Medical education in the United States: a resource for the Third World?

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MEDICAL EDUCATION IN THE UNITED STATES: A RESOURCE FOR THE THIRD WORLD?

by Donald O. Nutter

Prologue: The Reagan administration’s foreign policy inclines toward strong economic and military intervention in the affairs of other countries where such steps are perceived as important to the interests of the United States. Social assistance is viewed as less important in implementing the president’s foreign policy design. Such a policy, says Donald Nutter, is shortsighted because it neglects the value of America’s medical preeminence, as recognized throughout the world. Nutter is a professor of medicine and executive associate dean at the Emory University School of Medicine. During the year 1978-1979, Nutter worked for then Senator Richard Schweiker (R-Pa.) as a Robert Wood Johnson Foundation health policy fellow. During his time on Capitol Hill, Nutter was struck by how little attention is paid to the importance of medical care and its delivery as a tool of foreign policy. Organized as it is along categorical lines, health and foreign policy rarely intersect in congressional committees, where most of the legislative work gets done. In the executive branch, the international health office of the Department of Health and Human Services is a tiny outpost. Nor is health an area of emphasis at the State Department. For many years, religious organizations have sent medical missionaries to developing countries. More recently, foreign medical graduates have been training in the United States, but they have often failed to return to the developing countries which invested in their education. The United States seems headed for a period of having more trained physicians than it can afford as well as a greater capacity to educate medical students than it needs. Why not, Nutter asks, marry the critical need that developing countries have for training doctors with America’s abundant capacity to train such professionals? The consequence, he suggests, would add a dimension to America’s foreign policy and alleviate, in part, the intensifying concern over a physician surplus in the United States.
In recent years the United States has developed a considerable capacity for the education and training of physicians and other health professionals in a growing number of academic medical centers. The output of this medical education system has gone a long way towards bringing health manpower supply and demand into balance, and may well result in a surplus of physicians during the next two decades. At the same time, many Third World countries continue to experience a significant shortage in health manpower, a condition that may worsen as they proceed with industrialization, urbanization, and, in some cases, unrestrained population growth. This article summarizes the status of medical education and physician manpower in the United States and the Third World, and postulates that we can assist other nations in the solution of their manpower problems through the use of our medical education resources to educate medical students and train postdoctoral professionals from developing countries in the United States.

A Surplus Of Physicians?

Beginning in the early 1960s a number of complex social, economic, and political factors contributed to a dramatic increase in the number of medical schools and postgraduate (residency) training programs in the United States, and led to a sizeable expansion of the applicant pool for, and enrollment in, these programs. Our expanded capacity for medical education is clearly illustrated by the advent of forty new medical schools between 1960 and 1980 and an increase in medical graduates (allopathic plus osteopathic) from 7,500 to 16,600 that has also been accompanied by an increase in residency training positions. This, in turn, has led to an improved physician-to-population ratio: from 154 per 100,000 in 1970 to 202 per 100,000 in 1980. Extensive new physical facilities, research programs, and tenured faculty have been created or developed in parallel with this activity in medical education. In fact, faculty growth has exceeded that of students as indicated by a decline in the medical student to faculty ratio from 2.7 in 1960 to 1.3 in 1980.

An analysis of current trends in medical education and health manpower leads one to conclude that we no longer have a shortage of physicians in the United States. Two recent federal studies of health personnel (the Graduate Medical Education National Advisory Committee Study and the Division of Health Professions Analysis from the Bureau of Health Professions) have concluded that the United States faces an excess of

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physicians in 1990, although some specialties, including the primary care disciplines, are projected in a “best case” assumption to be in balance over the next two decades.\(^4\) Not everyone agrees with the methods used to estimate future manpower supply and requirement in these studies, nor with the conclusions concerning a physician surplus and whether this surplus bodes well or ill for health care delivery and costs. Nevertheless, these studies have led many to recommend a reduction in medical school enrollment as well as adjustments in the number of residency training positions in several specialties. Despite the strong likelihood of a physician surplus in the 1990s, it appears that some problems of access to health care for certain segments of our population, and of specialty maldistribution, will persist. On the other hand, it does not appear that the primary solution to problems of access to care or specialty distribution will be achieved through the maintenance or further expansion of enrollment in our medical education and training programs. Mounting pressure to restructure and curtail medical education and residency training can be expected from several sources, including the federal government, certain health care organizations, and third-party payers. At the same time, it seems certain that these forces will meet strong resistance to change on the part of medical schools, certain specialty groups, and segments of the population who feel that their access to care is inadequate. The net result, very likely, will be a modest decrease in medical school and residency program enrollment and little or no quantitative change in the physical plants and faculties of our academic medical centers. Thus, the United States seems destined to have an excess capacity for medical education that could be adapted to other purposes in future years.

