs won the Dartmouth-wide intramural championship last year and this year made it to the semifinals but lost by three runs. Mailloux says that 23 of his classmates are on the squad—about a third of the class—and that leading the team has been a lot of fun.

While the Scrubs play all their games in Hanover, back in the

1880s and 1890s, the Medics played at other schools, traveling by train to Laconia, N.H.; Barre, Vt.; and Marlboro, Mass. They had uniforms emblazoned with red crosses and the letter "D." Players were chosen by competition, and practices were held daily.

Many players, like those pictured in practice regalia in the photo above, went on to notable careers. Julius Haynes, Class of 1888 (front, far left), was a surgeon in Toledo, Ohio, from 1890 to 1941. Edward Hallett, Class of 1887 (back, third from the right), was the oldest practicing physician in Gloucester, Mass., at the time of his death in 1939 at age 75. And from their jaunty poses, it looks as if the Medics, like the Scrubs, enjoyed playing ball. M.C.W.

Visual attention may involve more than perception

How often do we pick up a pencil, a coffee cup, or a screwdriver without consciously thinking about it—hardly even looking at the item? Ever wonder how that's possible?

Scientists have long suspected that when a tool or some other grabbable object enters our peripheral vision, the brain not only turns its attention to the object but also begins the computations necessary to pick it up. Neuroscientist Todd Handy, Ph.D., together with several other Dartmouth researchers, set out to prove that. What he discovered is that grabbable items can affect visual attention, but that it matters where in the line of vision the item is located.

"There's a fundamental distinction between vision for perception and vision for action," explains Handy, a research assistant professor of physiology and brain science. "What we demonstrated is that things that we can grab—such as tools, cups, things that accord some kind of motor action—are capable of grabbing our attention automatically."

Auspices: Under the auspices of Michael Gazzaniga, Ph.D., director of the Center for Cognitive Neuroscience, Handy's team set up a two-part experiment. Using electroencephalography (EEG) and functional magnetic resonance imaging (fMRI), the team recorded the brain responses of subjects viewing grabbable as well as non-grabbable objects.

The subjects were divided equally by gender and were all right-handed (the effects of gender and handedness will be studied later). One group of subjects peered at a dot, centrally located on a computer screen, while hooked up to an EEG machine. Two objects would appear on either side of the dot—one grabbable, one not. After about a second, horizontal bars would flash over one of the objects. By measuring the electrical activity in the brain, the researchers could determine

where the subject's attention was focused. The data indicated that subjects' attention was drawn to the grabbable objects, says Handy, especially when those objects were on the subject's right.

Spatial: Then Scott Grafton, M.D., director of the Dartmouth Brain Imaging Center, and Neha Shroff, a 2002 Dartmouth College graduate who is now a medical student at Vanderbilt, performed fMRI on another group of subjects. These results confirmed that when a subject's spatial attention is drawn to a grabbable object, areas of the brain associated with visually guided actions are activated.

So the investigators concluded that the brain not only recognizes a pencil, a cup, or a screwdriver, but that our attention is drawn to the item and our brain plans how to pick it up. "One of

the reasons why we might see grabbable objects drawing our attention to their locations is that to grab things is very complicated," Handy explains. "There's a series of computations the brain has to make. When you look at something, you have to identify where it is, how big it is, and you have to take that visual information and transform it into the appropriate motor commands to actually reach out and grab it." The team's results were published in the April 2003 issue of *Nature Neuroscience*.

What's remarkable, Handy adds, is that the brain performs these complex acts with hardly any conscious thought. "Spatial attention doesn't just help us identify what something is, like 'I'm looking at a pen,'" he explains. "It

actually helps the motor systems compute the programs necessary for grabbing that object . . . attention not just for perception, but attention for action." This understanding is one more step toward figuring out just how the brain works.

Attention: Further research may help to address attention and obsessive-compulsive disorders. And, of course, advertising executives can be counted on to use this new knowledge about grabbing attention to . . . well, grab our attention.

JOYCE WAGNER

Screening rates don't match up with the evidence

To what extent does medical practice reflect scientific evidence? Far from perfectly, according to a recent study by the Outcomes Group at the VA Medical Center in White River Junction, Vt.

"We are interested in studying how rational medical practice is," explains Brenda Sirovich, M.D., an assistant professor of medicine at DMS and the lead author of the study. Recently, she and colleagues compared the screening rates for prostate cancer and colorectal cancer among men in the U.S. in a study published in the March 19 issue of the *Journal of the American Medical Association*.

There is no current evidence that screening for prostate cancer by means of a blood test for prostate specific antigen (PSA) is effective in reducing mortality. But numerous randomized, controlled trials have shown that screening for colorectal cancer leads to substantial reductions in mortality. Although prostate cancer claims more lives, colorectal cancer accounts for more premature deaths. So if practice patterns were based on scientific evidence, then screening rates for colorectal cancer should be higher than those for prostate cancer.

Yet using data from a federal survey called the Behavior Risk Factor Surveillance System, the DMS researchers found that 75% of men over age 50 report-



ed having had a PSA test, but only 63% had been screened for colorectal cancer. “There is evidence linking colorectal cancer screening with reduced mortality from colorectal cancer,” says Sirovich. “Yet more men are getting the other screening test, which is perplexing.”

Perplexing: Equally perplexing was the discovery that the age group with the highest rate of recent prostate-cancer screening (that is, within the last year) was 70- to 79-year-olds. “Most people who look at the benefit of prostate-cancer screening agree that the least likely age group to benefit . . . are older men,” explains Sirovich. That’s because although the risk of having prostate cancer increases with age, the chance that it will be a slow-growing form of the disease increases even more.

And with any screening test, the benefits tend to wane with age because the population has an increasing burden of other diseases, so the likelihood that the screening will prolong the person’s life expectancy falls.

Sirovich also notes that older men “are, in fact, the most likely to be harmed by screening.” That’s because any screening takes a population of individuals who have no signs or symptoms of disease and subjects some of them to interventions they would not otherwise have received. When you sign up for a screening test, says Sirovich, you sign up for a potential cascade of events—perhaps a biopsy; perhaps prostate surgery, which can result in impotence, incontinence, or prolonged hospitaliza-

tion; perhaps radiation therapy, which, especially in older patients, can have long-term consequences.

Not only does the evidence indicate a greater benefit from colorectal screening, but so do consensus guidelines by experts. Those for prostate cancer include both pros and cons of PSA tests. But colorectal guidelines strongly recommend screening starting at age 50 for both men and women. Sirovich notes, however, that the researchers “were not interested in promoting one [test] and picking on the other, but in pointing out the mismatch.”

