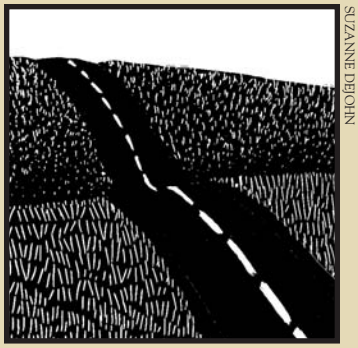
Driving into the future

By Stephen P. Spielberg, M.D., Ph.D.



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Dr. Elias Zerhouni, the director of the National Institutes of Health (NIH), recently put forward what he is calling an "NIH Roadmap"—a national agenda for medical research in the 21st century. The focus of the document is on "accelerating medical discovery to improve health." Elements of the roadmap include research in the basic biologic sciences, interdisciplinary research, public-private partnerships, and a reengineering of the clinical research enterprise. The overarching goal of the proposal is translating scientific discovery into improvement of the health of our population.

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Components: Reading the document, I was struck that Dartmouth is well positioned to take on the challenges articulated by Dr. Zerhouni. Fundamentally, our missions of education, research, and patient care are not separate activities but are interwoven components focused on improving human health. Coincidentally, we are now beginning the self-study discussions that are part of the national accreditation process for medical schools, and are also undertaking the planning of a major capital campaign to assure the future success of DMS. It is thus timely to reflect on what makes Dartmouth special as an academic medical center. It is clear that there is not one specific area that distinguishes us (although we have many areas of world-class excellence). Rather, it is our ability to integrate our work across disciplines—not just to talk about being interdisciplinary, but to truly embody that mindset in all our activities—that holds the promise for Dartmouth's role in the future of medicine.

The delivery of cutting-edge health care in a humane, compassionate, patient-oriented setting underpins all that we do. However, excellence in clinical care using currently available medical science is only part of the picture. For example, developing better iron lungs to treat polio patients became an obsolete activity when the ability to grow viruses in eggs led to the development of a polio vaccine.

Interactions: What will ultimately distinguish our academic medical center is the closing of the loop from discovery to patient care and back again. We must continue to better understand fundamental biologic processes at the molecular, cellular, organ, and organism levels. We then need to take that knowledge into translational science—using it to understand disease mechanisms and to more effectively treat or prevent illness. From there, clinical trials are necessary to weigh the relative benefits and risks of different treatments. Finally, we need to evaluate the ongoing realities of clinical practice and pursue continuous quality improvement to assure that discoveries maximally benefit those in need. And to advance all these activities, we must nurture creativity and interactions among scientists and physicians from multiple disciplines, encouraging them to ask fundamental questions about nature, limited only by their imagination.

The complexity of medicine and of health-care delivery today demands that we continuously evaluate and improve how we practice medicine. This is an area in which Dartmouth excels. Our Center for the Evaluative Clinical Sciences (CECS) is a nationally recognized resource that increasingly has an impact on all of our activities at DHMC—from evaluating our clinical organization, to assessing patient outcomes, to improving the way we educate medical students, interns, and residents. Our new residency program in leadership preventive medicine, for example, is designed to equip our trainees with the knowledge and skills to literally transform the practice of medicine. Such activities improve care for our own patients and are also helping to change medical practice around the country. CECS and its programs are a unique strength of DMS, a strength that will help us advance in all of our other endeavors.

Goal: Our educational activities also benefit from an integrative approach. We are likely to see DMS students exploring areas ranging from mathematics, engineering, molecular biology, and proteomics to epidemiology, ethics, business, and management. Our curriculum for medical and graduate students, residents, and fellows is likely to evolve dramatically as we prepare our trainees for leadership in an ever-changing scientific and medical environment. We must build on the synergies among DMS-DHMC, Dartmouth College, the Thayer School of Engineering, and the Tuck School of Business. Our educational aims fit well with the goal of Sylvanus Thayer, the founder of the Thayer School: "To prepare the most capable and faithful for the most responsible positions and the most difficult service."

As I look at the challenges set forth by the NIH, I believe that DMS and DHMC have a unique combination of basic, translational, clinical, and evaluative capabilities—together with a size, scale, and collaborative culture—to be true leaders of medicine in the 21st century. If our ultimate goal is the transformation of medicine, and I believe it must be, we will need to stay focused on the continuum of discovery, translation, implementation, evaluation, and then mores discovery. We have many elements in place to accomplish this; we will need new resources to sustain our vision.

The DMS Board of Overseers, the DMS Alumni Council, and the Dean's Council for the Future of DMS all met recently. It was invigorating to hear our faculty tell members of these bodies about recent scientific and medical accomplishments. It was equally gratifying to hear from alumni and friends about their views of DMS and DHMC; such support is vital to our future—indeed to medicine's future. ■

"For the Record" offers timely commentary from the dean of Dartmouth Medical School. Spielberg took office as dean on July 1, 2003. See the Summer issue for his background.