



ALL IN THE FAMILY: Dr. William Boyle, a DMS pediatrician, and Peter Bartline, a Year 2 student, made a presentation this summer at an international conference on patient- and family-centered care. See the box at right for a link to Bartline's slide presentation.

THEN & NOW

A reminder of the pace of change, and of timeless truths, from minutes of DMS faculty meetings in 1854:

"Mr. Daniel Laing (Colored) under the patronage of the Mass. Col. Society & to go to Liberia—was examined for a degree. . . . Laing's certificates of time of study in this country & England are received and the Diploma forwarded by express today to Reverend J. Tracy. Laing's thesis on Remittent Fever." Laing was not even the first student of color to receive a degree from DMS. Samuel McGill, also of Liberia, graduated with honors in 1838.



13

Number of black DMS graduates in the 82 years between 1838 and 1920

31

Number of students of color who matriculated in DMS's M.D. program in 2007

New medical students are shown the ropes

The 73 members of the M.D. Class of 2011 came together for the first time on August 6 for a week of orientation. In addition, five new students began their studies in the M.D.-Ph.D. program, and 103 entered other DMS graduate programs.

Andrew Welch, the director of admissions for the M.D. program, says the class includes 41 women and 32 men. Students of color and international students account for 45% of the class, up 5% from last year.

The class's average combined MCAT score was 33.4, the highest in the school's history. The average undergraduate GPA in both science and nonscience subjects was over 3.7.

Wellness: The new students were welcomed by James Wright, president of the College; Dr. Stephen Spielberg, dean of DMS; and other deans, who had prepared a fact- and fun-filled week to introduce them to Dartmouth and each other. They got overviews of the curriculum, student affairs offerings, wellness and safety measures, the biomedical libraries, the computing system, the honor code, community service opportunities, and much more.

The class also enjoyed an afternoon of team-building at a local ropes course and an overnight hike up Dartmouth's own mountain, Mount Moosilauke. For most of the class, this was new terrain but not an unfamiliar activity, as outdoor sports are

big favorites among the '11s. In their admissions autobiographies, many listed biking, hiking, kayaking, and skiing as interests. But not every student comes with pedaling or paddling experience. Nisha Jambulingam, for example, wrote: "As a perpetual city-dweller, I am interested to learn about Hanover's great outdoors that I have heard so much about."

The members of the class hail from as near as Hanover, N.H. (Yukako Honda) and Norwich, Vt. (Sarah Edwards) and from as far away as Zimbabwe. Fadzai Chinyengetere described herself in these words: "I am a proud Zimbabwean woman. I did my undergrad at Smith College. . . . My dreams and ambitions include going back home and utilizing the education obtained here to assist and further the lives and goals of my community."

Honda, who moved to Hanover from Japan in fifth grade, graduated from Hanover High School and Dartmouth College. She said she is interested in Japanese cuisine and gardening and was looking forward to learning more about health and nutrition at DMS.

That learning was soon underway. By August 13, the students were in the classroom, studying hard.

Other programs: A total of 103 additional students entered DMS's graduate programs in the biomedical sciences and evaluative clinical sciences this fall.

The Program in Molecular and Cellular Biology, which encompasses biochemistry, genetics, and microbiology-immunology, has 27 new students. And the new Program in Experimental and Molecular Medicine (PEMM) has admitted 13 students. PEMM is based on the classical disciplines of pharmacology and physiology.

The acclaimed Center for the Evaluative Clinical Sciences, recently renamed the Dartmouth Institute for Health Policy and Clinical Practice, admitted 62 students—18 to the M.S. program and one to the Ph.D. program; about half are health-care professionals, and the others are recent college graduates. In addition, the Institute enrolled 43 new M.P.H. students.

ROSEMARY LUNARDINI



Soon enough they'd be studying anatomy, but first the DMS '11s did some team-building at a local ropes course.

PYRAMID SCHEME: Dartmouth's Dr. Joseph O'Donnell was one of eight U.S. oncologists invited to Egypt by the National Cancer Institute of Egypt to advise the nation on its graduate medical education programs in cancer.



