

In This Issue:

- Match Day 2001
- New PhD Programs and Building Expansion Approved
- CECS Students Collaborate to Set New Medical Standards
- Arsenic: The Jury is Still Out
- Kosovo Visitors
- DMS Skits 2001
- Class Day Set

DMS DIGEST

March/April 2001

Match Day 2001

In an auditorium charged with energy and anticipation, Match Day 2001 brought cheers and tears (of joy) as Dartmouth graduating medical students learned where they will be training for residency.

Like entering medical school, this day makes another beginning, said Dartmouth Medical School Dean John C. Baldwin, introducing the ceremonies. "It defines the rest of your life in good ways and it is a lot of fun." He reminded the seniors that "Dartmouth is home," and that their passage is "bittersweet, for we will miss you all."

When Baldwin and Assistant Dean Susan Harper handed out



Above: Benjamin Nordstrom, his child, and Miko Enomoto, (Brown/Dartmouth).

Photos by Lisa Bertrand

Left: Dean John Baldwin congratulates Andrew Ashcroft, about to open the envelope.

Right: Rachel Gerson (left) and Katharine Barefoot Herrick.



the National Residency Match Program for residency positions. Their choices closely paralleled national trends: 45 percent (25) matched to generalist disciplines (internal medicine, family practice and pediatrics) compared to 49 percent nationally, and a quarter (14) will enter internal medicine, similar to nearly 25 percent nationally. Six have deferred and three had other positions.

The largest proportion of the class seems to be heading west this year, with 13 to California, Harper



Photo by David Holzrueggel

envelopes, tension and uncertainty faded to excitement as students read their futures. Some opened their envelopes immediately to share

their news aloud: "You can come visit me at... Idaho," announced one student waving the results; "It's Duke!" whooped another; "Johns Hopkins," said a third, as classmates applauded. Others were more discreet, but the room began to

reverberate with locations from coast to coast: Boston, Stanford, Burlington, Hawaii.

Of the 64 DMS seniors expected to receive their medical degree this June, 55 joined 14,455 US medical school counterparts to participate in

noted, and five matched as couples. Dartmouth/Brown students also joined their classmates to receive their results.

New PhD Programs and Building Expansion Approved

At their spring meeting in Hanover, April 6-7, the Dartmouth Trustees approved:

- Addition of two new PhD programs to be offered by Dartmouth Medical School in the areas of genetics, and in microbiology and immunology. The two new programs will bring to 15 the number of PhD programs offered by Dartmouth.
- Dartmouth Medical School's proposed academic expansion of the Norris Cotton Cancer Center at Dartmouth-Hitchcock Medical Center in Lebanon, by adding four new floors to the Barbara E. Rubin building at DHMC which houses the cancer center.

Both of the new PhD programs will function under the broader umbrella of the graduate program in Molecular and Cellular Biology (MCB), created in 1994 through a joint initiative by Dartmouth's Faculty of Arts and Sciences and Dartmouth Medical School. The MCB combined existing graduate programs in the interdepartmental biochemistry program at the medical school with cell and molecular biology in Dartmouth's Department of Biological Sciences to provide a broader, integrated program in these areas. Establishment of the two new PhD programs will serve to emphasize those fields in the medical school.

The academic expansion of the Rubin Building at DHMC will encompass a total of 100,000 gross square feet in four new floors, an expansion which was envisioned when the existing four-story building was constructed in 1996. One of the new floors will be a clinical faculty floor, another will be an office-based research floor, and the other two floors will provide laboratories for Dartmouth Medical School totaling 12 to 14 laboratories per floor. Plans call for construction to be completed by the end of 2003.

Expansion of the Rubin Building is critical to the continued success of the Norris Cotton Cancer Center, which is a key program for both Dartmouth Medical School and the Dartmouth-Hitchcock Medical Center. NCCC supports both directly and indirectly a wide spectrum of academic departments and clinical services; and is one of only 37 programs in the United States designated as comprehensive cancer centers by the National Cancer Institute. The expansion will address a critical shortage of space to support current faculty that has stemmed from the success and growth of research programs at the cancer center.

