



DRUG-GIST: Drs. Steven Woloshin and Lisa Schwartz, longtime members of the DMS faculty, had an op-ed essay in the July 4 *New York Times*, making the case for the FDA to require information in an easy-to-read format on prescription medications regarding how well the drugs work.

THEN & NOW

A reminder of the pace of change, and of timeless truths, from a 1991 history of Mary Hitchcock Memorial Hospital, which opened in 1893:

“From the beginning, the cases admitted to the hospital were predominantly surgical; medical cases were more likely to be cared for at home. . . . In its first three years, 278 patients were admitted for surgical diseases; by 1900, more than 300 procedures were performed each year, and in 1905 there were about 500 operations.”



19,405

Operations performed at Dartmouth-Hitchcock in fiscal year 2010

24,165

Patients discharged in fiscal year 2010

119,663

Number of inpatient days in fiscal year 2010

Seeking a better base for studying infertility

If you’ve got 15 minutes to spare—and you’re already happy with your car insurance—you could contribute to the advancement of scientific knowledge. Fifteen minutes is about how long it takes to fill out a survey developed by DMS researchers to learn more about the long-term health effects of assisted reproductive technologies (ART).

In vitro fertilization and other types of ART are used in about one percent of all births in the U.S. But, says Judy Stern, Ph.D., the director of DHMC’s human embryology and andrology lab and the leader of the research effort, surprisingly little is known about the potential consequences of such treatments, either for children born with ART or for their parents.

Risks: “The majority of people who go through these things are fine,” Stern says. “But we don’t really know whether there are small risks that we hadn’t initially thought of.”

Research on the subject so far has raised more questions than it has answered. For newborns, potential risks include low birthweight and certain genetic risks. For parents, there are hints of a potential link between infertility and an increased risk of some types of cancer. There are also questions about whether women who donate eggs are at an increased risk of cancer.

But Stern says it’s not known if these health risks are related to ART treatments, to some factor

associated with infertility, or to some other cause. “Even if we see some risks, we don’t know if it’s the underlying disease or the treatment,” she says.

To try to find some answers, Stern has created a registry that will track the health of people who have used ART as well as of children born through ART. The registry is recruiting participants at about 75 ART clinics in the U.S. and Canada. The online survey is very secure, says Stern, so the information people provide will remain confidential. The survey can be accessed at <https://www.ifrr-registry.org>.

The initial information asked of participants includes data on types of fertility treatments they have used as well as background health information. Even this basic information will be useful, Stern says, but in some cases researchers may want to ask addi-

tional questions of a subset of participants. In that case, Stern would act as a gatekeeper, contacting certain participants to ask if they would be interested in participating in an additional study. She also hopes that participants will return to the site over time to update the information about their health and the health of their children.

Data: The registry is also open to men and women who have had children without fertility treatments, so their data can provide a baseline comparison.

And, once the registry is large enough, Stern would like to be able to provide participants with feedback about how their situation compares to that of other participants. For example, if a woman using IVF gives birth to twins, she would be able to see the overall outcomes for other women who have had twins born with IVF.

“There is a whole lot that we really need to learn,” Stern says. AMOS ESTY

Stern says it’s not known if these risks are related to ART treatments.

LIGHTFIRE / ISTOCK



A DMS researcher is leading a national effort to collect better information for studying the effects, on both babies and parents, of assisted reproductive technologies.

FLEET-ING MOMENT: It was exactly 20 years ago, as of October 5, that DHMC moved its clinical operations from Hanover, N.H., to its new campus in Lebanon. A fleet of moving vans, dozens of ambulances, and three custom-built mobile ICUs moved 228 patients in one day.



Students tackle kidney disease in Tanzania

Adam Kibola, a fourth-year DMS student from Tanzania, knew from family and friends that not much was being done about kidney disease in his home country. Those who can afford it fly to India for treatment, but for most Tanzanians that option is “usually not affordable,” says Kibola, “so they’re dependent on government funding, which is dependent on some sort of a lottery.” So he decided to have a go at the growing problem.

Work: A friend and classmate, M.D.-M.B.A. student Leo Gribelyuk, who’s from Russia, wanted to do more work in international health. So the two teamed up to tackle kidney disease in Tanzania—on their own time, outside their coursework.

A key reason for chronic kidney disease in Tanzania, the pair found, is the changing diet of the rising middle class due to the rapid spread of fast-food outlets. Traffic accidents, common in big

cities, also contribute to kidney failure, for trauma can make the body clamp down on the blood supply to the kidneys, causing a condition called acute tubular necrosis. Accidents can result in direct kidney injuries as well.

With advice from Drs. Joseph O’Donnell, DMS’s senior advising dean, and Brian Remillard, a DH kidney specialist, the students traveled to Tanzania in March of 2011.