Coming to grips with the money-medicine mess

The rising cost of health care in the U.S. has become a universal rallying point. Politicians, pundits, patients, and even many doctors agree that Americans spend too much on health care—and that the current payment system is largely to blame.

But no similar consensus exists on how to remedy the problem. That's why a group of 47 representatives from academia, private practice, patient advocacy groups, health plans, and large corporations gathered recently at Dartmouth to evaluate and rate the potential of alternative payment models.

Consensus: "We're actually not looking to say, 'Well, here's the one payment system we should move to for the entire United States,'" Robert Smoldt said at the start of the forum. Smoldt, executive director of the Mayo Clinic Health Policy Center, and the other organizers of the session were instead looking for "a consensus on some assumptions and principles about how we pay for care."

One of a series of forums organized by the Mayo Health Policy Center, this meeting was co-hosted by DMS's Dr. John Wennberg. He founded Dartmouth's Center for the Evaluative Clinical Sciences (recently renamed the Dartmouth Institute for Health Policy and Clinical Practice—see page 16 for more on that change), which co-sponsored the forum.

First, the group identified and

agreed on some major flaws of the current system: 1) physicians and other providers are paid more for performing expensive, invasive, high-tech procedures than for providing low-cost, low-tech, preventive care; 2) a huge amount of money is wasted on care at the end of life that does not extend lives and may even shorten them; 3) uncoordinated care is widespread and leads to poor outcomes and higher costs; and 4) patients are poorly informed about their health-care choices.

Then the group debated the pros and cons of several alternative payment models. Although no model received unanimous support, these three—which aren't mutually exclusive—were by far the most popular:

1) Certification of Shared Decision-Making for Major Surgery: Medical centers would be compensated for establishing formal programs that provide patients with unbiased information about their treatment options. Patients who are well informed often choose less-invasive, less-expensive options. (For more on shared decision-making, see page 38.)

2) Chronic Condition Coordination Payment: Patients with chronic conditions would belong to a "medical home" (a hospital, physician, and/or care network) that would receive a single periodic payment to cover all preventive care, management, and minor acute care associated with

their condition. The amount would be adjusted for the severity of each patient's situation.

3) Mini Capitulations: Payments to hospitals and physicians for major acute episodes would be bundled together, which would require hospitals and physicians to better coordinate their services.

Models: Among the payment models that received lower scores from the attendees was the pay-for-performance model that Medicare is currently evaluating. (For more on a Medicare pay-for-performance demonstration project, see page 18.) The group seemed to agree that the pay-for-performance model is better than the current fee-for-service system, but that it has major shortcomings.

In addition, DMS participants in the forum—including Dr. Elliott Fisher, a health-policy physician-researcher, and Dr. James Weinstein, an orthopaedic surgeon and the new director of the Dartmouth Institute for Health Policy and Clinical Practice—put forth several principles to guide the design of any new payment systems. They proposed that incentives be directed toward improving health outcomes, coordinating care, and supporting patient education and decision-making.

Woes: The small but diverse group gathered at Dartmouth wasn't able to solve all of health care's woes, but the attendees did agree on some key strategies. So perhaps there's hope for building a national consensus on health-care reform after all.

JENNIFER DURGIN

THEN & NOW

A reminder of the pace of change, and of timeless truths, from the 1902 DMS Circular of Information:

Home births being common then, the obstetrics course comprised "1. A course of 48 lectures illustrated by diagrams and the use of manikins, with occasional quizzes. 2. Recitations with section work upon manikins by the student. Preparation is thus secured for a course in the out-patient department of a lying-in hospital, which the student is advised to take during the vacation at the end of the third year. . . . 3. A few maternity cases are received at [Mary Hitchcock] Hospital, and when possible they serve to illustrate to the students in small sections the teaching and methods of obstetrics."



