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Educating Physicians for the Twenty-first Century

ABSTRACT

The author reviews the fundamental changes that have taken place in the U.S. health care system since 1935, predicts what that system will be like in the early part of the next century, and discusses the implications for academic medicine. Specifically, he maintains that physicians being trained today will practice within the context of large organizations, with payment for care being either by employment-based insurance or by some form of government-subsidized insurance. Care will be delivered across diffuse networks, and most physicians will be paid according to capitation or salary schemes. The role of technology will be high and will revolutionize the health care system, which will be focused on prevention and maintenance of function rather than cure. The success of the system will be measured by its cost-effectiveness and by

how well it works to maintain the mental, social, and physical functions of its participants. Finally, the obligation of the physician will be not only to individual patients but also to the populations and communities from which patients come. Training physicians to meet these obligations and to function effectively in the revolutionized system will involve changes in medical education to more appropriately socialize students into the next century's medical culture. The author reviews in detail the various elements of the medical culture that must be addressed by medical education, gives examples of the kinds of changes that must be made, and describes efforts at his school to reinforce across the curriculum the population-based model of clinical practice.

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The medical care world around us is changing dramatically. In an earlier article on this topic I quoted Abraham Flexner and Sherwin Nuland to point out that we in academic medicine are long past the time to think about changing the way we train American physicians.¹ Flexner had concluded in 1910 that "the physician's function is fast becoming social and preventive rather than individual and curative."² And Nuland

echoed Flexner, nearly 80 years later, arguing that "it is time to turn our thoughts to a new model" for physicians because, he concluded, the day was past when physicians could think only of their individual patients to the exclusion of "other patients, future patients, and the rest of mankind."³

I concluded in that review that little had been done over that 80-year period to modify medical education in line with Flexner's advocacy of the physician's social and preventive functions. In that same article I put forth a view of the changing nature of the physician's role, arguing for the need to identify changes required in medical education as physicians change from practicing mostly in individual practice models to practicing in population-based care models.

CHANGE IN THE STRUCTURE OF HEALTH CARE IN ONE LIFETIME

To begin our exploration of required changes in medical education, I will review how the U.S. health care system has

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evitable product of forces already well along the way. These features of the health care system do not depend on any single national health care reform proposal's being enacted. In fact, they do not depend on the enacting of national health care reform at all. There are sufficient state initiatives under way to change the face of health care. Medical care costs have moved past a trillion dollars a year. Large numbers of people are uninsured. Distress about the system is reaching dangerous levels. The cataclysmic forces changing the nature of health care organization and delivery are happening in every community. We just need to look around to see what is happening in our own communities.

First, most physicians being trained today will practice within the context of large organizations. There is extraordinary vertical and horizontal consolidation taking place in most major communities in the United States today. All but the very largest communities will end up with care being delivered by two or three major health systems. One of my medical school's clinical faculty shocked our first-year students by asserting that within a short time all care in Portland would be delivered by some generic model of managed care for which Kaiser Permanente is merely the most recognizable brand name. So, everything will be a kind of Kaiser writ small: a Kaiser-kaiser, a Legacy-kaiser, and a Sisters of Providence/OHSU-kaiser. (Legacy and the Sisters of Providence are two large and growing health care systems in Portland.) An analog of this model is extant in almost every city I have visited during the past three years, although some cities, such as Portland and Minneapolis, have moved further along the path.

The payment mechanism for this care will certainly be socially organized in some way. The one constant that ran through the health care reform debate, nationally and locally, is that it is not tolerable to have 35,000,000 to 50,000,000 people uninsured. That problem will be solved during the next decade and, as a result of that solution, most people receiving health care services will have their expenses paid by employment-based insurance or by government-subsidized insurance.

The role of government will be as the primary organizer of financing for an increasingly large segment of our population. That is not to say that governments will be the primary payer for care, but that they will be involved in developing complex new payment structures such as high-risk pools (as in Oregon) and state-organized purchasing alliances (as in Washington State).

Care will be delivered across diffuse networks. Nothing I am saying should lead you to believe I think we will all be receiving care in integrated, totally organized, prepaid group practice models, such as Kaiser Permanente. A variety of new health care organization forms within which to deliver and receive care are being invented. But they will be *orga-*

nized. Most physicians will be paid according to capitation or salary schemes. The fee-for-service payment mechanism, as we knew it in 1985, is virtually dead already, even if it is still writhing around like a snake with its head chopped off. This payment revolution is already having significant consequences.

