

## DMS Seniors Meet Their Match

Dartmouth Medical School faculty and staff gathered at the medical center on March 18 to observe a group of people whose symptoms included heart palpitations, sweating, nausea and shortness of breath. Fortunately, these symptoms were temporary side-effects of Match Day, an important but nerve-wracking rite of passage when fourth year medical students learn where they will continue their training as residents in US teaching hospitals.

The DMS Match Day ceremony began at noon, when Dean Stephen P. Spielberg, empathizing with the tension as only an MD can, wasted no time commencing the event. He said simply, "It's good news—you all did very well," foreshadowing a joyful conclusion in which students were "thrilled" and "relieved" to have matched at strong programs.

Spielberg handed the floor to Susan Harper, assistant dean for medical education, who read aloud the names of 47 of the 49 DMS students due to graduate in June (two students deferred their residencies). As the seniors accepted their envelopes with hearty congratulations and hugs from the deans and raucous cheers from their classmates, they contributed a dollar to a pot to be enjoyed by the last person called. (The envelopes were in random order.) This year, Gary Maslow's patience was compensated and he victoriously claimed his reward, which was spent on a celebratory dinner topped off with "an amazing double-fudge brownie sundae."



Gary Maslow, the last student to receive his envelope, is rewarded for his patience.

"I think everyone is very happy," observed Chris Cambic over the congratulatory din. "I got my first choice and I am elated!"



Todd Burdette shares the outstanding news with his family.

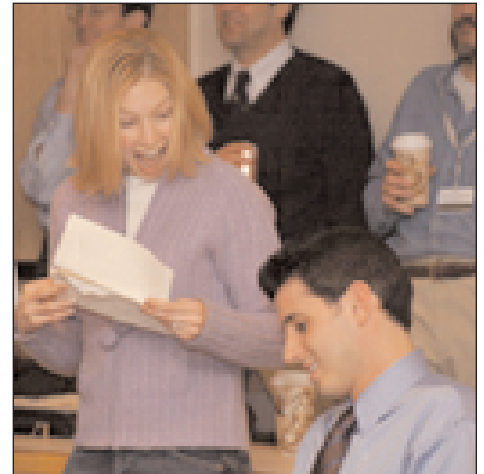
"I am glad I came back to Hanover for Match Day," said Lien Li, one of six Dartmouth/Brown students who drove up from Providence, Rhode Island. "It feels like home here."

DMS students were among 25,246 applicants from the US and abroad who collectively matched to over 20,000 first- and second-year residency programs, the highest number in the Match's 52-year history, according to the National Resident Matching Program (NRMP).

On a national level, DMS students joined more than 16,000 US medical school graduates across the country who received their matches on the same day at noon. The NRMP is an indicator of the career interests of future physicians, and the outcomes of this year's match point to an increase in the number of applicants matched to surgery, pathology and

psychiatry. The number of applicants to family practice continues the downward trend that began in 1996 and obstetrics/gynecology declined for the second consecutive year.

DMS seniors reflected the national spike in residencies in surgery, where more than 13 (28 percent) of the students who matched are heading into a field related to surgery. Eight students (17 percent) will work in internal medicine, making it the second most popular field, followed closely by anesthesiology, then radiology.



Michael Meuse opens his envelope as Meghan Jenkins reacts to their matches.

Eight students will remain in New Hampshire to train at Dartmouth-

Hitchcock Medical Center. "The most interesting thing about this match is that seven students will be training at DHMC in surgery," said Harper. The other student at DHMC will work in pediatrics, making New Hampshire the most popular state for the graduating class. Seven students will commence their medical training in Massachusetts, five will head to California and three to New York.



Ndidi Omwubalili and Craig Strauss smile with relief.

## Deans Column

**D**MS provides a vibrant, supportive environment that enables students to pursue various interests outside of the classroom. This year, students are engaged in impressive activities in the arts and humanities, offering insight into medicine and enhancing students' lives through stirring modalities. This column describes these programs, as well as new initiatives to raise funds for health care for underserved populations.