They began by surveying about a hundred patients at Zanzibar Hospital and Muhimbili National Hospital in Dar es Salaam, gathering data on risk factors for kidney disease.

Trip: Once they have enough data on risk factors and on acute renal failure (they plan to collect this data from the Tanzania Ministry of Health on their next trip, in the spring of 2012), they will present their findings to health officials at Muhimbili National

But for most Tanzanians that option is “usually not affordable.”

Hospital. They also hope to fund the acquisition and servicing of more dialysis machines there, through a combination of private investors, the Tanzanian government, and the World Health Organization.

Their ultimate plan is to establish a kidney treatment center at Muhimbili Hospital, with preventive services, dialysis, and transplants affordable to a much larger number of patients.

Once the center is open, presumably fewer patients would need to travel to India for kidney care. It’s understandable, then, that officials in the Tanzanian Ministry of Health are a bit nervous about the project. Their worry, says Kibola, seems to be “Are we coming to disrupt this outflux of patients?”

Not so. “Our goal is not necessarily to stop people from going to India, because India is offering great medical services for a very affordable price... and there are many conditions that are not being treated, or can’t be treated, in Tanzania right now that India is able to take care of,” says Kibola. “Our vision is to complement this... system.”

Simple: Why take on such a huge project? For Gribelyuk, it’s as simple as the nonverbal communication he has with Tanzanian patients: “reading in their eyes this sort of gratefulness.” And for Kibola, it’s the “desire that we medical students have to make a difference in people’s lives”—plus the fact that “Tanzania is home for me.”

MATTHEW C. WIENCKE



Kibola (center) is flanked by Gribelyuk (right) and Elisha Osati (left), a Tanzanian medical student who helped the DMS students gather data on their visit in March.

THEN & NOW

A reminder of the pace of change, and of timeless truths, from the 1957-58 DMS course catalogue:

“Medical Statistics 201 . . . aims to acquaint the student with the elements of statistical analysis as applied to medical and public health subjects. Topics studied include tabular and graphical presentation of data, population rates and ratios, life tables, curve fitting, correlation, and significance tests. Particular attention is given to modern methods of treatment of small samples.”



1988

Year that Dr. Jack Wennberg established a center at DMS focused on the statistical analysis of health-care delivery patterns

\$64 million

Funding for research in this field at DMS in FY2010



AIRWORTHY: Two members of the DMS faculty, Drs. Ira Byock and Elliott Fisher, are among the featured experts in *Consider the Conversation: A Documentary on a Taboo Subject*. The film, about end-of-life issues, is being aired on public TV stations nationwide.

THEN & NOW

A reminder of the pace of change, and of timeless truths, from the 1980 DMS admissions viewbook:

“When Nathan Smith founded Dartmouth Medical School [in 1797], it was still possible for one man to lecture knowledgeable on all aspects of medicine. . . . As the science of medicine became more complex, [the School] grew. . . . Today, DMS has 140 full-time faculty members; another 272 physicians and scientists are affiliated with the School and hold faculty rank.”



969

Number of faculty today with a title of professor, associate professor, or assistant professor

1,216

Number of faculty today with an adjunct, research, instructor, or visiting title

Simulators drive home an important message

It's easy to underestimate the impact that concentration has on the quality of one's driving. If we're just a little tired, or have had only a drink or two (under the legal limit), or feel a need to send a quick text, we may think there is little to no effect on our reflexes.

But statistics on distracted driving suggest that this is not the case, and the Injury Prevention Center at DHMC has been working hard to address the problem. There were 110 traffic fatalities in New Hampshire in 2009. Although this was the lowest fatality rate in many years, there is still room for improvement. Alcohol was a factor in 29% of the state's 2009 traffic deaths. And national statistics on distracted driving for the same year show that 16% of traffic fatalities were attributed to a distraction such as texting.

Distracted: In an effort to keep the death rate headed downward, DHMC's Injury Prevention Center has increased its efforts to raise awareness about distracted driving. They are targeting young people so the reality of what can happen when they fail to concentrate while behind the wheel will hit home early in their lives as drivers.

Two driving simulators are now making the rounds of New Hampshire high schools under the coordination of the Injury Prevention Center. Teens taking driver's education are the primary audience for the devices, but

they're also being used with senior citizens and are available for use by anyone. The simulators were funded by a grant from the state of New Hampshire and will be making appearances at public events in the future.

They work by mimicking driving under a number of preset conditions, including driving normally, using a cell phone, or driving after having a couple of drinks. They demonstrate what happens if one is stopped by the police, given a sobriety test, cautioned, or even sent to jail for reckless driving.