In the fee-for-service world the strategy of hospitals and specialist physicians is to find ways to increase revenues. The vehicle for this has been the high-powered surgical specialty centers, such as heart surgery departments. The more the surgery, the greater the revenue and the greater the income for surgeons. However, in a capitated world more surgery means more expense, not more revenue. What once were enormously profitable revenue centers are becoming enormously expensive cost centers. This shift from revenue center to cost center for things such as heart surgery units is driving more changes in the health care system than is ideology or health policy analysis. Vertically integrated systems are looking for ways to decrease per-capita costs. This leads to proposals for such things as gatekeepers controlling referrals, second-opinion approaches, and the development of strict guidelines for service. The communities of specialists in most cities recognize the danger as they feel uncontrollable forces closing in.

The role of technology in the twenty-first century health care system will be extremely high, but the technologies will not be the technologies of failure. The dominant technology for dealing with polio advanced from the iron lung in 1935 to polio vaccination in 1985. So will molecular biology, genetics, and other of our basic sciences produce technologies that will revolutionize the next century's health care system. By the year 2005 it will be possible to look ahead to the total elimination of many forms of heart disease and cancer. These extraordinary technologies will change the nature of the health care system (as they will change the nature of our society). The focus of the health care system will be on preventing disease and on maintaining function. The success of the system will be measured by how cost-effective it is and by how well it works to maintain the mental, social, and physical functions of its participants. And finally, the obligation of the physician will be not only to individual patients but also to the populations from which patients come, the 1-to-n obligation.

Let us think about how these twenty-first century health care systems will look. The development of managed care during the twentieth century featured innovations in the organization and financing of care, but major innovations in the delivery of care were generally not undertaken. Standardization was the underlying principle for saving money within systems such as prepaid group practices, and participants in the systems were more or less forced into predetermined and standardized forms of care.

patterns over the 50-year period. The shift in focus from infectious disease to chronic disease was completed during that time, as antibiotic and other therapies were introduced after World War II and as the population aged significantly.

These knowledge changes were relatively easy to introduce into medical education because they came about as advances in or splits in the subject areas that were already firmly integrated into medical education. They did not require the introduction of major new topic areas or major new approaches into the medical curriculum.

Belief System

The *belief system* of the medical culture also did not undergo cataclysmic changes in the 50-year period between 1935 and 1985. The belief system includes those elements of a culture that are untestable, although not unimportant. In the context of the larger culture, wars are fought over beliefs concerning how to organize the political system and the economic system, and crusades are embarked upon over beliefs about the tenets of religious systems. The most important element of the belief system of medicine has revolved around the definition of the place of the physician in society. Beliefs about the role of medicine and the role of the physician have remained fairly constant, and the dramatic changes in the health care system were carefully crafted to maintain this belief system. In fact, organized medicine fought against social changes in health care, such as the introduction of Medicare and the growth of prepaid group practice plans, on the basis of their incompatibility with the existing belief system of the medical culture. This belief system was firmly rooted in the Hippocratic tradition and was totally consistent with the fee-for-service payment mechanism. The sanctity of the 1-to-1 relationship between the physician and the patient was the keystone of this belief system. As Nuland said, "to the Hippocratic physician, nothing and no one was more important than his patient; this has always been a guiding principle of clinical medicine."³ And medical education has been the central vehicle for maintaining the primacy of the existing belief system.

Normative Structure

The introductory socialization to the *normative structure* of medicine has also been the province of medical education. The complex set of norms in a culture defines the rules of conduct, the "thou shalt" and the "thou shalt nots" of the culture. In order to live successfully in the larger culture, a citizen must internalize the central norms of the culture, and in order to practice within a professional subculture, a professional must internalize the professional norms. The particular concern of socialization to this cultural element in med-

ical education is the introduction of the medical student to the physician role, especially to the obligations and the privileges of the physician role. The earliest studies of medical education pointed out that medical students came to medical school with one view of the role of physicians and were socialized to a totally new view of the role by the end of the third year. There is no magic to this, there is just the usual intense socialization to the new occupational role by influential peers, older students, and respected role-models such as faculty and residents.