What could account for the mismatch? One hypothesis is that men are more likely to know other men with prostate cancer, so the test for that disease may seem more salient. The number of people living with prostate cancer is at least three times that of people with colorectal cancer, says Sirovich, in part because the rate of screening for prostate cancer is so high.

Phenomenon: Sirovich explains a known phenomenon of screening: The more you screen, the more symptomless, mild cases of the disease you find. Survival rates go up because you’re finding more treatable forms of the disease. It’s assumed that the

screening is responsible for the improvement in survival. That leads to an even greater emphasis on screening and the identification of still more very mild cases. Hence it’s more likely a given person will know someone who’s been diagnosed with the disease.

Publicity: Another theory is that publicity—often in the form of celebrities with the disease—results in higher rates of prostate-cancer screening.

“If the [proven benefits from the] tests were equal . . . and both cancers had as big an impact on society in [terms of] years of life lost to cancer, then you would expect the screening rates to be equal,” explains Sirovich. Yet not only are all the benefits lower for prostate cancer, but the rate of screening for it is higher.

Sirovich emphasizes again that she is not taking a position on screening but merely making an observation. “Isn’t this interesting,” she says. “This is how we’re practicing medicine, and this is what the evidence shows.”

“We need to look more closely at where that mismatch is. If it’s that people don’t know, then we want to make sure that people know. If it’s that they know and are making decisions based on what they know, we’d be interested to hear why they’re making those decisions.”

KATHARINE FISHER BRITTON

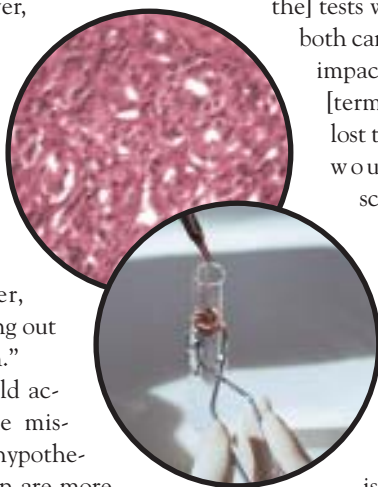
Antisense DNA helps make sense of clock secrets

A trio of Dartmouth researchers—from two different DMS departments and from the College’s biology department—have been working for years to unlock the secrets of biological clocks. Attacking the issue on several fronts are Jay Dunlap, Ph.D., a professor and chair of genetics; Jennifer Loros, Ph.D., a professor of biochemistry; and C. Robertson McClung, Ph.D., a member of Dartmouth College’s biology department.

Genes: Dunlap and Loros (who are married to each other)—with a pair of British colleagues, including former DMS postdoctoral fellow Susan Crosthwaite, Ph.D.—recently discovered that an unusual form of RNA known as antisense appears to regulate core timing genes in the bread mold *Neurospora’s* biological clock. And McClung, who was a postdoctoral associate in Dunlap’s lab before establishing his own lab more than 15 years ago, has uncovered evidence of two circadian clocks working within the same tissue of the flowering plant *Arabidopsis thaliana*.

The DMS results, published in *Nature*, are important because they reveal how antisense RNAs might affect a wide variety of processes. The findings, write the authors, “provide an unexpected link between antisense RNA and circadian timing.”

Usually, messenger RNA (mRNA) transcribes the genetic instructions contained in DNA,



then translates the information to form a protein molecule.

But when a strand of mRNA forms a duplex with a second strand of RNA, the translation process is turned off. The first strand is called “sense” RNA, because it can normally be decoded to form a protein; the second strand is called “antisense,” because its nucleotide sequence is the complement of the “sense” message. And this sense-antisense combination renders the sense strand incapable of decoding the DNA recipe to yield a protein product.

In normal bread mold strains, light triggers the cycles of antisense and sense RNA transcripts related to the frequency gene. But in mutant bread mold strains—ones that have been genetically altered to abolish light’s ability to induce the antisense RNA—the internal clock time is delayed and the resetting of the clock by light is altered.

Stability: If similar environmental factors regulate both sense and antisense transcripts, the authors suggest, a role for antisense frequency RNA might be to confer the ability to keep accurate time by limiting the clock response to extremes in the environment. And other antisense RNAs might be involved in maintaining internal stability in other organisms.

“Antisense RNA may play a role in regulation of clock genes in people,” says Dunlap. “Misregulation of circadian clocks and their responses to light has been implicated in several kinds of mental illness or affective disorders. And misregulation of

ALEXIOS MONOTOLIS



Joe O’Donnell, at left, leads a recent Communities of Care discussion.

Nurturing better listening, more caring

It’s really awesome to listen to people tell their own stories and have the rest of the people in the group be moved by them,” says Joseph O’Donnell, M.D., a professor of medicine and DMS’s senior advising dean.

O’Donnell and Kathryn Kirkland, M.D., an assistant professor of medicine, are leading a new community discussion group called Communities of Care. The program is funded by the New Hampshire Humanities Council.

The group meets once a month to discuss short stories and poems and watch portions of films, all dealing with a specific medical theme—such as the patient’s perspective, the doctor’s perspective, or dying and illness. Participants include various community members: retirees, hospital administrators, nurses, social workers, yoga teachers, and a filmmaker.

Following a meal, the group sits in a large circle as O’Donnell and Kirkland lead discussions of the week’s assigned readings—such as stories from Jerome Groopman’s *Measure of Our Days* and essays on altruism from *A Life in Medicine*, which O’Donnell coedited. Another week, the group watches part of the film *The Doctor*, in which William Hurt plays a surgeon who treats his patients with sarcasm and disrespect, until he himself is diagnosed with throat cancer and discovers what it is like to be a patient. The surgeon’s motto in the film—“Get in, fix it, get out”—triggered a lively discussion. “We talked about fixing versus healing, versus serving, versus helping. You fix something because it’s broken. You serve somebody as an equal,” explains O’Donnell.

His philosophy is that as health-care professionals and patients read and discuss literature together, and share their personal stories, they become better listeners. “We’re trying to produce communities of care,” he says. “How do we establish community? How can this literature group be a community? How can we live in community?”

M.C.W.

clock genes has been suggested as an origin of some cancers.”

McClung, whose early work with Dunlap focused on *Neurospora*, is still looking at biological clocks but in different organisms now. His recent findings, published in the online edition of the *Proceedings of the National Academy of Sciences*, suggest that plants may respond to seasonal changes by integrating information from at least two environmental signals—light and temperature.

“This is exciting, because this is the first good example of two clocks operating within a single tissue in any multicellular organism,” McClung says. “We’re not quite at the point where we can find out if there are two clocks

Dartmouth Medical School researchers Jennifer Loros and Jay Dunlap, pictured below, have spent many years teasing out the mechanisms of biological clocks.



operating in a single cell, but that's our goal."

