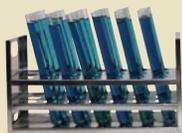


THEN & NOW

A reminder of the pace of change, and of timeless truths, from a history of Dartmouth's Norris Cotton Cancer Center published circa 1987:

"The first official suggestion that the federal government might have an appropriate role to play in the effort to find a cure for cancer came from Matthew Neely, a Democratic Senator from West Virginia. As early as 1928, he introduced a bill in the Senate authorizing the National Academy of Science to investigate cancer." In the 1960s, Dr. Frank Lane, director of radiation therapy at Dartmouth, "perceived and articulated the need for a regional cancer center . . . that could serve all of rural northern New England." The National Cancer Act was finally passed in 1971.



20,000

Number of patients now cared for each year at Norris Cotton Cancer Center

Nation's capital fetes Dartmouth's Dr. Koop on his 90th birthday

Party planners in the nation's capital couldn't wait for former U.S. Surgeon General Dr. C. Everett Koop to actually turn 90 before throwing him a big party. On September 13, 2006—a month before Dr. Koop's birthday—a gala celebration was held at the historic Cosmos Club in Washington, D.C.

Prominent: More than 200 people attended. Senators Hillary Rodham Clinton and Orrin Hatch were the event's cochairs. Other prominent politicians and physicians paid him tribute. Three of his successors as U.S. surgeon general were there, and many of his former pediatric surgery trainees traveled to Washington for the event. And Koop himself gave a speech about the next great task for our century—obtaining health care for all Americans.

Then back home in the Upper Valley, on November 2, he was the guest of honor at yet another birthday celebration. This one was at DHMC. And this time the celebration commemorated not only the birthday milestone, but also the fact that a new DHMC research complex is to be named after him (see article on the facing page).

Career: Born in Brooklyn, N.Y., on October 14, 1916, Koop graduated from Dartmouth College in 1937. He spent much of his career as a pediatric surgeon and established the first neonatal unit in the U.S. at the Children's



ALL: JON GILBERT FOX

Pharmacogenomics: One size doesn't fit all

Some people get buzzed from a half-cup of coffee, while others need three cups before 10:00 a.m. It should be a no-brainer then that the same concept is true for medications. Yet drugs are often prescribed using a one-dosage-fits-all mentality.

The result? Undertreated, overtreated, and sometimes endangered patients. An emerging field called pharmacogenomics addresses this problem by considering how genetic variations affect a drug's efficacy and risks.

Therapy: Pharmacogenomics allows physicians to personalize drug therapy, explains Dr. Kiang-Teck "Jerry" Yeo, director of the DHMC Clinical Chemistry and Endocrinology Laboratory. About two years ago, Yeo teamed up with Drs. Lionel Lewis, a clinical pharmacologist, and Gregory Tsongalis, director of molecular pathology, to offer pharma-

cogenomic tests to DHMC clinicians and patients.

Fewer: Few academic medical centers have such testing in house. Even fewer—if any—have a group that also interprets the results—which can “sound like gobbledygook” to physicians, says Yeo—and offers recommendations. Doctors often “don't have the time” to learn about all the different normal genetic variants that relate to medications, Yeo explains.

Furthermore, when determining the best drug for a patient, physicians must also consider any other medications the patient is taking. That requires a lot of time and special expertise, which Yeo, Tsongalis, and Lewis are happy to provide.

One procedure they offer is the UGT1A1 test. (DHMC was the first in the country to offer this test. See http://dartmed.dartmouth.edu/winter05/html/vs_genetics.php for details on it.) UGT1A1 (UDP-glucuronosyl transferase 1A1) is an enzyme that breaks down the active metabolite of irinotecan (Camptosar)—a first-line drug for colon cancer. Individuals with a particular variation of the UGT1A1 gene process the irinotecan metabolite relatively slowly and need a lower dose. The standard dose would reduce their count of certain white blood cells, making them more susceptible to bacterial infections. About 7% to 10% of Caucasians are believed to have this variation, so the Food and Drug Administration now recommends UGT1A1 testing for anyone taking irinotecan.

The DHMC pharmacogenomics group may be a pioneer in the field, but Lewis considers such work to still be in an “embryonic” stage. So far, physicians have learned about the DHMC pharmacogenomics service by word of mouth.

Consults: Now, after performing several consults per month, the group is ready to expand and to begin charging for the tests—which most insurance plans will cover, they say. But they “don't want to launch something without educating folks,” insists Yeo. So the group recently organized a symposium to give physicians a chance to learn more about pharmacogenomics and the group's services.

It's too early to tell if the symposium will generate more consults, says Tsongalis, but “the requests to have the conference [again] are overwhelming.”

JENNIFER DURGIN

THEN & NOW

A reminder of the pace of change, and of timeless truths, from the 1976 MHMH annual report:

“With the addition of a second cardiac surgeon, Dr. Jose Mijangos, the increased surgical activities so essential to full development of the cardiology program have begun. . . . A special intensive cardiac surgery unit is being constructed in the Intensive Care Unit area. . . . The new centralized Cardiopulmonary Laboratory is now fully active and is a central element to the success of cardiac surgery activities.”