CECS Students Collaborate to Set New Medical Standards



Photo by Alexander Thomigen

Students in the DMS evaluative clinical sciences program are collaborating to implement new medical residency standards. Through the leadership of Paul Batalden, MD, they are working with the Accreditation Council for Graduate Medical Education, which evaluates and accredits its medical residency programs, to help assess process. Students are collecting and synthesizing perspectives of the boards and societies that appoint members to the residency review committees to open communications lines among those groups. Dean John C. Baldwin, MD, met with CECS students who did a mock interview as part of their effort to develop conversation guides for leaders of the organizations. Left to right are Dean Baldwin, Ryan Sahr and Gili Lushkov.

Arsenic: The Jury is Still Out

DMS research is providing clues to the health effects of arsenic exposure through drinking water. In March the US Environmental Protection Agency (EPA) announced it was rescinding a former recommendation to lower the allowable amount of arsenic in public drinking water supplies, pending a review of the economic impact of lower levels. The EPA also said it would review the science underlying the recommended level. The issue has particular resonance in New Hampshire, which sits on streaks of arsenic-laden bedrock. That arsenic gets into drinking water throughout the state.

The announcement came shortly after publication of a study by Dartmouth Medical School investigators reporting on what may be a unique mechanism for how chronic exposure to low levels of arsenic increases the risk of certain diseases.

Arsenic at high doses has been known as the poison of choice since ancient times. More recently it has become evident that decades of exposure to very low doses of arsenic — such as levels found in drinking water in areas of the United States and Northern New England — substantially increase the risk of vascular disease, diabetes and several cancers. Until now, little was known about how arsenic might contribute to these diseases.

Using cultured animal cells, a team led by Joshua Hamilton, PhD, associate professor of pharmacology and toxicology, found that exposure to very low concentrations of arsenic disrupts the function of the receptor for glucocorticoid, a steroid hormone that regulates a wide range of biological processes. Arsenic, a metal, appears to suppress the ability of this critical receptor to respond to its normal hormone signal. Chemicals such as pesticides that disrupt steroid hormone receptor signaling are called endocrine disrupters. Metals have not previously been shown to act as endocrine disrupters and arsenic appears to act through a unique mechanism.

“This is unlikely to be the only mechanism underlying diseases associated with low-level arsenic exposure, but we suspect it will be an important contributor,” says Hamilton, also director of Dartmouth’s Toxic Metals Research Program and the Center for Environmental Health Sciences at Dartmouth. The work is described in the March issue of the journal *Environmental Health Perspectives*. Co-authors are former graduate student Ronald Kaltreider (winner of the 2000 DMS Strohbehn Medal for research), undergraduate student Alisa Davis (recipient of national Goldwater and Beckman scholarships) and Research Assistant Jean Lariviere.

Glucocorticoids, steroid hormones in the same class as estrogen, progesterone and testosterone, are chemical messengers secreted by glands into the bloodstream to help regulate the body’s functions. Acting through their receptor, glucocorticoids help regulate embryo development, stress, blood glucose levels, blood vessel function, and lung and skin development, and may also play a key role in suppressing cancer.

Unlike other endocrine disrupting chemicals which are thought to bind to a steroid receptor and either mimic the normal hormone

to activate the receptor inappropriately, or block the ability of the normal hormone to activate the receptor, arsenic appears to act in a third way. In the presence of arsenic, the activated receptor is unable to stimulate the correct cascade of signals that usually results from hormone binding, particularly the ability to turn on certain hormone-responsive genes. Blocking the actions of the glucocorticoid receptor by arsenic in this unique way could explain, at least in part, many of the health effects observed in arsenic-exposed human populations.

In another arsenic study, published in the March issue of the *American Journal of Epidemiology*, Margaret Karagas, PhD, associate professor of community and family medicine, and colleagues report preliminary results of a New Hampshire case-control study of arsenic and skin cancer. The findings suggests a dose-response relationship between squamous cell carcinoma and high drinking water arsenic levels, but the researchers caution that a larger study is needed to be sure these results are predictive.