Much has been discovered about biological clocks over the past 30 years, since Dunlap gained recognition for identifying what he calls the clock's "cogs and gears."

Findings: Last year, Dunlap's lab revealed that a single protein called White Collar-1 does double duty: it perceives light and it also turns on the central component of the clock, the frequency gene. Other findings made at DMS include the discovery that temperature may be more influential than light in setting cells' biological clocks and that signals tell bread mold when to send out spores, delineating how the clock is assembled and how light resets the biological clock.

How much else is there to discover about circadian clocks? "Who knows," says Dunlap.

LAURA STEPHENSON CARTER



JOSEPH MERTLING



XCX LIBERTIO NOC

An 1899 graduation program bears one of DMS's tamer past names.

What's in a (school's) name?

There's something to be said for referring to Dartmouth Medical School simply by its initials: DMS is short and easy to remember. But that simplicity masks a history of long and confusing names for the institution. An 1824 announcement in the *Boston Telegraph* used "N. Hampshire Medical Institution," "The Medical College," and "The Medical Institution of the State of New Hampshire," all in the same item.

That last name probably wins the prize for length, though "Medical Institution at Dartmouth University" gives it a run for the money. But despite their wordiness, these names may have raised more questions than they answered. "The Medical College" as often as not referred to the building rather than the institution. Names with "university" in them were anathema in a day when many loyalists did not want Dartmouth College confused with anything of the sort. And any name with "New Hampshire" in it made DMS sound like a state school. But the indiscriminate way different names got used (sometimes in the same breath) makes it clear that no one in the 19th century was much worried about what the place was called.

Other names used back then include "Dartmouth Medical Institution" and "New Hampshire Medical Institution." Pithy and actually pretty accurate for the first century of DMS's existence was the name perhaps used most frequently: "Medical Department." But somehow that didn't have the right *gravitas* as the School came of age.

When Professor of Surgery Phineas Sanborn Conner said in the late 1800s that the official name had "always" been "Medical Department of Dartmouth College," he was mistaken. During that very period, Dean William Thayer Smith had "Dartmouth Medical School" (at last!) emblazoned on his stationery.

Perhaps the most grandiloquent but least-used name seems to have fallen into the dustbin of history: "Dartmouth Medical Theatre." Now *there's* a stage to play on!

C.E.P.

Student tries to turn the tide of teen suicide

When a close childhood friend followed her to college at MIT, Urvi Pajvani, now a second-year student at DMS, was delighted. She was equally devastated when her friend committed suicide by setting her dorm room on fire.

That experience, plus Pajvani's interest in mental health, led her to construct a project on teen depression and suicide prevention in the Upper Valley. "I really wanted to do something in memory of my friend," Pajvani explains. "It was horrendous and something that shouldn't happen to someone her age. Like so much of medicine, depression and suicide are completely preventable, but people just don't focus on the prevention."

Signs: Pajvani was originally interested in talking to teens about warning signs for suicide and places they could find help. But her project—which was funded by the Schweitzer Fellowship Program—changed after she did some research.

She discovered that the surgeon general had issued a statement concluding that interventional programs were ineffective at preventing adolescent and teen suicide. In fact, the statement argued that educational programs could be detrimental by causing otherwise healthy teens to consider suicide.

In light of this information, Pajvani realized she could have more impact by educating physicians and other health-care



KATRINA MITCHELL

Urvu Pajvani has spent a good bit of time during the last year—when she wasn't immersed in her medical studies—working to combat teen suicide in the region.

providers in the region. She compiled statistics on how many adolescents attempt or commit suicide in the Upper Valley and compared them to national data. In searching for patterns, she discovered that of teens who commit suicide, 80% of boys also use alcohol and smoke tobacco and 60% of girls also have body-image concerns. She believes it is important for physicians to be alert for these connections in their patients.

Packet: Pajvani developed an information packet that describes screening techniques and conditions associated with suicide, such as a family history of mental health problems or the use of phrases such as “No one would miss me.” She especially targeted pediatricians, hoping to strengthen their ability to recognize teen depression.

“I just want to remind health-care providers that this is a problem. I at least want to make it fresh in their minds,” Pajvani

says. “I think that doctors know risk factors for suicide but don’t think about them on a daily basis.”

Having an impact on a complex problem like teen suicide is difficult, Pajvani came to realize. “I guess I won’t ever see tangible results from my project,” she says. “I won’t ever see who I am helping down the road.

But maybe my words will help one person who is helping another person.”

That indirect effect can be powerful, says her mentor for the project, psychologist Philip Wyzik of West Central Behavioral Health, a member of the Dartmouth-Hitchcock Alliance. “The issue of suicide is a significant health-care problem in our society,” Wyzik explains, but “is often overlooked. . . . However, suicide is preventable if people seek help and if others reach out. Urvu’s work will contribute to increasing awareness.”

Pajvani hopes to help at-risk teens more directly when she becomes a physician. She has considered entering either pediatrics or psychiatry, but she knows what she’s learned will help her in any specialty. “If you’re going to be a doctor,” she says, “you should be in tune with people’s mental health as much as . . . with their physical health.”

KATRINA MITCHELL

Medical students plan to publish “a literary collage”

The word “lifeline” acquired a new meaning a few years ago, thanks to the TV game show *Who Wants to Be a Millionaire*. Suddenly, the word implied not just literal survival for roped-together mountaineers, but a chance for quiz contestants to survive another round of play.

Meaning: Now, a group of Dartmouth medical students is trying to give the word yet another meaning—one having to do with survival of the soul.

Lifelines is the name of a nascent project to publish “a Dartmouth Medical School literary journal.” The mission of the journal, says its founder and editor-in-chief, first-year student Sai Li, “is reflected in its name—to connect the experiences and perspectives of all participants in the medical community, in order to facilitate better communication and understanding.”

The editors plan to publish, according to the project’s Web site, “works of art and word that, through their poignant accounts of everyday lives, as [the famous doctor-poet William Carlos] Williams wrote, offer us that ‘glimpse of something, from time to time, which shows us that a presence has just brushed past us.’” *Lifelines* will feature the work of DMS students and alumni, of DMS and DHMC health-care professionals, of patients at DHMC-affiliated hospitals, and of prominent writers.

Li and his colleagues are now

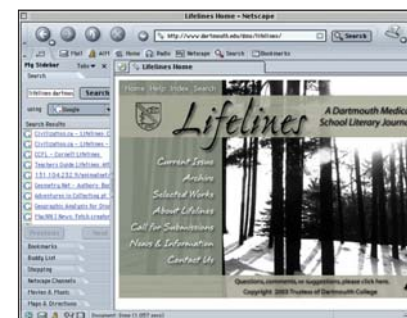
soliciting submissions for the inaugural issue, which they plan to publish in an online edition this fall. They are looking for original, unpublished short stories, works of literary nonfiction, poems, artwork, or photographs. Their hope is to eventually produce a print version of *Lifelines* as well.