1,120

Number of babies born at Dartmouth-Hitchcock Medical Center in FY2006



REEL IMPACT: DMS research into the impact on teens of onscreen tobacco was cited in wide press coverage of two recent decisions about cinematic smoking. Disney decided to snuff most smoking scenes, and tobacco use will now be considered in movie ratings.

Multidisciplinary clinics prove to be the bee's knees

What makes DHMC's multidisciplinary thoracic oncology clinic tick? To find out, just visit the local science museum's indoor-outdoor hive and "watch those bees," says Gwendolyn Natola, project manager for the clinic. "The bees come in and it looks so chaotic—they're flying around and dancing—but it's actually a lot of choreography." The clinic "is very much like that," she says.

Confer: The one-day-a-week clinic, at the Norris Cotton Cancer Center, is a bustling place. Clinicians and nurse practitioners who specialize in lung cancer and other thoracic cancers confer in a central room, in between seeing patients in adjacent exam rooms. Oncologists, surgeons, a pulmonologist, a radiation on-

colologist, a nurse manager, a clinical trials coordinator, social workers, palliative-care specialists, and smoking-cessation counselors buzz in and out. This allows patients to see everyone they need to all in one day. To coordinate the activity, a central "intake unit" handles all phone calls and follows detailed algorithms to determine how patients should be scheduled—according to if they need a needle biopsy, say, or a bronchoscopy.

"It simply means that we try to slot people in the most efficient way so that patients don't get sent to the wrong doctor early on," says Dr. Peter DeLong, the clinic's pulmonologist.

The clinic "also allows the providers to talk among themselves in real time, or even con-

fer with a patient together and, in complex cases, decide the best treatment," says Dr. David Johnstone, a thoracic surgeon. Another advantage is that providers are more aware of colleagues' research and clinical trials.

Grab: And for patients, return visits are often avoided. "Currently I can see a patient . . . that I cannot perform a bronchoscopy on but that's probably amenable to surgery. I can walk outside the room and grab a sur-

geon who can look at a scan right there with me," says DeLong. Then the appointment for surgery can be made right on the spot. "So what could take three or four days has been condensed to 10 or 15 minutes," he adds.

Hugh Sullivan, a lung-cancer patient who also has pulmonary fibrosis, was referred to Dr. Candice Aitken, the clinic's radiation oncologist, when his surgeon determined that he was not a candidate for surgery. He received three treatments using a precise, high-dose radiation system that is timed to the patient's respiratory cycle so it targets the tumor and

causes little damage to adjacent healthy tissue. "I had radiation on Wednesday," says Sullivan. "Thursday morning I played golf. I had no ill effects at all." His tumor was eradicated, and three months later he felt fine—just a little short of breath because of his fibrosis.

Lung cancer is the leading cause of cancer death among both men and women, yet there are about 330,000 long-term survivors, according to the American Cancer Society.

At Dartmouth, the multidisciplinary approach to thoracic cancers goes back to the late 1980s, when the Comprehensive Thoracic Oncology Program (CTOP) was formed. CTOP was a weekly conference at which clinicians from different disciplines discussed cases. "So the multidisciplinary approach . . . had really been existing here for considerably longer than the actual clinic," says Dr. William Nugent, a cardiothoracic surgeon.

Model: The multidisciplinary clinic model has taken hold at DHMC for other conditions as well—breast cancer, amyotrophic lateral sclerosis, craniofacial problems, polycystic ovarian disease, and juvenile arthritis and rheumatic diseases. Dartmouth's nationally known Spine Center was the first such clinic.

In the thoracic oncology clinic, Natola enjoys working with all the busy bees. "This particular clinic has providers that never say no," she says. "They always do the best thing for patients."

MATTHEW C. WIENCKE-



JOSEPH MEEHLING

It's a hive of activity in DHMC's thoracic oncology clinic, which Gwen Natola, in the foreground, manages.

GREEN ALL OVER: This year's Prouty Bike Ride went green, slaking the thirst of over 3,500 participants with water from reusable jugs instead of bottles. There was lots of another kind of green as well—\$1.6 million raised for the Cancer Center.