Monitor: Using a simulator is a little like playing a video game. The machines include a wide-screen monitor, a steering wheel, and pedals; they're designed to provide a realistic driving experience that sends the message that there are consequences to

The simulators are proving popular with schools and students alike.

driving drunk or distracted.

DHMC's two simulators were unveiled at the New Hampshire Traffic Safety Conference this past April, and since then have been traveling around to high schools throughout New Hampshire. So far, they are proving very popular with schools and students alike; as of June 1, more than 500 students had used them. Students have commented on the realism of the experience—and since many are familiar with video games, they appear to find the format both fun and easy to use.

Traffic: The Injury Prevention Center hopes to acquire funding for more simulators, such as has been the success of the initiative. With this innovative new technology and the center's commitment to driver education, the Injury Prevention Center hopes that the traffic fatality rate in New Hampshire will continue to fall year after year.

KATHERINE DAWSON



Using the driving simulators is much like playing a video game—which is a key reason for their popularity with the high-schoolers who are their primary audience.



NORTHBOUND: Two medical students from Haiti migrated north for the summer, to Dartmouth—where they took classes and shadowed DH physicians in the ob-gyn and emergency departments—as part of an ongoing exchange between Dartmouth and the Caribbean island nation.

Immunology grant has a “multiplier effect”

Over the past decade, a group of DMS researchers has produced a wealth of knowledge about how the immune system works—and how it might be bolstered when it needs help fighting off disease. The collaboration has been supported by a National Institutes of Health (NIH) funding mechanism known as a Center of Biomedical Research Excellence (COBRE). Dartmouth’s immunology COBRE was recently awarded a renewal that will provide about \$6 million over the next five years.

Focal: The renewal marks a third phase for the grant. During the first phase, which began in 2001, “the emphasis was on building infrastructure in the state of New Hampshire, with DMS and DHMC as the focal point,” explains William Green, Ph.D., chair of microbiology and immunology and the principal investigator on the grant.

One of the grant’s primary goals is to develop junior faculty. So it supported research by junior investigators who had not yet received independent funding, helping them to develop projects—and produce preliminary data—that have made them better able to compete for grants on their own.

Many such junior faculty have since gone on to receive independent funding, either from the NIH or from other sources, freeing up spots for new junior faculty on the COBRE grant. The grant has thus had a “multiplier effect,” Green says. “It was truly successful for us because our first set of project leaders did so well and allowed us to slot in other people.”

Core: Also during phase one, DMS began to develop core resources—high-tech, expensive equipment and technologies that have become important not only for those studying the immune system, but also for other researchers at Dartmouth.

Phase two, which began in 2006, enabled DMS to hire additional faculty members in immunology, as well as to provide funding both to junior and to more senior faculty members for full research projects.

DMS was also able to recruit additional senior faculty members who brought with them independent sources of funding, providing a boost to DMS’s existing efforts, Green says.

Over the course of phase three, the support of pilot projects will be expanded. Investigators will continue to be able to apply for funding to get their research off the ground. Additional funding will be available for collaborative pilot projects that bring together researchers from different departments or allow a basic scientist to team up with a clinician to try to spur findings that lead directly to improved treatments for patients.



The immunology COBRE supports pilot research and enhanced mentoring.

JON GILBERT FOX

During phase three, DMS immunologists will also benefit from continued mentoring, not just for junior faculty members but for more established investigators as well. “We believe mentoring should have a broader meaning,” Green says, adding that everyone can benefit from help writing grants and getting papers published.

For example, faculty are now getting help strengthening grant proposals from internal “mock study sections”—simulations of the expert committees used by the NIH to evaluate grants. “It’s intentionally kind of a no-holds-barred, very frank discussion,” Green explains. “And we find it’s very rewarding.”

Three: The immunology group is now one of three COBREs at DMS. Researchers who study the lungs received a COBRE grant in 2003. And this past August, DMS was awarded \$11 million for a bioinformatics and computational biology COBRE.

The immunology COBRE grant has had a tremendous impact on research at DMS, Green says. “The infusion of new blood and new ideas helps sustain the research enterprise.”

AMOS ESTY

THEN & NOW

A reminder of the pace of change, and of timeless truths, from the Fall 1981 issue of this magazine:

“New Hampshire had one of the highest cancer death rates in the country in 1970. Yet New Hampshire’s cancer incidence was no higher than the national average. [An] extensive analysis . . . pinpointed inadequate cancer-treatment facilities and a need for more oncologists as being possible reasons for [the] high death rate. . . . The first two floors [of Dartmouth’s Norris Cotton Cancer Center] opened in 1972.”



4

Norris Cotton locations today (Lebanon, Keene, and Manchester, N.H., and St. Johnsbury, Vt.)

209

Number of oncologists at Norris Cotton today