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Defining Global Medical Education Needs

Abstract—The graduates of medical education institutions should be, both in their numbers and in their acquired skills, appropriate to improving the health of the particular society they are intended to serve. Medical education should be tailored to deal with the diseases the physician is most apt to see—or at least apt to see in an academic medical center. Such logic does not prevail, however, in terms of either the numbers of physicians trained or the content of the medical curriculum. The Western model of a medical school curriculum has been adopted—but little adapted—for use by much of the Third World. Relevant subjects such as epidemiology, social sciences, and management are often either ineptly taught or omitted. A shift in attention from patient to community is recommended, accompanied by deliberate programs of education and health care to measure and improve the health of the community. Significant improvements in health in much of the world can be made only through community-based programs such as improved nutrition, education, sanitation, prevention of infectious diseases, and family planning. Two types of U.S. participation in international medical education are recommended: (1) specialty training of physicians from countries whose access to instrumentation and medical care support structures are similar to those in the United States, and (2) strengthening of institutions in developing countries in the areas of education, research, and practice appropriate to the particular needs of each of these countries. *Acad. Med.* 64, Supplement 1(1989):S9–S12.

It is impossible to survey in depth a subject so broad as medical education needs throughout the world. However, I will endeavor to offer a point of view regarding certain international needs in medical education and to define how the United States might contribute its expertise. Hopefully this may serve as a stimulus to subsequent discussion. Let me deal first with the present status and problems in medical practice and education, at least as I see them, and then conclude with possible initiatives that might be taken by the United States.

Medical Education—Status and Relevance

Throughout the medical institutions in the United States, faculties and practitioners take pride in what they perceive to be the finest facilities anywhere for rendering the best, most advanced medical care available. At the same time, medical practice is logarithmically evolving, fueled by the most extensive biomedical research engine ever created and the highest per capita expenditures for medical care of any country in the world. Impulses stemming from humanitarian generosity, from a recognition of the indivisibility of science, from pride in accomplishment, or perhaps from an embarrassment over the egregious disparities between first and third world medicine, impel those concerned to share their wisdom and technology with others.

To date, in many of our initiatives in international medical education, we have taken a simplistic, fatal leap of faith from acceptance of the universality of science to presumption of the universality of medical education. We recall the turn-of-the-century contributions of such as Osler and Welch who, inspired by European experiences and institutions, returned to transform American medicine. Maulitz[1] eloquently reviewed these and other experiences, concluding: "The accounts suggest a simple, unproblematical relationship, one in which a visionary leader of a developing medical community goes abroad, borrows a bit of the scientific fire, and returns home to light the torch of progress before a welcoming audience." Rightly, he labels this a mythopoetic version of history.

Even the elements of truth in the myth provide doubtful historical precedent. Men of earlier generations returned home to medical settings equivalent in instrumentation to those institutes where they had studied, or at least readily so equipped.

Since their era, we have added all manner of elaborate instruments and sophisticated laboratories. U.S. medical education has changed as well. Although still grounded in universal scientific truths, it is nevertheless professional training, intended to equip students appropriately to practice medicine within a framework of specialties and subspecialties, of complex diagnostic instrumentation, and of hospital and laboratory support services. It is a milieu which, although not wholly unique, is at least alien to almost all developing countries and many industrialized ones. However, as much as we should like to believe otherwise, universality does not extend to medical education.

Let me draw an analogy with something no less true. The well-known "shade tree" auto mechanic of 50 years ago was quite at home in diagnosing and repairing all manner of automobiles, whatever their makes or countries of origin. A good mechanic

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in India today can competently repair a bicycle or an Indian-produced World War II-design jeep but is completely at a loss when faced with the need to repair an American-made Cadillac. We could correct this problem, of course, by offering to an aspiring mechanic a fellowship at a General Motors training school. Once he returned home to India as a graduate, he would find himself at sea without the array of complex instruments that are the standard of a modern U.S. workshop. Whether he could still repair the old-style jeep is speculative. Thus, he would seek to find employment where he could best practice his skills—but this would not be in India, where there are few General Motors vehicles. I apologize for this simple analogy, but to anyone who has traveled widely, the quandary faced in medical education is quite as bald as this and quite as innocently overlooked.

We must also bear in mind that medical education should be properly tailored to deal with the diseases that the physician is most apt to see, or at least apt to see, in an academic medical center. Even now, educators and students alike bemoan the fact that all too little experience is gained in dealing with the commonly encountered disease conditions of greatest concern in general practice. The third world physician in an industrialized, temperate climate will see only a precious few cases of malaria, onchocerciasis, measles, poliomyelitis, kwashiorkor, trachoma, tetanus, leprosy, or even tuberculosis. If even one case turns up, it is likely material for Grand Rounds. Yet these diseases will account for many of the principal challenges in the Third World. Is it any wonder that the physician who is educated in an industrialized, temperate setting wants to practice what he has learned, treating those diseases with which he is most familiar, with tools that he has been taught to use?