NEW PIANO: A GRAND IDEA

He could never get enough of “Polka Dots and Moonbeams.” Or of “The Girl from Ipanema.” Those are just a couple of the oldies but goodies that David Hall, a longtime volunteer pianist at DHMC, would play on the Steinway grand in the Medical Center rotunda. Hall, a retired computational physicist, died of cancer in early 2007. As he played at DHMC over the years, recalls his widow, Barbara, he came to realize “how much the music meant to people who had been coming [to] and leaving the hospital.” He concluded, she adds, “that the new wing [of DHMC] should have a piano, as well as the rotunda.”



Alissa Poh, who just completed a master's in pharmacology at DMS (and this magazine's editorial internship), liked taking lab breaks at the new piano.

For a **WEB EXTRA** with audio and video of the new piano, see dartmed.dartmouth.edu/fall07/html/vs_piano_we.php.

So his family donated a new Steinway grand to DHMC this spring, in appreciation of the care that he received at the Norris Cotton Cancer Center. The piano sits on the East Mall, just above the Cancer Center's waiting areas. M.C.W.

DOGGONE TASTY TREATS

Doting dog owners will soon be able to pamper their pets with gourmet dog biscuits, thanks to Pete's Treats for Pooches, developed by DHMC nurse Peter Nolette, B.S.N. His love of animals, passion for baking, and knowledge of good nutrition have resulted in recipes featuring low-salt, low-fat, preservative-free ingredients, as well as B vitamins and brewer's yeast to discourage fleas. Goodies like Apple Dapples and Three-Cheesies are designed to tempt any pooch, according to their creator.



“My future aspiration is to be the Baskin-Robbins of the dog biscuit world,” says Nolette, who recently earned an M.B.A. from Franklin Pierce College and is using that expertise in getting Pete's Treats off the ground. He hopes one day to open a “doggy diner and deli,” where humans and canines can eat together. But for now, Nolette's own dogs, Jane and Buddy, as well as his test panel of 25 to 30 dogs, are surely among the most contented canines in the Upper Valley. A.P.

A changing of the guard (and the name) at CECS

In the early 1970s a young epidemiologist, Dr. John Wennberg, noticed something strange happening to children's tonsils in Vermont. In one town, 70% of children had had their tonsils out by the age of 12 due to tonsillitis. In a neighboring town, the tonsillectomy rate was only 20%. What was behind this dramatic variation, he wondered. The cause, to his surprise—and the disbelief of nearly everyone else—was the preferences of individual physicians.

In the nearly 40 years since, Wennberg and his colleagues at Dartmouth have demonstrated again and again that where patients live often determines the amount and kind of health care they receive. “Geography is destiny,” Wennberg is fond of saying. In 1988, he founded the Center for the Evaluative Clinical Sciences (CECS), which has grown to be a national research and policy powerhouse.

Now, at age 73, Wennberg is

stepping down as the director of CECS and passing the torch to Dr. James Weinstein, a professor and chair of orthopaedics at DMS and a convert to Wennberg's teachings. At the same time, CECS is being reborn as the Dartmouth Institute for Health Policy and Clinical Practice. More than just a name change, this restructuring recognizes the national and international impact of the research conducted at CECS.

Role: Though he's relinquishing the director's role, Wennberg will continue to hold the Peggy Y. Thompson Chair in the Evaluative Clinical Sciences and to be active in the Institute and its work, including the *Dartmouth Atlas of Health Care*. Launched in 1996, the *Atlas* documents geographic variations in care and outcomes across the U.S. It has consistently shown that more spending and more services are not associated with better outcomes. In fact, patients in high-

JON GILBERT FOX



One thing that didn't change was the initials of the program's director—its founder, Jack Wennberg, left, has been succeeded by Jim Weinstein, right.

CREW CUT: DMS's Dr. Kristine Karlson made the cut as the team physician for the U.S. rowing and canoe-kayak teams at the Pan American Games in Brazil in July. A former Olympic rower, she practices family medicine and sports medicine.