Jon Gilbert Fox

To improve the classroom environment, Joe Dwaihy (DMS II) and his partner Sara Dykstra, an accomplished artist, painted three large canvas paintings depicting historical achievements in medicine at DMS, to be hung in Chilcott Auditorium. Students are also creating a tile mosaic (see page 3) for the Chilcott stairwell area.

"Lifelines," a new student-initiated medical literary journal, has received moving submissions from the community and the first edition's collection of poetry and prose will be published this fall. In addition to the student efforts, and at the suggestion of Dean Spielberg, the Student Affairs office implemented "DMS Arts and Medicine," a successful collaboration between the Hopkins Center and DMS.

Students have also launched initiatives to raise money for health care, both in the Upper Valley and abroad. In the fall, students held "La Noche Latina," a night of Latin cuisine and salsa dance lessons to benefit the Clinica Cristiana health clinic in Guatemala; a calendar raised money for international health supplies, and now students are spearheading a triathlon to benefit the Good Neighbor Clinic satellite in Canaan.

It is gratifying to watch our students using their talents and creativity to enhance their lives and benefit the community around us. I am impressed with this trend and know we will continue to support these efforts for years to come.

Lori Arviso Alvord, MD  
Associate Dean of Student Affairs  
and Multicultural Affairs  
Assistant Professor of Surgery and of Psychiatry

## Protein May Thwart Tumors

**R**ecent research on the interaction of two protein kinases, one that acts as a cellular fuel gauge and the other that prevents tumors, boosts the link between metabolism and cell proliferation. The work offers a stepping stone to new strategies for drugs against diabetes and cancer.

Dr. Lee Witters, professor of medicine and of biochemistry, and of biological sciences in the college, with colleagues at Harvard, has found that the energy sensor AMP-activated kinase (AMPK) is turned on by the tumor suppressor LKB1 kinase when cells are stressed. Their study, published in the March 9 Proceedings of the National Academy of Sciences (PNAS), suggests an explanation for the paradox that lack of LKB1 seems to increase tumor growth yet also prompt cell death.

Kinases encompass a large family of proteins that play key roles in the workings of most animal cells. AMPK is a cellular manager that responds to insulin or glucose and mediates impaired energy metabolism, a defect in type 2 diabetes. Another kinase, LKB1, that appears to thwart tumors, also activates AMPK.

Testing cells under stress conditions in a mouse model, the researchers

demonstrated how LKB1 protects low-energy cells by ramping up AMPK. As a consequence, the weak cells that might otherwise have died are saved.

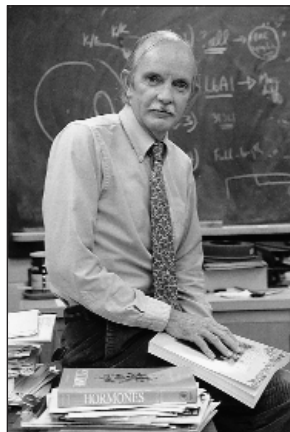
"Even well-fed cells probably carry some activated AMPK. By limiting metabolic processes needed for growth, such as

protein synthesis, AMPK prevents cells from multiplying rapidly, which hurts cancer cells disproportionately.

Removing LKB1 eliminates AMPK activity and cancels this check on proliferation, allowing tumors to prosper," says Witters. "The situation changes under a stress such as food scarcity. A cell with LKB1 can boost AMPK activation and restore its energy supply. LKB1 buys time for famished cells to recover. But

if the cell lacks LKB1, it can't implement these emergency energy-saving measures and kills itself."

The findings offer a model for LKB1 as a low-energy checkpoint tumor suppressor, conclude the authors, who also include Dartmouth graduate student Rebecca Hurley. Further insights into the ties among energy metabolism, cell growth and cell death can pave the way for therapy tailored to genetic defects in a pathway that affects fundamental processes.