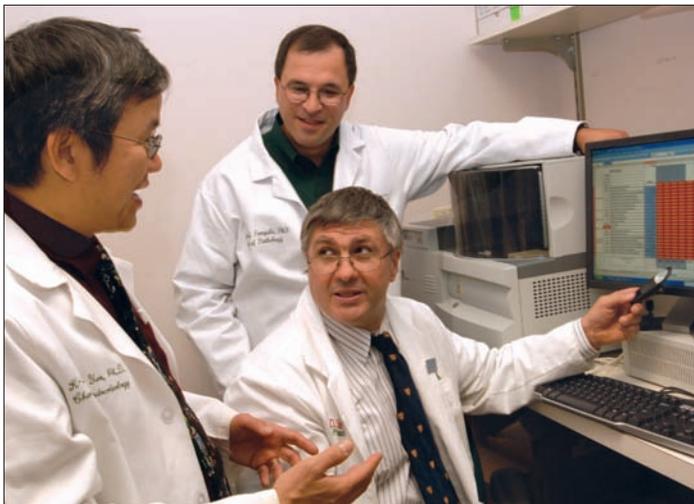
54

Number of beds today in DHMC's Coronary Care, Intermediate Coronary Care, and Cardiothoracic Intensive Care Units

> 5,000

Number of procedures annually in the Cardiac Catheterization Laboratories

JON GILBERT FOX



Jerry Yeo, foreground; Lionel Lewis, seated; and Greg Tsongalis have made DHMC one of the first medical centers—if not the first—to have a completely in-house pharmacogenomics group to help physicians personalize complex drug therapies.



ON THE MAP: For the first time ever, the United Health Foundation's national "healthiest states" ranking took account of data about the cost versus the quality of care —by drawing on the *Dartmouth Atlas of Health Care*.

THEN & NOW

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

"Applicants for admission to [DMS] must have (a) graduated from a registered College, or (b) satisfactorily completed a full course in a registered Academy or High School, or (c) have had a preliminary education considered and accepted as fully equivalent. . . . All other candidates for admission . . . will be examined in the following subjects." Among the subjects listed were Shakespeare's *Merchant of Venice*; Pope's *Iliad*; Scott's *Ivanhoe*; Allen's *Short History of the Roman People*; chemical notation; quadratic equations; plane geometry; and "the ability to translate at sight easy Latin prose."



> 4,600

Number of applicants to the DMS Class of 2010

Fisher steps into the pay-for-performance ring

Pay for performance is a relatively new—but already controversial—trend in the health-care world. Proponents argue that it will save Medicare and the entire U.S. health-care system from financial collapse while improving quality; detractors argue that it will undermine the altruistic and professional core of medicine and further squeeze small-practice physicians.

A Dartmouth physician-researcher who has helped shape the national debate over health-care spending is now helping shape the pay-for-performance debate, too. "In a nutshell, pay for performance is about giving financial incentives to providers to improve the quality of care they give their patients," explained Dr. Elliott Fisher in a September interview with the *New England Journal of Medicine*.

Pitfalls: The trouble with pay for performance is not in the concept but in the implementation, which is fraught with potential pitfalls. Fisher and 22 other health-care experts from around the country examined those pitfalls—and suggested strategies to avoid them—in a recent Institute of Medicine (IOM) report. Titled "Rewarding Provider Performance: Aligning Incentives in Medicare," the report offers six recommendations for policy-makers. Among the recommendations is that any pay-for-performance plan take into account broad aspects of performance—clinical quality, patient-centered care, and efficiency—not just narrow mea-

asures, such as the percentage of a physician's patients who receive a certain screening test.

The report also recommends that physicians be rewarded, at least initially, for simply collecting and reporting data, since doing so will require an investment of time and resources on their part. Perhaps most importantly, the report emphasizes the need for pay for performance to be implemented in a "learning environment," as Fisher puts it.

Broken: "The payment system is fundamentally broken and is a barrier to achieving high-quality health care," says Fisher. "Pay for performance is a means to learn how to" improve that system and health care in general. But unless policy-makers carefully evaluate and learn from the early implementation of pay for performance, Fisher notes, "we might well produce more harm than good."

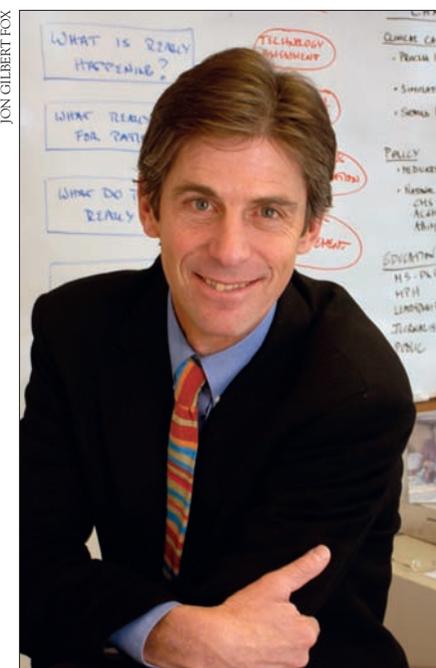
Fisher should know. He's been studying health-care delivery and outcomes for about 20 years. He and Dr. John Wennberg, both senior faculty at Dartmouth's Center for the Evaluative Clinical Sciences (CECS), were the first to show that geographic areas that spend more on health care often have worse outcomes. Both are also members of the IOM, established in 1970 by the National Academy of Sciences as the premier health advisory organization in the country. Fisher was elected to the Institute in October.