IN THE DARK OF NIGHT

Cats, dogs, and deer are among creatures particularly well adapted to see in the dark. Now helicopter pilots on the Dartmouth-Hitchcock Advanced Response Team (DHART) can be added to that list, thanks to their new night-vision goggles—modeled below by DHART pilot Grant Hamilton.

DHART hasn't had a single accident in its 13-year existence. But flying nighttime missions can be quite hazardous, especially in mountainous and rural terrain, says Paul Austin, DHART's lead pilot. At night, the goggles "really allow you to see all of the terrain, the weather, and the clouds."

Military pilots have been using night-vision technology for more than 30 years. Over the past five years or so, the technology has become more common among civilian helicopter pilots.

The major reason for the goggles, says Austin, "was to add to our safety. But they will also increase our operational capability"—in other words, making it possible to fly nighttime missions that would not have been feasible in the past. A.P.

JON GILBERT FOX



AID FROM A FRIEND INDEED

Always the student advocate, she continually fought to provide students with the money they needed while keeping end-of-school loans to a minimum," reads a plaque that DMS students presented to Nanci Cirone in June, when she retired as the director of DMS's financial aid office.

During her 27 years in the position, Cirone worked tirelessly to help students manage the escalating cost of medical school.

She watched as DMS's tuition soared from \$9,500 a year in 1980-81 to nearly \$38,000 today. And she grew concerned as higher education indebtedness for graduates of private U.S. medical schools rose even faster; it averaged less than \$20,000 in 1981 and is now over \$150,000.

Fortunately, however, average indebtedness is only \$106,000 at DMS, thanks to the fact that though over 87% of DMS students qualify for financial aid, 50% of students receive some scholarships—aid that doesn't need to be repaid.

Cirone has stayed in touch with many of the students she's helped over the years. "Her door was always open," reads the plaque, "as an advisor, counselor, and friend." L.S.C.



Clinic saves feds \$2.8 million *and* improves care

In the first year of a three-year trial, the Dartmouth-Hitchcock Clinic saved the federal government \$2.8 million, while providing better patient care. That's according to a Centers for Medicare and Medicaid Services (CMS) trial, the Physician Group Practice Demonstration, which began in April 2005. The demonstration is designed to reward providers for reducing costs and improving quality.

Demo: The Dartmouth-Hitchcock Clinic, one of 10 groups to participate in the demonstration, exceeded 9 of the 10 quality targets CMS set for year one. The other groups did well, too; altogether, the participants saved Medicare \$21 million. Yet only two met the financial requirements to share in those savings. Medicare paid those two groups a total of \$7.3 million, even though they did not meet all the trial's quality targets. In year one of the demo, reducing costs was more important than achieving the quality targets, at least in terms of divvying up the money saved. Dartmouth-Hitchcock just missed the threshold for sharing in the savings. But that doesn't seem to bother Dr. Barbara Walters, the project coordinator at Dartmouth.

"This is the kind of clinical care that we should be moving toward and practicing anyway," she says. It's not known how much Dartmouth-Hitchcock has spent on the project, but the only personnel cost was half of a

full-time position, Walters points out. She and her team focused on changing providers' responsibilities rather than simply hiring more staff.

Coaches: Among the changes was the integration of health coaches into primary-care departments. The coaches, who are R.N.'s, worked from a registry of about 30,000 patients who had certain diseases or had been recently hospitalized at DHMC for a major condition. By mail and phone, the coaches provided education, counseling, and an occasional nudge to get needed tests. Sometimes the coaches helped with such basic tasks as reading and filling out forms. Then, when the patients came in for appointments, they were better prepared, says Walters, and could "have a much more productive physician encounter." After visits, coaches checked in with patients again. The goal

Dartmouth exceeded 9 of the 10 quality targets set for year one.

was to help them manage their chronic illnesses better, keeping them healthier and avoiding costly hospitalizations and emergency procedures.