Signs and Symbols

And of course, all of the *signs and symbols* of the profession help to instill in the student-physician the expected sense of professional ethnocentrism (the perspective that your culture or subcultural group is superior to other cultures or other subcultural groups). Medical students are quickly oriented into the proper use of the symbols of the profession, including the language of the profession. Even the use of the title "doctor" is a tool in the socialization to the normative structure of medicine and strengthens the sense of the specialness of individual 1-to-1 obligations of the physician. This socialization includes introducing students into the symbolic power of draping a stethoscope around one's neck, of wearing a white coat or scrubs in social situations, and of interacting using arcane clinical terminology. Nuland speaks of the stethoscope as "at once a medal for achievement, an insignia of rank, and a symbol denoting power."³

As an aside, I can say that the popular culture has many ways to facilitate the notion of the "specialness" of this role. I recently was informed that my local newspaper, the *Oregonian*, has a policy of reserving the use of the title "Doctor" for scientists who have the MD degree. They print sentences in stories about scientific discoveries such as, "Mary Smith and Dr. John Doe were the investigators of this study," leading readers to assume that Mary Smith, the principal investigator (and a PhD), is not a doctor.

This approach to socializing physicians was somewhat problematic in the health care system of the 1980s, but it simply is not going to work at all for the twenty-first century. And the changes in medical education that are needed span all of the elements of the culture of medicine.

EDUCATING PHYSICIANS FOR POPULATION-BASED CLINICAL PRACTICE

It is easy to see that if the health care system is going to be structured in 2005 as I suggest it will be, we need to make some dramatic changes in medical education. Physicians working within population-based clinical practices will be working in a medical culture dramatically different from the

ments of both the 1-to-1 role obligations of the physician and the 1-to-n obligations. They cannot be put in opposition to each other, because when they are in competition for medical students' attention, the 1-to-n will lose.

Students need to be introduced to clinical practice early, so they can practice the 1-to-1 approach that is part of their mind-set when they enter medical school. This is done at OHSU by linking students to preceptors in practice settings from the first week of the first year. A half day a week is dedicated to this preceptorship for the first two years. But very early in their education they are also introduced to 1-to-n concepts as the expanded physician role also becomes a central focus of the first two years of the curriculum.

One vehicle for socialization to both belief/normative elements and cognitive elements is an integrating course called "principles of clinical medicine." This course, which is given one afternoon a week for two years, provides the vehicle for teaching 1-to-1 clinical skills. But through curricular content in epidemiology, biostatistics, health care organization and financing, ethics, behavioral medicine, and other important population and evaluative science skills, it is also the vehicle for helping the students practice using the 1-to-n role set. They are taught, by faculty who model the 1-to-n role set across a variety of settings, that being a physician in the modern world means equally treating patients 1-to-1 and paying attention to the epidemiologic, economic, and social elements of practice. They learn that practicing medicine means working in examining rooms, in committees, and in communities.

And we are working on reinforcing the 1-to-n model across the curriculum. Students are offered summer internship opportunities to do population-based work in rural counties and in population-based settings in the city. Many take this opportunity during their medical school career. All of the students have a six-week rural primary care rotation during their third or fourth year. One of the six weeks of this rotation is dedicated to a population-based research project. Many of the students report that this week is a highlight of their rural experience. There are also many preventive medicine electives that are offered to students in the third and fourth years.

As our MPH program in epidemiology and biostatistics develops, we are offering some of the MPH classes as medical school electives. We have announced an integrated MD-MPH program, oriented toward population-based clinical practice skills. We have expanded our preventive medicine residency to focus on modern population-based clinical practice opportunities and have a thriving group of residents. And we are integrating the MPH program with various residency and fellowship slots to enhance these pro-

grams' abilities to train for population-based clinical practice skills. Also, we now have a new postdoctoral training program in health services research that is a joint effort between OHSU and the Kaiser Permanente Center for Health Research.

I have not listed these education components because I believe that the ultimate program has emerged at OHSU. It has not. Our program has a long way to go. But at least it is moving toward the twenty-first century. And it is moving in a very conscious way. The faculty talk about population-based clinical practice in many fora, and many faculty are beginning to model, for the students, the elements of practicing their 1-to-n obligations. Their behavior helps illustrate the significant contributions physicians can make beyond the examining room, the hospital room, and the operating room. The university is creating population-based clinical practice opportunities for the students and the residents. The faculty is working to create the education modules for teaching these new concepts. While we all recognize there is much to be done, for a growing number of the faculty the vision is clear and the goal is before us. We are moving toward the next century, and we understand that our students are going to spend their lives in a very different health care system than did those who have come before them. We recognize that this means our students need to learn to be different physicians from those who came before. And we work with the belief that this does not diminish the physician's role, it greatly enhances it, and therefore enhances the opportunity for the twenty-first century physician to grow, to learn, and to serve.

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