The Third World

Unlike the situation in the United States and most Western European countries, the Third World nations have a serious shortage of physicians, nurses, ancillary health workers, and biomedical scientists. Data on this issue are limited and, in many cases, of questionable accuracy, but nevertheless indicate a wide discrepancy in health resources between developed and underdeveloped areas of the world.\(^5\) Exhibit 1 contains data, corrected for the population base, on the number of physicians, nurses, and hospital beds from selected countries in Africa and portions of Asia. These countries were selected on the basis of the availability of data, their geographic location, and the fact that they demonstrate the range of figures encountered in these underdeveloped areas. When these figures are compared with data from the United States (see Exhibit 1), or from Russia and Western European countries, the lack of health manpower in the Third World is evident.

Information that would permit one to quantify either present or future...
### Exhibit 1
Health Manpower And Hospital Beds In Selected African And Asian Nations Compared To The United States (Per 100,000 Population)

<table>
<thead>
<tr>
<th></th>
<th>Physicians</th>
<th>Nurses $^a$</th>
<th>Hospital Beds $^b$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Africa</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethiopia</td>
<td>1.4</td>
<td>5.1</td>
<td>30.0</td>
</tr>
<tr>
<td>Libya</td>
<td>111.3</td>
<td>285.1</td>
<td>488.0</td>
</tr>
<tr>
<td>Nigeria</td>
<td>7.2</td>
<td>60.0</td>
<td>83.0</td>
</tr>
<tr>
<td>Uganda</td>
<td>3.5</td>
<td>41.9</td>
<td>157.0</td>
</tr>
<tr>
<td>Zaire</td>
<td>6.2</td>
<td>59.5</td>
<td>284.0</td>
</tr>
<tr>
<td><strong>Asia</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bangladesh</td>
<td>8.1</td>
<td>2.5</td>
<td>23.0</td>
</tr>
<tr>
<td>India</td>
<td>27.4</td>
<td>26.3</td>
<td>78.0</td>
</tr>
<tr>
<td>Indonesia</td>
<td>7.0</td>
<td>43.3</td>
<td>60.0</td>
</tr>
<tr>
<td>Philippines</td>
<td>35.8</td>
<td>117.4</td>
<td>156.0</td>
</tr>
<tr>
<td>Thailand</td>
<td>12.1</td>
<td>85.5</td>
<td>121.0</td>
</tr>
<tr>
<td><strong>United States</strong></td>
<td>168.0</td>
<td>674.0</td>
<td>630.0</td>
</tr>
</tbody>
</table>


$^a$ Nurses include all professional and assistant (practical) nurses and all midwives.

$^b$ Hospital beds include data from all hospitals (acute and chronic care facilities) in the country.

Health manpower needs in the Third World is, for the most part, not available. The problem posed by the lack of adequate projections for manpower supply and requirement is complicated by at least two factors. In the first case, the level of health care and the nature of health problems varies between countries. In turn, the strategies employed by these countries to deliver primary-care and improve health status vary considerably and furthermore are based, in large part, on the availability of fiscal resources. In poorly developed areas with limited resources, the most cost-effective approach may be a selective attack on health problems (usually infectious diseases) that are associated with high morbidity and/or mortality and are vulnerable to proven, readily available interventions.\(^6\)

In other areas, the level of socioeconomic development may permit a country to structure a more comprehensive system of health care delivery in an attempt to provide basic primary care services to the bulk of its population. This approach is illustrated on a grand scale by the evolution over three decades of a multitiered system for basic health care and medical education in the People’s Republic of China.\(^7\)

Regardless of the level of health care and health status achieved, virtually all developing nations have found it necessary, or even desirable, to employ a wide variety of personnel for the provision of primary care. These primary care providers range from the volunteer village health worker to physicians. This diversity in health programs and personnel complicates the problem of projecting manpower supply and requirement, and gives rise to the second problem—the adequacy of available methods
for performing manpower projections. An analysis of the deficiencies in primary care manpower data, with regard to the World Health Organization's (WHO) call for comprehensive basic health care for all, has concluded that valid manpower projections will not be possible until the existing methodology is modified or redesigned.\(^8\) Simply stated, the techniques used to project physician supply and requirement in Western, industrialized countries are not suitable for application to Third World countries where the health needs, delivery systems, and personnel are much different.