To gauge the performance of the 10 trial participants, CMS set quality benchmarks and looked at the total cost of care for Medicare patients treated by each group. The quality targets for year one of the trial centered on diabetes care and included blood-sugar testing and control, blood-pressure control, lipid testing and LDL cholesterol control, urine-protein testing, eye and

SMOKE OUT: By July 2008, DHMC will be totally free of smoking—outdoors as well as in. A small but growing cadre of medical centers is concluding that allowing any smoking is simply inconsistent with their missions to improve health.



THEN & NOW

A reminder of the pace of change, and of timeless truths, from an article about national “firsts” in the Fall 1991 issue of this magazine:

“The first continuous infusion pump to deliver drugs for the management of intractable pain was implanted in a patient at DHMC in 1981. Dr. Dennis Coombs, the Garth Professor of Anesthesiology at DMS, developed a technique by which low doses of narcotics can be continuously infused into the spinal area. . . . Such pumps are now widely used for alleviating pain in patients with cancer and other disorders.”



2007

Year the American Pain Society established national pain management awards

2007

Year DHMC was chosen for honorable mention in those awards

Getting to the root of stem cell science

If it weren't for limitations on human embryonic stem cell research, “I think that there could be children being cured of type 1 diabetes today,” says Dartmouth's Ronald M. Green, Ph.D. “I think that there could be cardiac patients being brought back to functioning. And I think Christopher Reeve may not have had to die.”

Many scientists and physicians hope that human embryonic stem cells (hESCs)—which can develop into any of the 200-plus types of cells that make up the body—may one day be used to treat such diseases as Parkinson's, Alzheimer's, heart disease, and type 1 diabetes, as well as spinal-cord injuries like Reeve's. Some even hope they could be grown into new organs. But the political and ethical controversy swirling around hESCs has led to limits on federal funding for such research and thus the amount of it being conducted in the U.S. So scientists have begun exploring alternative approaches to deriving hESCs.

Panel: Green, the director of Dartmouth's Ethics Institute and an adjunct professor at DMS, served on a 1994 National Institutes of Health panel on human embryo research and has studied stem cell ethics for many years. In the June issue of *Nature Reviews Genetics*, he explored the ethical and scientific aspects of six current alternatives—single-blastomere biopsy, parthenogenesis, somatic-cell dedifferentia-

tion, altered nuclear transfer, dead embryos, and chromosomally abnormal embryos.

The source of hESCs is typically eggs discarded or unused after *in vitro* fertilization. When an egg is allowed to develop, by day three it's an 8- to 16-cell ball called a morula. By day five or six it's a blastocyst, which is about the size of a period. Embryonic stem cells form the inner cell layer of a blastocyst, which becomes an embryo only if it implants in the uterine wall 7 to 10 days after fertilization.

Lines: While hESC research is not prohibited in the U.S., federal funding is allowed only for studies on cell lines in existence prior to August 2001. But the 21 approved lines have been contaminated with nonhuman molecules. So scientists have been seeking expanded federal funding—as well as corporate, foundation, and state monies—to support the development of new stem cell lines and to explore alternatives.

The most promising alternative, Green says, is single-cell blastomere biopsy (SBB). SBB is an adaptation of preimplantation genetic diagnosis (PGD), in which a single blastomere is removed from the morula and allowed to divide into two cells. One cell can be used for genetic diagnosis and the other for the creation of the hESC line. Scientists at a biotech firm called Advanced Cell Technologies (ACT) reported in *Nature* in

2006 that they had successfully derived hESCs from SBBs using donated human embryos. Green chairs ACT's ethics advisory board but has no financial interest in nor is paid by ACT.

Embryo: SBB and PGD do not harm embryos, says Green, citing a 2004 report indicating that more than 1,000 children born as a result of PGD had suffered no ill effects. But there is debate on the matter; others point to studies showing an embryo survival rate after PGD of only around 3%. With SBB, “you just can't know that you're not bringing harm to the embryo,” feels Father Thomas Berg, executive director of the Westchester Institute for Ethics and the Human Person, a Catholic think tank.

“I think Christopher Reeve may not have had to die,” says Ron Green.