Present Quandaries

Medical education must be seen as a means to an end, not an end in itself. It should and must differ from country to country. In fact, it would seem logical that the graduates of the medical education institutions should be, both in their numbers and in their acquired skills, appropriate to improving the health of the society they are intended to serve. As we all know but don't want to admit, logic does not prevail.

First, let us turn to the question of numbers. In this country, over the past three decades, we have invested enormous resources in the creation of a magnificent infrastructure of institutions for medical education, all primarily concerned with the practice of curative care. We have graduated physicians in unprecedented numbers to the point where, as Bruce Vladek recently noted: "What we are facing in the hospital industry, in health care in general, is a very serious shortage of patients."[2] Too few recognize that this is an all but universal phenomenon. There are unemployed physicians today in Switzerland, Italy, and the Scandinavian countries; developing countries such as Egypt and Pakistan have thousands of unemployed physicians; neither India nor Bangladesh can accommodate all of its graduates; Mexico has an unemployed physicians' association; and the medical schools in Latin America and the Caribbean expect to double their pools of physicians within the decade to serve stagnant economies unable to accommodate them. Meanwhile, thousands upon thousands of third world students are being graduated each year from medical schools in Eastern Europe.

A particularly striking illustration of current problems was provided to me during a recent visit to a primary health center in Northern India. The center director was a young surgeon who had just completed three years of surgical residency. With the equipment available to him, however, he could perform only the simplest of procedures, none of which required general anesthesia. Such procedures could as readily have been performed by a medical corpsman with not more than a year's training and experience. The point is that we do not have, overall, a deficit of medical manpower; the constraints in improving health today actually have little to do with the availability of manpower.

What, then, is there to say of the content of training? The medical curriculum is a venerable institution indeed. The curriculum is a subject which, like the weather, is much discussed but about which little is done. As one European educator expressed it: "It is easier to move a cemetery than to change a [medical school] curriculum."[3] And a study published by Johns and her colleagues echoed this observation in noting that "most medical school curricula [in the United States] have changed very little in the past fifty years."[4]

For better or worse, the Western modern curriculum has been adopted—but little adapted—for use in much of the Third World. Its focus is the pathophysiology of disease in individuals and its treatment or remediation. Yet it is now all too apparent that for economic reasons, if no other, significant improvements in health throughout most of the world can be made only through such community-based programs as improved nutrition, education, sanitation, prevention of infectious diseases, and family planning. Subjects especially relevant to this needed thrust in health care—epidemiology, the social sciences, management—receive little or no attention in contemporary medical curricula and, as often as not, are ineptly taught.

The inertia for rational change is exacerbated by global similarities in curriculum and training, encouraging many medical students to obtain credentials of conventional certification, irrespective of relevance to their expected tasks. Innumerable conferences have been held, all hoping to stumble upon some paradigm to alter the uncomfortable status quo with a solution only minimally disruptive to the tradition that has become comfortable. It is analogous to the well-known drunk who has dropped his keys but seeks to find them under the illumination of a nearby street lamp because that is where the light shines brightest. Given our current progress record, it is apparent that change will not come easily.

Directions for the Future

Erich Fromm's reflections are particularly apt: " . . . the history of man is a graveyard of great cultures that came to catastrophic ends because of their incapability for planned, rational, voluntary reaction to change."[5] Might this apply to medical education today? Our understanding of the pathophysiology of disease has progressed dramatically over recent decades, as has our ability to prevent and to intervene in the process. Yet in both education and practice, our attention continues to be focused on providing and staffing institutions—be they hospitals or clinics—to provide care to those who voluntarily present themselves, usually because they are ill.

Our concern has been disease of the individual rather than health of the community. A simple illustration is provided by programs of immunization. Of all medical procedures, immunization is among the simplest to perform and by far the most cost-effective. Yet as recently as a decade ago, only 2% of all children in developing countries were receiving the time-tested, inexpensive, and dramatically effective antigens: poliomyelitis, measles, and DPT. Neither human nor material resources were limiting factors. Disinterest was the principal cause. A special global effort was required and finally mounted. Today, more than 50% are routinely vaccinated. This achievement, though dramatic, is still far from satisfactory, but it is one that would be substantially greater if hospitals and clinics could be persuaded to vaccinate children who routinely present themselves for other reasons. If the infrastructure of curative care delivery we have created is incapable of providing the simplest of preventive interventions, how effective can it be in dealing with more complex problems such as malaria control, teenage pregnancy, substance abuse, or AIDS?

It is all too apparent that as medical professionals we have been little concerned about the health of the communities we serve. We can and do follow the daily fluctuations in the myriad quotations of prices of stocks, bonds, and commodities, but what about the numbers of deaths by cause, let alone illnesses, in our communities? Such data are poorly collected at best, seldom used in planning and evaluating programs, and generally ignored.