Li’s vision is that the project will serve as “a thread that winds amongst all those who have been touched by the medical experience . . . a literary collage that offers a much-needed creative outlet for doctors and patients alike.

“It is our hope,” he says, “that this journal will enhance the atmosphere of the health-care community by instilling in its readers a respect for the enduring human spirit and a profound hope for better understanding and dialogue between doctors and patients.”

Guidelines: Submission guidelines are available at the URL in the caption below, or by writing to Lifelines@Dartmouth.edu or to *Lifelines*, DMS, Hanover, NH 03755-3833.

ALAN SMITHEE



This is the home page of the new DMS literary journal’s Web site. Its URL is www.dartmouth.edu/dms/lifelines/.

Substance abuse: Molding passion into momentum

When Mark McGovern, Ph.D., left his Chicago psychology practice in July 2001 to join the DMS faculty, he was expecting to work with Robert Drake, M.D., Ph.D., director of the New Hampshire-Dartmouth Psychiatric Research Center (see this issue's "Faculty Focus" profile on page 66). McGovern's expertise is in treating patients dually diagnosed with mental illness and substance abuse problems.

But then the chair of psychiatry, Peter Silberfarb, M.D., asked McGovern to attend some meetings at Dartmouth about substance abuse. McGovern, an associate professor of psychiatry, was surprised to find an "incredibly diverse" group of people involved—former U.S. Surgeon General C. Everett Koop, M.D.; Joseph O'Donnell, M.D., senior advising dean at DMS; Jack Turco, M.D., director of the Dartmouth Health Services; other clinicians and researchers; faculty from Native American Studies and the Departments of English and Russian; staff from the library and the chaplaincy; and even some alumni.

Desire: "They were talking about a desire to do something about substance use at Dartmouth. . . . They were talking about drunks that were showing up at the emergency room and being sent away. They were talking about everything," McGovern recalls. "It was really passionate—but incredibly vague."

Many of the attendees had participated in an interdisciplinary Dartmouth course called "Alcohol, Addiction, and Health," taught by Gail Nelson, Ph.D., a research associate in psychiatry. "Gail in a very creative way brought in multidisciplinary faculty and alums and students who were in recovery to talk about addiction and situated it in the context of literature and culture and art, from film to painting," says McGovern. (See the Summer 2001 issue for more about this course.)

Within months of McGovern's arrival, the group convinced Dartmouth Provost Barry Scherr to fund a Dartmouth Center on Addiction, Recovery, and Education (DCARE) for two years. McGovern was asked to be its executive director and Nelson the associate director.

It quickly became apparent that DCARE's most important role would be as a coordinator. Many people at Dartmouth and in the community were already involved in substance abuse initiatives, but McGovern was surprised that "a lot of them didn't know about one another." Coming from an urban area, he assumed that "in a place like this, everybody knew . . . what everybody else was doing."

DCARE decided to create several task forces to keep its work focused. "Our job at the core would be to keep the ball moving on these task forces," says McGovern. "The task forces turned out to be the heart and soul of the whole thing."

The physician training task force, for instance, determined

that DMS "was not doing a bad job" incorporating substance abuse issues into the curriculum, explains Donald West, M.D., the chair of that group. "But there was nowhere to refer patients for treatment."

Talk: "We were talking the talk, but not walking the walk," says O'Donnell, who is cochair of the

DCARE planning council with Koop. "If we weren't dealing with the treatment, it would undermine what was being taught in the classroom." McGovern agrees, saying that medical students "had this great course work," but later, during their clinical rotations, "were seeing role models . . . talking about 'Those hopeless people' and 'We don't treat them here.' . . . Not the best role models."

A subcommittee of that task force developed a proposal for an intensive outpatient treatment program at DHMC. The proposal is under review by the administration.

The community task force, cochaired by O'Donnell, is pushing for a residential treatment center for adolescents in the Upper Valley. Now adolescents who need residential treatment have to go as far away as New York or even Arizona. "The further away treatment takes place," McGovern explains, "the more difficult



MARK AUSTIN-WASHBURN

Mark McGovern arrived at Dartmouth two years ago and shortly found himself heading up a substance-abuse project that is bringing diverse constituencies together.

the reentry is and the more likely relapse will take place."

The community task force also facilitates DMS student involvement with abuse issues through smoking cessation clinics, court diversion programs, and the College's fraternities and sororities.

Another task force is conducting an ethnographic study of substance use at Dartmouth, to determine how alcohol and drugs are woven into the fabric of the College's culture.

Forums: DCARE's other activities include coordinating public forums to build awareness about substance abuse issues and meeting with government leaders. The organization has become "a platform to facilitate, to inspire, to encourage all these kinds of activities in all these different fronts," explains McGovern.

Thanks to DCARE, "there's a lot of momentum," concludes O'Donnell.

Laura Stephenson Carter

Probing structure of every protein is a massive job

All of us have considered at some time or another counting exceedingly large numbers—the stars in the sky, the grains of sand on a beach. But for Dartmouth computer scientist Bruce Donald, such a task is not a passing fancy but his life's work.

Goal: The ambitious goal of his current project is to work out the structures of all the proteins in nature—both plant and animal—under the auspices of a five-year, \$1.2-million grant from the Institute of General Medical Science.

It's rare for a computer scientist to be the principal investigator on a grant from the National Institutes of Health, says Donald, but he feels up to the challenge. When asked how many proteins might be involved, he replies, "Let's start with a human. The number of proteins is a function of the number of genes. That number keeps changing, but currently it's around 22,000.

"I'd be very surprised if the total [number of proteins for all species] is less than 100,000," Donald continues. "I would not be surprised if it was a million. But I would be surprised if it were more than two million."

How does one go about such a task? A good interdisciplinary team is the key. First, biochemists clone a gene, coax it to express a protein, and then purify the protein to the nth degree. The protein not only has to be pure, but each molecule has to

fold in precisely the same way. The protein must then be dissolved in water and subjected to so-called solution nuclear magnetic resonance (NMR).

In this technique, the spectrometer makes tens of thousands of measurements of bond angles and distances between hydrogen nuclei. Just as numerous measurements by a surveyor go into the creation of a topographical map, the NMR data contains all the elements needed to prepare a three-dimensional map of the protein. The problem is how to extract them.