It's more than just a personal honor, Fisher says of joining the

IOM. It is also a "validation and recognition of the relevance and importance of the work we're doing at Dartmouth around the relationship between spending, clinical practice, and the outcomes of care," he says.

Fisher hopes the research at CECS will continue to inform the IOM's policy statements. As for the recent report he contributed to, such documents "can have a powerful influence," he says. Pay for performance is widely perceived to be "the current magic bullet," he points out, but "our committee raises serious questions" about its implementation. (For more on pay for performance and DHMC's role in a national trial of the concept, see http://dartmed.dartmouth.edu/spring05/html/disc_performance.php.)

JENNIFER DURGIN



Elliott Fisher has been a national force in the pay-for-performance debate.

THEN & NOW

A reminder of the pace of change, and of timeless truths, from the Fall 1976 issue of this magazine:

“Dr. David Frechette ’70 practices family medicine in the rural Connecticut River Valley town of Woodsville, [N.H.] . . . [He] is a country doctor with a goal: to improve the health-care delivery system in one part of rural New Hampshire. . . . ‘I think,’ he concluded, ‘that a tie with Dartmouth Medical School will be beneficial to upcountry physicians. It will keep us on our toes, so that we don’t stop learning after our residencies.’” Frechette still practices at Woodsville’s Cottage Hospital.



25

Number of beds today at Cottage Hospital

2

Number of Dartmouth medical students who did rotations there in 2005-06

BMT patients can now sleep in their own beds

Erica Miller, a 26-year-old professional dancer, longs for the day when she’s strong enough to return to her teaching job at the Dancers’ Corner in White River Junction, Vt. In March 2005, she was diagnosed with acute myelogenous leukemia (AML). She’s now recovering nicely at home after two rounds of chemotherapy and two bone marrow transplants (BMTs).

Her first round of treatment meant a long hospital stay, but when DHMC started an outpatient BMT program in March 2006, she was one of the first to take advantage of it. “I liked it—I could sleep in my own bed,” says Miller, who lives in West Lebanon, N.H., just a few miles from DHMC. “It was nice to have familiar things around.”

Daily: Typically—and before the outpatient program began—“when someone receives a transplant, we tell them they’re in the hospital for four to six weeks,” says Dr. Kenneth Meehan, director of the BMT Program. Patients need daily treatment and monitoring as bone marrow cells are collected from the patient’s blood (or from a matched donor, such as a sibling); chemotherapy or radiation is administered to kill the cancer cells; and then the bone marrow cells are infused into the patient.

“Then we literally have to wait one and a half to two weeks for the bone marrow to grow,” says Meehan. “It’s like planting a garden. Once the marrow starts to grow, the blood starts to recover.” The patient still needs to

be monitored and receives daily infusions of fluids as part of the recovery process.

Outpatient BMT is a practical option for cancers that have a manageable treatment schedule and predictable side effects, like multiple myeloma, another type of blood cancer.

Mini-transplants—where just enough chemo is given to suppress the immune system before bone marrow cells are infused—can also be done on an outpatient basis. Miller’s second treatment, in the spring of 2006, was a mini-transplant. Her brother was the donor for the first, full transplant; her sister was the donor for the mini-BMT.

Miller was lucky to live near enough so she could go home after her hours-long daily treatments. For not-so-local BMT outpatients, DHMC arranges for them to stay in a nearby hotel.

Put someone like that “in an outpatient setting, and you empower them,” says Meehan. “You allow them and their family members to participate in their care.”

The program requires the patient to have a full-time caregiver outside the hospital. “We teach the caregivers how to do vital signs, check weights, measure urine output, count the number of bowel movements,” manage medications, and monitor daily progress, says Meehan. “Every single one of our patients who have done this have loved it, absolutely loved it,” he adds.

Comfort: Miller certainly does. And she takes comfort in knowing that help is just a phone call away if she needs it. “I have the highest regard for the whole heme-onc department,” she says. “They are comforting and supportive. Outpatient wouldn’t have worked if they hadn’t been such a good team.”

Laura Stephenson Carter



Ken Meehan, director of DHMC’s Bone Marrow Transplant Program, confers with Elizabeth Kimtis, a bone marrow transplant nurse. Patients can now get BMTs for many conditions on an outpatient basis, instead of being hospitalized for four to six weeks.

NORRIS COTTON CANCER CENTER / HEMATOLOGY-ONCOLOGY