Although many medical schools are in operation at this time in developing nations, their numbers and enrollment are small relative to the need. A WHO survey of medical education for the academic year 1975-76 demonstrates that in twenty-two African countries, not including Egypt or South Africa, medical schools increased in number from less than ten in 1955 to thirty in 1975.\(^9\) The population of these countries in 1975 was approximately 220 million, and their medical graduates numbered approximately 900. (It should be noted that several new medical schools in these countries had not yet produced a graduating class.) In the case of eight nations in south and southeastern Asia, not including the People's Republic of China, Taiwan, or Japan, the number of medical schools increased from sixty-nine in 1955 to 149 in 1975. The 1975 population of these countries was approximately 948 million, and their medical graduates numbered approximately 15,800. By comparison, the U.S. population in 1975 was approximately 218 million, and there were 123 medical schools producing 14,373 graduates. The number of medical graduates per 100,000 population in 1975 was 6.6 in the United States, 1.7 in the Asian countries, and 0.4 in the African countries. It has been estimated that a number of developing countries, especially Asia, are training adequate numbers of physicians to meet national needs, or at least they are training as many physicians as they can afford to support in a national health service.\(^10\) The problem in most of these countries is one of retaining their medical graduates, that is, limiting the emigration of their graduates to other countries. In other developing nations, especially in Africa and the Middle East, physician training either does not take place, or the number of graduates is insufficient to meet national needs, even assuming the absence of emigration.

The Mechanisms Of Supply

A solution to health manpower shortages in Third World countries might be structured through one or more of three mechanisms that have been used in recent years by many developed countries, including the United States. The most desirable of these approaches is to develop a system of medical education in the underserved country. The system
obviously should be designed to meet the health care needs of the country through the appropriate curriculum and student enrollment. A reasonable alternative to this approach would be the development of regional, multinational health professions schools that would be funded by interested nations and accessible to their students. These strategies require time to build and staff the schools and to establish the hospital training programs for postgraduate and technical training, as well as a large and continuing expenditure of money for construction and operating expenses. Lack of success with this approach to higher education in science and technology, and to medical education in particular, is demonstrated by the situation in Africa. African countries experienced a marked increase in educational facilities and primary school enrollment during the period following independence from colonial rule. Nevertheless, facilities, faculties, and financing for secondary education in science and technology, including medical education and training, have been slow to develop, and professional or graduate school opportunities appear to be insufficient when compared to the number of qualified undergraduates. In many cases this has led qualified African students to seek scientific or professional education in more highly developed countries when financial support can be found.

Immigration offers a second approach to increasing health manpower, especially at the level of physicians, scientists, and nurses. Physician immigration has been widespread during the post World War II era; for example, the movement of doctors from Great Britain to Canada, the United States, and Australia. Unfortunately, large scale immigration by doctors and nurses also has occurred from developing countries, most notably Asian nations (India and the Philippines), to developed countries that are able to offer more attractive practice conditions and economic rewards. In the case of the United States, acceptance of these foreign medical graduates in the 1960s and 1970s served to alleviate health manpower shortages in our country. Foreign medical graduates (excluding Canadians) in the United States increased from approximately 15,000 (representing 6 percent of U.S. physicians) in 1959, to 95,000 (21 percent) in 1979. The emigration of doctors from underdeveloped to developed countries appears to be decreasing and may virtually cease in the future due to the current overproduction of doctors in North America, the United Kingdom, and Western Europe.

Few examples can be cited where physicians have emigrated from developed countries to underdeveloped areas of the world. A study of Iran’s recruitment of physicians from other underdeveloped countries in the mid-1970s to fill primary care positions in underserved rural towns and villages concluded that most of these physicians did not plan to remain in Iran and provide long-term care; that often they were not provided with the equipment or facilities necessary to provide effective care; and they
usually were not preferred by the native populace over Iranian ancillary health workers. Cuba has provided a more effective temporary source of physician manpower to Third World countries. After achieving a relatively high domestic health status, postrevolutionary Cuba has made a significant contribution to health care in countries such as Angola, Ethiopia, and Libya, and has provided virtually the entire health care delivery system for several smaller African nations. In 1978 nearly 13 percent of Cuba's national health service physicians were assigned overseas in underdeveloped nations where they directed health care clinics and trained ancillary personnel. Although not necessarily a long-term solution to the health care needs of Third World countries, this approach represents a cost-effective, short-term contribution since Cuba has financed the operation.