It is at this point that Donald's group steps in. Their work is based on an undergraduate honors thesis by Alik Widge, a 1999 Dartmouth College graduate who is now an M.D.-Ph.D. student at Carnegie-Mellon. With Donald's help, he formulated a computer algorithm for determining protein structure from the NMR data; his thesis won Dartmouth's Kemeny Computing Prize. The original algorithm has since been refined by Donald's group, and related algo-

rithms have been developed. Now the group is testing them on NMR data collected from a variety of sources, at DMS and elsewhere.

Mass: The team is also probing protein structure using techniques complementary to NMR, including x-ray crystallography, mass spectrometry, and computational modeling.

The applications of the work are legion. For example, knowing the structure of a receptor could contribute to developing more specific drugs, more potent drugs, or drugs with fewer side effects. Or knowing the structure of an enzyme could suggest ways of modifying it to produce more efficient catalytic activity.

By looking at mass spectrometry data on serum from patients with prostate cancer and from normal controls, Donald and a colleague were able to construct what's called a "learning" algorithm that distinguishes with an accuracy of better than 97% between cancer patients and healthy patients. The results with ovarian cancer were even better—100% accuracy.

Size: Another possible application may be measuring serum proteins during chemotherapy to quickly assess treatment outcomes. Now, oncologists must wait before they can evaluate a therapy's effectiveness. But changes in serum proteins may prove to be a more sensitive indicator of efficacy than, say, regression in tumor size.

To keep tabs on Donald's progress, check out this site—www.cs.Dartmouth.edu/~brd/.

ROGER P. SMITH, PH.D.

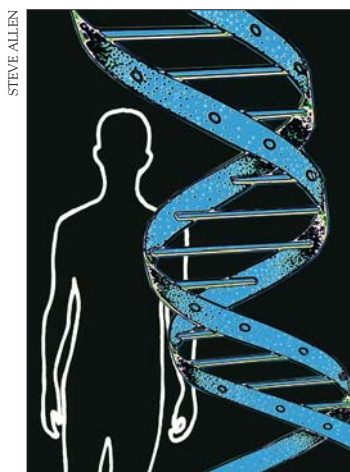
Together is better than alone, finds DMS-Thayer team

Redundancy is often a good thing—in plane engines, computer backups, or emergency exits. But biological redundancy—the existence of multiple biochemical pathways to one effect—is a problem when it comes to treating cancer or, for that matter, any disease.

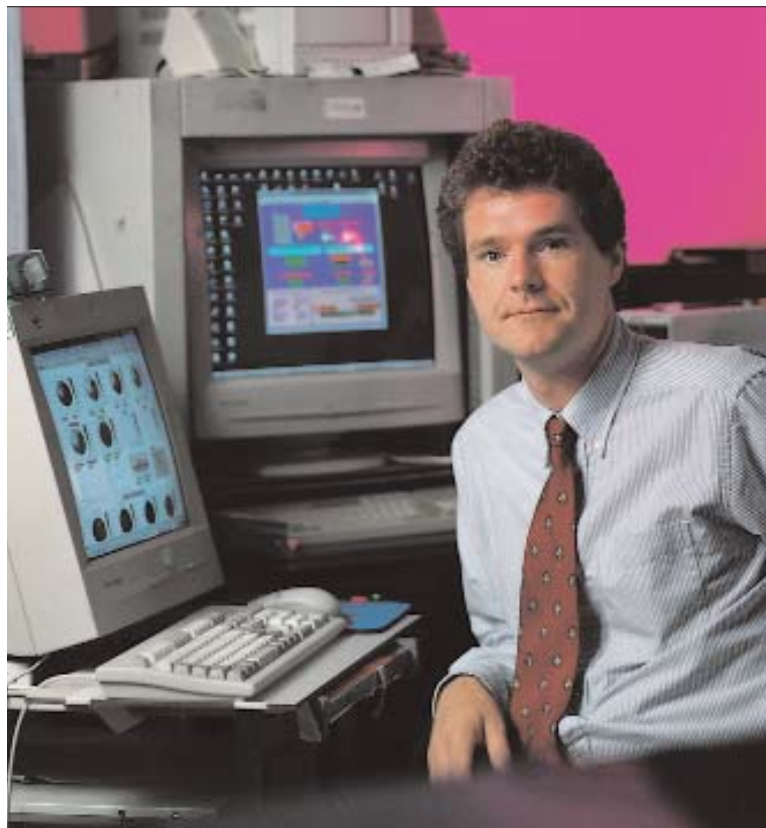
That's because a drug or radiation may block one pathway but not the ultimate effect. For this reason, it has long been recognized that combining two or more drugs that have different mechanisms may produce a better result—a phenomenon called synergy. Multidrug therapy with four or more agents is now common in cancer chemotherapy and AIDS therapies.

Twist: A new twist in combination therapy was the subject of a recent paper in *Cancer Research* by a team of investigators at Dartmouth Medical School and Dartmouth's Thayer School of Engineering.

For the past decade, there's been interest in combining photodynamic therapy (PDT) and radiation to treat some cancers. "But," says Brian Pogue, an associate professor of engineering, "although additive effects were recognized, until our study no one had been able to show a synergistic effect between PDT and radiation. One reason is that previous studies largely focused on test systems in cell cultures, and we now know that some types of synergism between PDT and ra-



STEVE ALLEN



MARK AUSTIN WASHBURN

Brian Pogue, who's on the faculty at Dartmouth's Thayer School of Engineering, is collaborating with colleagues at Dartmouth Medical School to find ways to boost the effectiveness of cancer therapies by carefully timing their administration.

diation may only be demonstrated in whole animals."

Harold Swartz, M.D., Ph.D., a professor of radiology at DMS who collaborated with Pogue on the study, outlines a typical treatment: "One would begin by injecting a semi-synthetic porphyrin, verteporfin [VP], intravenously. The VP would distribute throughout the body, although there seem to be somewhat higher concentrations in tumor tissue than in normal tissue. Perhaps this is because the blood vessels in tumor tissues are leakier than they are in normal tissue, and this allows more VP to leak into the tumor. Moreover, VP seems to be cleared from normal tissue more rapidly than from tumor tissue. So dur-

ing critical time periods, there is some degree of selectivity of the tumor for the porphyrin."

Then, says Swartz, a laser is precisely focused on the tumor, further increasing the specificity of the treatment. This converts some of the oxygen in the tumor to a highly toxic free-radical form called singlet oxygen, which destroys tumor cells.

Timing: Timing is all-important, because PDT with VP can alter tumor oxygen tension in either direction, depending on the interval between the processes. If phototherapy is delivered soon after the VP, most of the VP will still be in the blood and the toxic singlet oxygen will be produced in the blood vessels. This effect can damage the vascula-

ture, impair blood flow, and block oxygenation of the tumor—decreasing the effectiveness of the PDT.