A shift in attention from patient to community, accompanied by deliberate programs to measure and improve the health of the community, could be the key to the problems in our medical care systems and, perhaps ultimately, the guide to change in medical education. To make this shift requires appropriately trained professionals to provide leadership for a system whose primary mission, in fact, is the health of the community. It requires individuals with acquired skills in management, community and institutional organization and planning, epidemiology, health economics, and behavioral science. This is primarily the domain of departments of community medicine and schools of public health, entities that even now are almost universally understaffed and undersupported. Whether the managers of community-based programs should be required to be qualified physicians is sometimes argued, but this is a moot question given the tradition of physicians occupying most managerial roles in health care systems at national and local levels. Today, such positions, as they do exist, are largely occupied by those with clinical training only. To expect them to perform competently is as inappropriate as it is to expect a radiologist to perform an organ transplant.

At the same time, those engaged in curative care must have a better appreciation of their own roles, as well as the mission of a health service that is truly a health service and not a sickness care system. This requires a greatly strengthened medical curriculum in epidemiology, the social sciences, and community medicine. Few schools anywhere do well in this arena. In brief, for medical education to be effective, we need a major reorientation in the basic mission and in the educational system that prepares the practitioners. This will not be easy to achieve, nor are there many to whom to turn for models or help.

It must also be recognized that individual countries have different types of problems, each requiring strategies and solutions that are different, if not sometimes unique. Many problems can be resolved only through intimate knowledge of the social context, and with medical leadership that is highly knowledgeable of, if not native to, the area.

This argues the imperative of strengthened national capacities in education and research. Experience tells us that the relevant institutions will not flourish in isolation. We need to find mechanisms to bridge national capacities with the growing base of basic and applied research if we are to facilitate promotion of health in the community. I use the term "bridge" advisedly, as bridges are designed for traffic in both directions. This argues the need for transnational collaboration between institutions, in which the principals become fully conversant with the challenges and problems and collaborate in both research and education in solving them.

A U.S. Role

Greater participation by U.S. institutions in international medical education is the subject of this conference, so let me return to the special concerns to which my preceding comments are a prelude. I believe we need to view U.S. participation in international medical education as comprising two different types. The first is the provision of specialty training for those from other countries whose access to instrumentation and whose medical care support structures are similar to our own. Many institutions properly can and should participate in such education. The flow of participants, however, needs to be far more bidirectional than at present. Dr. Craig K. Wallace of the Fogarty International Center noted in 1987[6] that for every American from the National Institutes of Health (NIH) who went abroad, 27 foreigners came to NIH. I know of no other data that document our national experience,

but I suspect they would be similar, reflecting in part our provincialism. Thus, I believe there is as much need to encourage Americans to spend extended periods in foreign institutions as there is to encourage those from other countries to come to the United States.

The second form of participation in medical education relates to the developing countries. Here, much more thought and, I would suggest, structure are needed for effective U.S. participation. Most developing countries are sorely in need of greatly strengthened institutions embracing education, research, and practice appropriate to their particular needs. They cannot be carbon copies of American institutions. The last thing such countries need is an American medical school curriculum. The type of education should be relevant to the problems and needs of the individual developing country and have a broad scope for collaborative problem solving. Time, understanding, and commitment are necessary ingredients, and because community-based programs are now the greatest need, expertise in epidemiology and the social sciences is essential. Few U.S. institutions have or can be expected to have resources, expertise, and sufficient interest to participate in addressing the problems of developing countries. It would seem sensible, however, to identify and support those institutions that are in a position to respond and to discourage others from becoming formally involved. Ultimately, a network of institutions spanning this and other countries would offer a constructive framework for development. Faculty and students would move appropriately between the institutions based on a common understanding of need and relevance, with collaborative research as a basic foundation and with community practice as a vital ingredient. Given such a relationship, foreign medical residency training could be appropriately structured to embrace several institutions.

Objections to such a scheme are palpable. Would this imply that some institutions be considered unsuitable for third world candidates? The answer, for most, would have to be strongly affirmative. Few institutions to date have been willing to make the necessary investment in time and resources or to understand and take an interest in third world problems. There is no question that an effective program requires a great deal more than the presence of a few clinicians who like to travel abroad to an interesting place during their holidays. Programs in community medicine and public health would need to be greatly strengthened; promotion committees would need to give due weight to service in other countries; many institutions would need to reorient their attitudes from the "paternalistic" to the "collaborative"; and special programs would need to be devised to accommodate the needs of those from other countries. Implicit for most institutions is a significant change in institutional mission and structure and a major modification of academic structure and function. Clearly, this is not an initiative that all could or should want to undertake.

The hoary traditions of current medical education need to be seriously reconsidered. The time is ripe to recognize that medical education needs throughout the world vary greatly and that curricula must be adapted to the specific realities. There is, however, an excellent opportunity to achieve this end through the creation of a collaborative network of institutions spanning both developed and developing countries.

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