To measure arsenic, the investigators verified that toenail arsenic concentrations correlate well with concentrations of arsenic in water, indicating a useful biomarker of exposure. Their work is among the first to provide information on individual exposure to arsenic and risk of cancer in a geographically defined US population. Non-melanoma skin cancer, considered the most frequently occurring cancer in the US, is increasing, so detection of even small increases in the relative risk of skin cancers in relation to arsenic exposure could have a major impact on the scope of these malignancies.

DMS Skits 2001 The “DMS Superheroes” were featured in the class of 2003 skits, an annual spoof of medical student life. Faculty superheroes rescued David Nierenberg from the clutches of Monkey Man and the evil drug company baron, Dr. Helmut. Proceeds from the events benefited the Good Neighbor Health Clinic, an elective teaching site for many DMS students.



From left, Benjamin Lannon (Dr. Nierenberg), Alex Feller (Dr. Lyons), Megan Jenkins (Dr. Harbaugh), Timothy Pieh (Dr. Faulkner), Jonathan Goldstein (Dr. Mosenenthal), Steve Xanthopoulos (Monkey Man), Clarence Miao (Dr. Witters) and Amy Amend (Dr. Cochran).

Photo by Hali Wickner

Kosovo Visitors

Dartmouth Medical School Dean John C. Baldwin hosted visiting physicians from the University of Pristina Medical School in Kosovo February 5–13, part of the Dartmouth/Kosovo project established last year to help Pristina revitalize its medical school.

Serbians controlled the medical school for 10 years until the 1999 NATO bombing. As they re-build their infra-structure, the Kosovars are working to update their health care and medical education system. The International Rescue Committee and Kosovo Project Director James Strickler laid much of the groundwork for the program’s faculty-student exchanges to help provide training and support.



Photo by Lisa Bertrand

From left, standing are Drs. Vetan Hoxha, director of the University Hospital; Faik Hima, vice dean, (cardiologist); John Baldwin; Riza Binishi, dean; seated, Sadi Bexheti, vice dean for finance, (anatomy); and Dukagjin Binishi, anesthesiologist and emergency medicine specialist.

Class Day Set

Rachel Naomi Remen, MD, author and pioneer of the mind/body health movement, will be the keynote speaker for Class Day 2001, Saturday, June 9.

Faculty Marshall is Harold M. Friedman, MD, associate professor of medicine. Student speakers are Rachel Solotaroff and Adam Lee Hersh.

Remen is clinical professor of family and community medicine at UCSF School of Medicine, where she directs an innovative course, the Healer’s Art. She is co-founder and medical director of the Commonwealth Cancer Help Program featured in the Bill Moyers PBS series, *Healing and the Mind*. She is founder and director of the Institute for the Study of Health and Illness, a professional development program for graduate physicians who wish to integrate Hippocratic values into their work and develop a greater personal capacity for empathy, compassion, understanding and communication.

Her work is a unique blend of the physician and patient viewpoint as Remen has a 45-year personal history of Crohn’s disease. She is the author of the New York Times 1996 Bestseller, *Kitchen Table Wisdom*:

Stories That Heal. Her newest book, *My Grandfather’s Blessings: Stories of Strength, Refuge and Belonging*, is also a national bestseller.

Friedman, who has served Dartmouth Medical School for 33 years, will lead the graduation exercises on June 9, as well as on Sunday, June 10. Student speakers Solotaroff and Hersh were chosen by their peers to address guests on behalf of the entire graduating class. Remen was chosen by the speaker selection committee of DMS students and faculty representing medicine, life sciences and CECS.

Ceremonies are in the Derzon Court Yard at 9:30 a.m.; in the event of rain, 11:30 a.m., Leede Arena in the John W. Berry Sports Center.

DMS DIGEST

Published bimonthly by
 Dartmouth Medical School
 John C. Baldwin, MD, Dean, DMS;
 Vice President for Health Affairs,
 Dartmouth College
 Hali Wickner, Editor
 Lisa Bertrand, Assistant
 For inquiries or submissions:
 Phone (603) 650-1492
 Fax (603) 650-1730
 E-mail: dms.communications@
 dartmouth.edu
 Dartmouth Medical School
 Communications office
 1 Rope Ferry Road
 Hanover, NH 03755-1404