If, instead, PDT is delivered three hours after VP, most of the VP has moved into the tumor cells and other tissues, optimizing the effect of the PDT. Moreover, singlet oxygen tends to damage mitochondria, the power plants of cells, causing the oxygen content of the tumor to rise above normal levels.

This leads to increased cell-killing when the tumor is subjected to radiation, which targets DNA. On this schedule, the two treatments together are clearly superior to the sum of both by themselves.

The tumor model used in the Dartmouth study was a mouse subcutaneous fibrosarcoma, so that the laser could be applied externally. But what about deeper tumors? Julia O'Hara, Ph.D., a research associate professor of radiology, explains that the PDT can also "be delivered by fiber optics, so the delivery system can be threaded to internal tumors." In the case of a bladder tumor, for example, the fiber optics could be introduced through a catheter in the urethra. Even tumors in the abdominal cavity and parts of the chest cavity could be accessed through small incisions.

When asked what's next for the team, Pogue replies, "Step one is the same as in all research projects—namely to get the grant renewed. After that, we plan to try to target approaches to prostate cancer."

ROGER P. SMITH, Ph.D.

Focused radiation means less damage, more chance of cure

Since the first cancer patient was treated with radiation therapy in 1896 (the same year that the first clinical x-ray in the nation was taken at Dartmouth), techniques for killing tumors with focused energy have changed dramatically. Today, half of all cancer patients receive radiation treatment to kill cancer cells and control their spread.

Beams: The problem is that conventional radiotherapy—in which a medical linear accelerator delivers large, uniform beams of radiation to a tumor site—may not only kill cancer cells but also damage healthy tissue surrounding the tumor.

But now, "recent advances in computers and technology have enabled us to increase and focus



MARK AUSTIN WASHBURN

Radiologist Eugen Hug adjusts DHMC's new radiotherapy device for a patient. The massive instrument stands nine feet tall and weighs almost 10 tons.

F R O M O U R P A G E S

radiation where we need it—with less radiation to surrounding tissues,” says Eugen Hug, M.D., chief of the Section of Radiation Oncology and associate director of DHMC’s Norris Cotton Cancer Center. “Today we can deliver a higher dose, decrease side effects, and increase the chance of cure. We were not able to do this for many patients 10 years ago.”

Precise: In May, DHMC doctors began treating patients with Intensity Modulated Radiation Therapy (IMRT), which uses computer-generated images to plan and deliver a radiation dose precisely the shape and depth of the tumor.

A computer-controlled device called a “multi-leaf collimator” uses up to 120 tungsten fingers, or leaves, to sculpt the radiation beam to conform to the tumor. The linear accelerator can also be moved to target all dimensions of the tumor.

Tissues: “Splitting the tumor into different segments improves dose delivery and increases the chance of completely eliminating the tumor,” Hug explains. “IMRT can be custom-tailored to the requirements of the tumor and the critical normal tissues around it.”

Studies have indicated that IMRT is especially effective in treating tumors of the brain, head, neck, prostate, and lung. With conventional radiotherapy devices, it’s difficult to deliver radiation to tumors located at those sites in doses that are high enough or that don’t result in severe side effects.

MARY HAWKINS

In this section, we highlight visual and textual tidbits from past issues of the magazine. These messages from yesteryear remind us about how fast some things in medicine (and in life) change, as well as about some timeless truths.

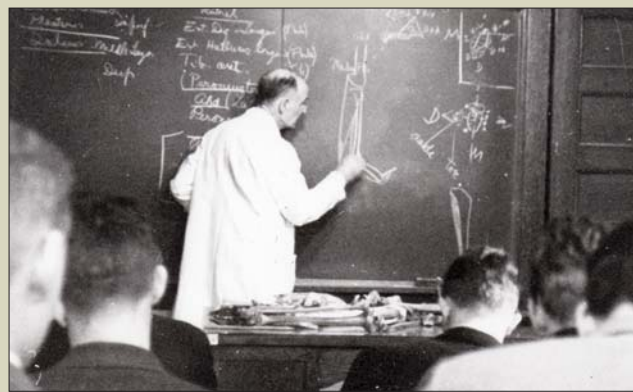
From the Spring 1978 issue

Almost exactly 25 years ago, DMS alumnus Irving Kramer ’33 went “Out on a Limb”—in an article of that title—and made some predictions about the future of medicine.

“Those of us who studied anatomy under Dr. Frederic Lord,” he wrote, “can imagine what our reactions would have been if he had predicted that one day a pump oxygenator would be connected to the circulatory system, that a surgeon would then incise the heart muscle, work on the valves, sew it up, and then shock the heart to start it again—we would have considered him demented!”

“The year 2000 is no longer a distant date of concern only to science fiction buffs,” went on Kramer, an internist. “Over half of the physicians in the United States today will still be practicing in 2000. So it is none too soon to ask: ‘What will be the state of the healing art at the turn of the century?’”

“A breakthrough can be expected in the 1990s with the introduction of antiviral therapy for certain types of cancer,” he predicted. “In the 1980s, besides a wide variety of more effective vaccines, there will be a universal virus vaccine. . . . Artificial hearts will largely have replaced human or animal transplants by the 1990s. . . . The widespread availability of video-phones, interactive television, and computer terminals within homes may allow patients to receive a large proportion of their medical care without having to travel to a hospital, clinic, or office. . . . By 1990, the costs of comprehensive health care will be covered by tax-supported national health insurance or obligatory health insurance.” Kramer, who died in 1993, was clearly prescient in some regards—and game in his willingness to peer into a brave new world he didn’t quite live to see.



Legions of DMS students learned anatomy from Professor Fred Lord.

**New on the bookshelf:
Recent releases by
DMS faculty authors**

Controversies & Conversations in Cutaneous Laser Surgery. Edited by Kenneth Arndt, M.D., and Jeffrey Dover, M.D., both adjunct professors of medicine at DMS; American Medical Association Press; 2002. This book examines new laser techniques



and provides guidance on using lasers in a variety of clinical situations. It includes details about laser resurfacing; photorejuvenation; treatment of vascular anomalies, leg veins, psoriasis, and scars; skin cooling; and novel approaches to skin rejuvenation.

Manual of Dermatologic Therapeutics. By Kenneth Arndt, M.D., an adjunct professor of medicine at DMS; and Kathryn Bowers, M.D.; Lippincott Williams & Wilkins; 2002. The



revised edition of this manual provides information on the pathophysiology, diagnosis, and therapy of a variety of common skin disorders. It includes definitions and descriptions of each condition and discusses symptoms, clinical findings, assessments, and potential therapeutic interventions, including medications.

