Science and Medicine in the Service of Society

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Biomedical science matters most when it is translated into tangible benefits for patients. Every day, scientists expand our understanding of the genetic basis and molecular pathways underlying disease. This knowledge should ultimately be translated into highly personalized approaches to diagnosis, treatment, and prevention of disease for individual patients and communities.

As leaders in the education of tomorrow's physicians and scientists, how are we to respond to the expanding scope of twenty-first-century research? At every level of our educational mission, we must seamlessly integrate clinical relevance into scientific research, and scientific principles into clinical training.

Historically, medical schools emerged within universities primarily to educate physicians, yet Master's and Ph.D. programs centered at medical schools now produce the vast majority of the scientists trained in biological arenas relevant to medicine.

All too often, these programs simply co-exist, isolated by different curricula and cultures. If we are to maximize our capacity to impact clinical practice through scientific discovery, we need to produce leaders in biomedicine and health care who see themselves as members of large, interactive teams committed to clinically relevant breakthrough science. Clinically oriented medical school courses should become part of the graduate school curriculum and translational scientists should be part of bedside rounds for teaching physicians-in-training.

But we can take this one step further. For over a century, the defining missions of medical schools have been to care and advocate for the underserved and to push the envelope of biomedical research. Because of increasing specialization, technological advances, and the competitive nature of research funding, most medical schools in the country have had to commit to one primary goal: they are either research oriented, or community and public-service oriented.

Teaching tomorrow's physicians and scientists this "hidden curriculum" — that science, service, and advocacy are unrelated — is an injustice to both our students and society. They can no longer exist as separate entities if we are to achieve our potential for applied innovation, such as preventing a patient from developing dementia and protecting a community from the environmental risks that will lead to cancer.

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Science and service, innovation and advocacy: The National Institutes of Health (NIH) has already embraced the need to bridge the chasm between the researcher's laboratory bench, the patient's bedside, and the community by setting the expectation for translational research that moves us toward the ultimate goal of better and more accessible care for all.

Medical schools must acknowledge the equal importance of these missions if we are to produce leaders who will be agents for change, translating the bounty of scientific discovery into improved quality of life in our communities and across the globe.

Science is the underpinning of everything we do, but in the absence of service, there is no context for understanding why our scientific breakthroughs matter.

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One in a series of commentaries by prominent Mount Sinai physicians and scientists.