Dr. Lee Witters

## Pediatrician Surplus Predicted

**D**uring the next two decades, the number of pediatricians will jump 58 percent while the number of children in the United States will increase only 9.3 percent, according to DMS researchers.

The study, "The Expanding General Pediatrician Workforce," is one of the first published that looks specifically at the number of physicians who specialize in caring for children and uses a statistical model to assess outside forces that could affect the work force.

It appeared in the March issue of Pediatrics, authored by Drs. David C. Goodman, associate professor of pediatrics, and Jon D. Lurie, assistant professor of medicine at DMS

and a colleague from Oregon Health & Science University School of Medicine.

The researchers created a statistical model that looked at several factors that may contribute to the change in the pediatric work force. They considered, among other factors, the current supply of pediatricians, the age and gender of new pediatricians entering the work force, population of the US, and pediatrician deaths and retirement ages.

This model predicts there will be one pediatrician for every 1,400 children by 2020, compared to one pediatrician for every 2,040 children today. It predicts the future of children's health care and the role of pediatricians in serving their patients.

## Crowning A Student's Commitment

Shazia Siddiqi, a master of public health (MPH) student in CECS, credits her parents and younger brother with being strong role models and encouraging her to believe that anything is possible. Over winter break, she drew on her family's support, and after a week of workshops and rehearsals, was crowned Miss Deaf California by the California Association of the Deaf. Now, she is a role model herself, offering guidance and inspiration for hundreds of deaf children across California.

According to Siddiqi, she entered the pageant in order "to get the opportunity to meet other strong deaf women and use this as a way for me to spread my beliefs in promoting healthy habits in the deaf community." The title does not involve financial rewards, just "the opportunity to show others that anything is possible," said Siddiqi, "and have fun doing it." She will travel to Kansas City, Missouri to compete in the Miss Deaf America Pageant this July.

In the California pageant, Siddiqi excelled in the evening gown and talent

competitions, where she reflected her Pakistani heritage with a cultural dance from South Asia. Her strongest point in the pageant was a platform speech she used to



Shazia Siddiqi on stage in the Miss Deaf California pageant.

urge people in the deaf community to be more aware of their health. "I definitely give credit to the MPH program for teaching me the skills and knowledge to speak about improving the health care system for disabled people," she said, adding that she quoted materials from her classes at DMS.

"I was pretty surprised when I won," she said, "but it was such a nice honor and great opportunity to use this as a way for me to expand my self-confidence in front of people and encourage other young deaf children to achieve their dreams."

She continues to focus on connecting with children. Over March spring break, Siddiqi met with more than 50 deaf students in her hometown of Moreno Valley, and taught them about eating well, getting good exercise and leading a healthy life. She also spoke to them about the importance of following their dreams. She has followed her own advice and, after finding a love of medicine through the MPH program, has applied to medical schools to become a physician.

## End-of-Life Care Varies Significantly

Even among the nation's most prestigious hospitals, vast differences exist in the amount and type of health care patients get in the final months of life, according to a new study by Dartmouth Medical School researchers. The results highlight how decisions about end-of-life care are more a matter of individual institutional practice than a response to what patients want or need, said the study's lead authors, Dr. John E. Wennberg and Dr. Elliott S. Fisher.

"This study shows that practices vary even among hospitals rated as 'excellent' providers of care, and even among similar hospitals within the same city. That is to say, hospitals deliver a level of care more related to the number of beds and specialists available than to what is likely to improve the end of life," said Fisher, professor of medicine and director of the VA Medical Center Outcomes Group.

The study, published in the March 13 British Medical Journal, used Medicare data from 77 highly regarded US academic medical centers to examine how much

care similarly ill patients received in the last six months of life. Researchers compared the average number of days patients spent as hospital inpatients and in intensive care, as well as the number of physician visits and the percentage of patients seeing more than 10 physicians during their last six months of life.