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

William Wickner, M.D., the James Chilcott Professor of Biochemistry, was recently elected a fellow of the American Academy of Arts and Sciences. Among the



other new fellows and foreign honorary members this year were Kofi Annan, secretary-general of the United

Nations; journalist Walter Cronkite; and Nobel Prize-winning physicist Donald Glasner. Wickner was recognized for his studies on cell membranes and protein movement.

John Wennberg, M.D., the Peggy Thomson Professor of the Evaluative Clinical Sciences and director of DMS's Center for the Evaluative Clinical Sciences, received the 2003 Health Quality



Award from the National Committee for Quality Assurance; it recognizes contributions made toward improving the quality of health care through research, public policy, or public education.

Thomas Oxman, M.D., a professor of psychiatry and of community and family medicine, was elected to the board of directors of the American Association of Geriatric Psychiatry.

Frances Friedman, M.D., an assis-

tant professor of medicine emerita, was one of 40 physicians nationwide to receive a Laureate Award from the American College of Physicians, for her work for the ACP.

Robert Racusin, M.D., an associate professor of psychiatry and of pediatrics, was the recipient of the 2003 Psychiatrist of the Year Award for New Hampshire. It is presented by the state's chapter of the National Alliance for the Mentally Ill.



William Boyle, M.D., a professor of pediatrics, was recently selected as the recipient of the Granite State's 2003 Pediatrician of the Year Award. The award is presented annually by the New Hampshire Pediatric Society.



Catherine Pipas, M.D., an associate professor of community and family medicine, was elected cochair of the National Steering Committee for the Society of Teachers of Family Medicine's Predoctoral Education Committee.



Robert Harbaugh, M.D., a professor of surgery and of radiology, was selected by the American Stroke Association, a division of the American Heart Association, to serve as a member-at-

large of the Stroke Leadership Committee.

Six faculty members were honored as the inaugural recipients of Dean's Faculty Awards—a new DMS award recognizing excellence in four different areas. The Senior Faculty Award was presented to **Donald St. Germain**, M.D.

(pictured at left), a professor of medicine and of physiology as well as acting chair of the Department of Medicine.

Honored for basic science was **George O'Toole**, Ph.D., an assistant professor of microbiology and immunology; for clinical investigation, **Lisa Schwartz**, M.D., and **Steven Woloshin**, M.D., both associate professors of medicine and of community and family medicine; for teaching and clinical care, **Joshua Lee**, M.D., an assistant professor of medicine; and for translational research, **John Hwa**, Ph.D., an assistant professor of pharmacology and toxicology.

Peter Silberfarb, M.D., the Raymond Sobel Professor of Psychiatry and a professor of medicine, was honored for his 16 years of service as chair of the Department of Psychiatry with the establishment of the Peter Silberfarb Distinguished Lectureship in Psychiatry.

Jonathan Ross, M.D., an associate professor of medicine and of community and family medicine, has been named the Almy Clin-



ical Scholar. The post is a three-year appointment that allows a senior faculty member to put extra time into developing new clinical teaching programs. It was funded in honor of the late Thomas P. Almy, M.D., former chair of medicine at Dartmouth. See the feature on page 32 for insight into one of Ross's educational efforts.

Kenneth Arndt, M.D., an adjunct professor of medicine, received the Leon M. Goldman Memorial Award from the American Society of Laser Medicine and Surgery. The award recognizes demonstrated longitudinal excellence in performing clinical laser research.

Eugene Lariviere, M.D., an adjunct assistant professor of pediatrics, was named Citizen of the Year by the Greater Manchester Chamber of Commerce. He was instrumental in founding the Dartmouth-Hitchcock Clinics in Manchester and Bedford.

Elizabeth Eisenhardt, a first-year medical student, was the sole medical student representative at a national symposium to create strategies for increasing the role of the arts in health care. The symposium was hosted by the National Endowment for the Arts and the Society for the Arts in Health Care.

Eight first-year Dartmouth medical students were selected as Schweitzer Fellows for 2003-2004: **Joseph Dwaihy**, **Elizabeth Eisenhardt**, **Krista Heydt**, **Christopher Jons**, **Katrina Mitchell**, **Shirin Sioshansi**, **Emily Walker**, and **Roy Wade**. In the Schweitzer Fellowship program, participants engage in interdisciplinary activities in the community that

emphasize values and leadership.

Anthony Perrone, a third-year medical student, was elected regional chair for legislative affairs of the American Medical Association's Organization of Student Representatives.

Kim O'Hara, a graduate student in pharmacology and toxicology, received the Society of Toxicology's Taylor & Francis Graduate Student Award, Metals Specialty Section.

In the 2003 *U.S. News & World Report* ranking of the country's 125 medical schools,

Dartmouth Medical School was ranked

35th on a scale emphasizing research activity and 27th on a scale emphasizing the percentage of graduates who enter primary-care specialties. The rankings are based on grant funding, reputation, test scores, and student-faculty ratios.

Dartmouth-Hitchcock Medical Center was named by *Business NH Magazine* and the New Hampshire Association of Chamber of Commerce Executives as the Health-Care Business of the Year for 2003. Factors considered in making the award were impact on the industry and the community.

DMS's **Patient Partnership Program** was selected by the Fetzer Institute as a finalist for the 2002 Norman Cousins Award. Cousins

continued on page 70

MEDIA MENTIONS: DMS

Among the people and programs coming in for prominent media coverage in recent months was epidemiologist **John Baron**. From the *Washington Post* to the *Los Angeles Times* and CNN to NPR,



the media covered a study he led about aspirin's effect on colon cancer. Noted *Newsweek*: "Now, scientists say, [aspirin] may also help ward off colon cancer, at least in high-risk populations." The *San Francisco Chronicle* reported that "Dr. John Baron of Dartmouth Medical School said aspirin's benefits are real but modest." And *Reader's Digest* issued a caution: "Though aspirin is great, says Dartmouth's John Baron, it has risks. Talk to your doctor first." See page 10 for more on the study.

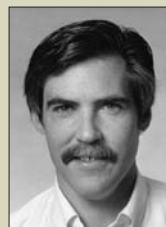
A *Newsweek* cover story on pain quoted a DHMC expert for insights into "small patients, big pain." Doctors are "rethinking the treatment of acute



pain for children who go to emergency rooms for more common injuries like broken limbs or cuts that need stitches. In the past 'you brought your kid to the hospital. They held them down and did something that hurt, and you brought them home,'

says **Joe Cravero**, a pediatrician and anesthesiologist who is cowriting an American Academy of Pediatrics policy statement on pain relief in the ER."

"The perils of prevention" was the headline on a *New York Times* feature about some downsides of aggressive screening practices. "Imaging has improved so much, we can find things we really don't know enough about," says Dr. **William Black**, a radiologist at Dartmouth. In the face of this uncertainty, doctors say they must err on the side of caution and treat practically every tiny tumor as if it were potentially deadly. . . . But that means that widespread screening for prostate and breast cancer has



resulted in huge numbers of patients suffering the side effects of unnecessary medicine." See page 14 for a recent study on a related topic.