JOSEPH MEHLING



Dartmouth ethicist Ron Green has a high profile on the issue of stem cells.



NIGHT CAP: Dr. Da-Shih Hu, a DMS psychiatrist, hopped into his pj's right after work this summer. But not because he was tired. Well, maybe he was—he capped off his workdays by playing the lead in North Country Community Theatre's production of *The Pajama Game!*

Two students get to spend a year in "mecca"

No, not the Mecca of Islam, but the mecca of biomedical research—the National Institutes of Health (NIH). Its sprawling Bethesda, Md., campus represents the cutting edge of laboratory science in the U.S. Thanks to fellowships from the Howard Hughes Medical Institute (HHMI), two Dartmouth medical students are spending a year there.

Andrea Russo '08 and Abigail Rao '09 joined 40 other medical and dental students—selected in a highly competitive national process—as 2007 HHMI-NIH Research Scholars. The purpose of the fellowships is to encourage future physician-scientists to make research a part of their careers and to help bridge the gap between scientific discoveries and clinical care.

Tumor: Neither student is a stranger to research. Russo, a Massachusetts native, majored in molecular biology and biochemistry and minored in Spanish at Middlebury. She spent a year in a molecular genetics lab at Boston University working out the methylation status of various tumor suppressor genes and their role in lung cancer.

Rao had spent her entire life in Madison, Wis., before coming to DMS. She was accepted to the University of Wisconsin Medical School straight out of high school, on the condition that she attend UW-Madison as an undergraduate. As a neurobiology major there, she studied neural

stem cells and adult neurogenesis. But as graduation neared, she decided to go someplace new for medical school.

Both are following up on their early interests, they explained by e-mail from Bethesda.

"I want to continue asking those questions through research."

Wrote Russo: "I have always been interested in cancer, both

the science behind it and its clinical implications. In oncology, where many of your patients cannot be cured, I feel that research is a rewarding way to give back to those . . . you can no longer help. I wanted to get involved . . . now, before the de-



Russo, top, and Rao, bottom, are spending this year in Bethesda, Md.

mands of residency. . . . And where better to do it than the NIH, where you have nearly limitless resources and world-renowned scientists?"

And Rao wanted to "prepare . . . for doing basic neuroscience research as a practicing neurosurgeon. During college, I began thinking about some of the exciting questions underlying neuroscience research, many of which ask what makes the brain so unique in comparison with the rest of the body? I want to continue asking those questions through research."

Year: As to what they are doing this year, Russo is studying "the various effects of new drugs on radio-sensitivity by targeting the molecular pathways that are involved in radiation-induced cell damage. The NIH is the ideal institution in which to carry out such studies because the lab work can easily be translated into clinical trials, which is the hope [for the] molecule that I'll be working on."

Rao is injecting mice with a virus that targets a potassium channel in their hippocampal neurons. "With a certain amount of patience, optimism, and luck, I will then record the electrical signals from these neurons whose potassium channels and patterns of synaptic signaling we have disrupted. We hope this will elucidate the molecular and electrical components underlying synaptic plasticity in neurons."

Lure: Who knows—it's possible the lure of mecca may draw one or both back to Bethesda for an eventual career there.

ROGER P. SMITH, Ph.D.

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

Charles Barlowe, Ph.D., a professor of biochemistry (top photo), and **Ronald Taylor**, Ph.D., a professor of microbiology and immunology (bottom photo), both received MERIT awards from the National Institutes of Health (NIH). MERIT stands



for Method to Extend Research in Time. The awards, based on "superior competence and outstanding productivity," are designed to spur scientific creativity with long-term, stable funding. Barlowe studies intracellular transport and Taylor the bacterium *V. cholerae*.



Robert Gougelet, M.D., an assistant professor of medicine, was appointed to the Federal Emergency Management Agency's National Advisory Council.

Lori Alvord, M.D., an assistant professor of surgery and associate dean of student and multicultural affairs, was appointed to the National Advisory Council of the National Center for Complementary and Alternative Medicine, a component



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