They found that the intensity of care during the last six months of life and at the time of death varied substantially, even among hospitals in the same region. Time spent in the hospital ranged from less than 10 days to 27 days, and time in intensive care units ranged from less than two days to almost 10 days. The percentage of deaths occurring in hospitals ranged from less than 16 percent to more than 55 percent, and the percentage of deaths associated with a stay in intensive care ranged from less than 9 percent to more than 36 percent.

Previous studies by the same research group demonstrated that where a patient lives predicts much about the care he or she will receive for most common medical conditions, such as heart disease and diabetes.



### Tile Project

Becky Swenson, DMS II, carves a clay tile that will be a piece of a large mosaic adorning the walls of the medical school. The project is part of a student-led effort to enhance the educational and working environment of the medical school, and to foster creativity and a sense of community. All faculty, students and staff are encouraged to mold tiles, whose themes have included musical instruments, pets, nature scenes and abstract designs.

## Transforming Medicine to Advance Patient Care

**A** Dartmouth program on strengthening the relationship among government, private industry and nonprofit sectors of the medical community yielded encouraging results and pledges to streamline medical research to enhance the delivery of medicine to patients in need.

The forum, “Transforming Medicine: Accelerating the Impact of Scientific Discovery on Patient Care,” featured prominent leaders in the profession including Dr. Elias Zerhouni, director of the National Institutes of Health and Dr. Andrew von Eschenbach, director of the National Cancer Institute, as well as Judd Gregg, US Senator from New Hampshire.

Gregg was honored for his congressional leadership by the Friends of Cancer Research and Research!America, nonprofit organizations that work toward increased funding for and awareness of cancer by making scientific research a priority. In accepting his award, the senator reaffirmed his commitment to medicine, pointing specifically towards making tax laws more sensitive to support the research and devel-

opment effort, streamlining the FDA approval process and reducing litigiousness in the medical arena. After referring to DHMC as “an extraordinary resource for our state and our nation,” Gregg closed by saying, “You folks are doing the great work; we appreciate it, we understand it, and we want to be helpful.”

DMS Dean  
Stephen P. Spielberg

provided introductions for Zerhouni and von Eschenbach, who had toured the Norris Cotton Cancer Center’s (NCCC) new labs and met with Dartmouth Medical School researchers and clinicians. The guests lauded the collaborative efforts underway at Dartmouth, and its focus on interdisciplinary research, “You have, in the cancer center, a whole floor where you have basically members of your engineering school on the medical floor. That is quite different from what any other institutions are

doing,” said Zerhouni, “and I find that very appealing.”

Von Eschenbach made several encouraging statements to researchers at the cancer center. “Your understanding of cancer in populations, your approach to epidemiology, all across the entire continuum, you are at the forefront, and we as a nation are desperately dependent on your continued success,” he said. “The NCI stands ready to support you in that regard.”

Susan Dentzer, health correspondent for “NewsHour with Jim Lehrer,” moderated a panel that covered some pressing issues in medicine. Discussion topics included the government’s responsibility to increase federal funding, ways to attract the best and brightest minds to the field of medical research and fostering innovative approaches to cancer research. The importance of clinical trials was emphasized by panel participants, who also included Dr. Peter Corr, senior vice president of Pfizer, Dr. Mark Israel, NCCC director, Dr. Allen Dietrich and Dr. Nancy Speck, DMS researchers, and Nancy Hellman, a melanoma patient treated in a clinical trial at DHMC.



*Dr. Zerhouni and Dean Spielberg share the podium.*

Photos by Mark Austin-Washburn



*Dr. Mark Israel, NCCC director, and Dr. Von Eschenbach, from left.*

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DMS Communications  
1 Rope Ferry Road (HB 7065)  
Hanover, NH 03755-1404  
Tel: (603) 650-1492 • Fax: (603) 650-1730  
Email: [dms.communications@dartmouth.edu](mailto:dms.communications@dartmouth.edu)  
[www.dartmouth.edu/dms/news](http://www.dartmouth.edu/dms/news)

Hali Wickner, Editor  
Andy Nordhoff, Associate Editor  
Mark Cookson, Layout & Design