From *Better Homes & Gardens*, to the *New York Times*, to the *San Diego Union-Tribune*, the word is out that the advice to drink eight 8-ounce glasses of water a day is all wet. A review article on the subject last year by DMS physiologist **Heinz Valtin** is still getting wide coverage. *BH&G* wrote that "according to a study at Dartmouth, the '8-by-8 rule,' as it's known among nutritionists, doesn't appear to have any real scientific basis." The *New York Times* said many marathoners are "overhydrated, having fallen for what Dr. Heinz Valtin of Dartmouth deems a medical myth: that dehydration is always lurking." And in the *San Diego newspaper*, "Heinz Valtin, a noted kidney expert from Dartmouth, [warned that] water intoxication and even death can result from drinking more water than your kidneys can process."

Debate in the scientific community regarding the rigor of space-shuttle science was fodder for a recent article in the *Houston Chronicle*. One of the experts who defended such work was "**Jay Buckley**, a Dartmouth medical professor who flew on Neurolab. . . . Buckley said NASA did several things right for Neurolab, such as tailoring the flight to fit the science and not the science to fit the flight."



"Take two recent medical anecdotes," wrote a reporter for the *Milwaukee Journal-Sentinel*. "I had two surgeries, one on a knee and another on a wrist, and nobody asked me in a systematic way how they came out. My doctors know and I know, but no one else knows. In the same time frame, my son had a back operation at Dartmouth-Hitchcock Medical Center, a longtime leader in systematic medicine. . . . His results, like mine, were excellent, but his were fed into a real-time database, while mine went into the ether." The director of DHMC's Spine Center is **James Weinstein**.



Ruing "a medical arms race that is spreading open-heart surgery across southeastern Pennsylvania but is draining the number of patients at many

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

programs, threatening patient safety,” the *Philadelphia Inquirer* turned to a Dartmouth expert on the effect of volume on surgery risk. “In the largest surgical volume study ever done, **John Birkmeyer**, chief of general surgery at Dartmouth, found that 4.8% of Medicare patients died soon after bypasses in high volume hospitals. But the death rate jumped to 6.1% for bypass patients in the lowest-volume hospitals.”

The *Wall Street Journal* reported that ruptured aneurysms, “a ballooned section of a blood vessel, . . . kill an estimated 18,000 Americans a year—more than AIDS or brain cancer.” They can be diagnosed with “a simple test,” but it’s not covered by most insurers or recommended by most doctors. Now, however, “a large new study is being organized by the medical schools at Dartmouth, the University of Pennsylvania, and the University of Pittsburgh. Initially it will



measure the prevalence of aneurysms; a later phase will check for a mortality benefit from screening. ‘There is reasonable emerging evidence suggesting it’s reasonable to screen men over 60’ for abdominal aneurysm, ‘particularly if they have a history of smoking, and anyone with a first-degree relative with an aneurysm,’ says **Jack Cronenwett**, a study organizer and chief of vascular surgery at Dartmouth.”

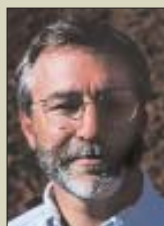
Noted the *Miami Herald*: “Blood banks are starting to adopt new anti-germ technology. ‘Although the public is worried about HIV or West Nile virus, we may have to occasionally stand up and say in public or to a newspaper reporter, ‘That’s not what we should be worrying about,’” blood safety expert **James AuBuchon** of Dartmouth told a recent meeting of the government’s top blood advisors. ‘Share with the public what the real risks are.’ Topping that list: germs.” AuBuchon’s work was the subject of the cover feature in the Spring issue of the magazine.

Though bioterrorism remains a subject of concern, “vaccinating the entire U.S. population for smallpox in the 21st century, without signs of an attack, is a step vaccine experts call extreme,” reported *Newsday*. “‘We need a policy, but that doesn’t mean that we have a general policy to immunize large numbers of people,’ said Dr. **John Modlin**,” who chairs the federal Advisory Committee on Immunization Practices. “Modlin, a professor at Dartmouth Medical School, said the vaccine is based on a live virus, and therefore a policy must be carefully crafted.”

The *Baltimore Sun* wrote about a problem that “cancer patients [call] chemo brain or chemo curse . . . a sense that their brains are in a fog. In one study of breast cancer and lymphoma patients at Dartmouth-Hitchcock Medical Center, more than twice as many chemotherapy patients scored in the lower impaired range than did patients who had radiation or surgery. Dr. **Tim Ahles**, who directs psycho-oncology research at Dartmouth, found deficits even after accounting for education differences and screening out survivors with problems such as depression and anxiety.”



Newsday reported on “arsenic’s reputation for toxic nastiness,” saying a Dartmouth study shows “that even minuscule doses disrupt the way hormones work. . . . ‘Arsenic is an agent of considerable public health concern in the United States and worldwide,’ said toxicologist **Joshua Hamilton** of Dartmouth. The elemental metal is already known to be outright poisonous. . . . Now, Hamilton said, ‘it’s very clear that arsenic is a potent endocrine disrupter.’”



The *London Daily Telegraph* carried word of a recent “finding that some sufferers from

temporal lobe epilepsy . . . seem to experience devout hallucinations that bear striking resemblances to the mystical experi-



ences of holy figures such as St. Paul or Moses. This theory received a boost from **Gregory Holmes**, a pediatric neurologist at Dartmouth, who says one of the principal founders of the Seventh-Day Adventist movement, Ellen White, in fact suffered from temporal lobe epilepsy.”

The myriad benefits of a good night’s sleep were recently touted in the pages of *Reader’s Digest*. “The solutions to sleeplessness are better than ever, but it helps to understand the nature of your problem, says **Michael Sateia**,



who directs the Dartmouth-Hitchcock Sleep Disorders Center. ‘Virtually everyone has at least a transient period of insomnia that lasts a night or a few nights.’ It could be triggered by grief, hardship, jet lag, divorce, or pressures at work. But most people get over it quickly.”

The connection between sleep disturbances and traumatic events was the subject of a piece on ABCNews.com. Another Dartmouth sleep medicine expert, **Thomas Mellman**, was quoted as saying that a traumatic event can disturb sleep in several ways. “A person might feel the need to be alert or on guard. And being alert is basically incompatible with being asleep,” he said. “Also, worry and intrusive thoughts, such as disturbing images of what happened, might interfere with sleep. . . . Similarly, there are certain startle mechanisms that can actually operate within sleep. . . . Finally, particularly intense, life-threatening experiences can affect what one dreams about.”