A third approach to augmenting the number of physicians, nurses, and medical scientists in developing countries is to provide Third World students with education and postgraduate training in the medical education facilities of developed countries. This approach, at least in theory, could significantly expand the number of health care providers, medical educators, and biomedical scientists on an interim basis in Third World countries while these nations proceed to develop an in-house capability for medical education. For a number of years, Third World students have attended health professions schools, or have received postgraduate training in European countries, Russia, the United States, and, more recently, in China. The number of foreign citizens (excluding Canadians) enrolled in U.S. medical schools has never been high. In the period between 1960 and 1970, the total enrollment of these students ranged from 300 to 500 per year and was between 600 and 750 per year for the period 1970 to 1978. Data from the American Medical College Admission Service indicates that in 1982-83 there were 299 foreign citizen applicants to U.S. medical schools (1 percent of total applicants) and 38 of these students matriculated (0.02 percent of the total). A greater number of foreign physicians have received residency training in the United States in recent years, but many of these doctors have remained in the United States to practice medicine. The National Resident Matching Program reports that in 1983 there were 5,422 foreign applicants, excluding U.S. citizen foreign medical graduates, for residency positions (22 percent of total applicants) and 949 of these physicians (6 percent of the number who matched) received positions in U.S. programs. In order for the U.S. to contribute in a meaningful way to the correction of health manpower shortages in the Third World, the numbers of foreign health professions students and postgraduate trainees would have to be increased to a significant degree, and methods would be needed to ensure that graduates returned to practice in their country of origin.

A report to the Carter administration in 1978 on international health
cooperation proposed that the effective development of health manpower for Third World countries would require systems integration in the areas of health care delivery, health professions education, and health policy, both on the part of governments in developing countries and on a more global basis. The recommendations for U.S. policy on international health in this report indicated that the United States should provide training assistance to developing countries, with the emphasis on helping them to create and then rely on their own resources for manpower.

The Department of Health and Human Services has recently reported to Congress on U.S. involvement in physician exchange programs. The report acknowledges that data are limited on the many physician exchange programs that have operated over the past three or four decades, but cites the contributions made to other countries, including those in the Third World, by our training of foreign medical graduates:

"With few exceptions, systematic and comprehensive studies on the effectiveness and value of physician exchange visitor programs to foreign nations and to the United States are lacking. . . . Specific data on the number of, or rate of return (home) of, exchange visitor physicians is not generally available. . . . There is some evidence that the vast majority of exchange visitor foreign medical graduates receiving training in public health have returned to work in their home countries. . . . For exchange visitor physicians in the area of medical research for one specific program (the NIH International Research Fellowship Program), there is evidence that a majority returned home and assumed roles for which they have been trained. . . . For many nations, not only have substantial numbers of exchange visitor physicians returned to their home country, more importantly, they have been received favorably and have contributed to improvement of the health care system in their homelands."

The report recommends that consideration be given to expanding U.S. support for medical exchange visitor programs, including those whose purpose is the training of physicians in the United States.

Henderson has commented on the greater health policy role and the degree of public authority accorded to physicians in underdeveloped countries in comparison to their counterparts in industrialized nations, a condition likely to pertain to the foreseeable future. The United States might influence the public policy of many Third World countries well beyond the confines of health care delivery if we chose to provide undergraduate and postgraduate education for some of the future public health officers, health care system managers, and medical educators and researchers needed in these countries. An organized exchange student program for underdeveloped nations that lack the facilities and staff for medical education or that have manpower shortages despite the existence of pro-
fessional education programs also could have a positive impact on international health status.

Our physician exchange activity in past years, at a time when the U.S. was moving to expand the number of its medical schools and their enrollment in an attempt to address a perceived doctor shortage and problems in physician distribution, has centered almost exclusively on residency training. The foreign medical graduates trained in the United States often failed to return to the developing countries who had invested in their education, and the United States thereby siphoned valuable medical resources from these nations. In the future, it should be possible to allocate both medical school and postgraduate training positions to exchange students sponsored by foreign governments or international organizations. This sort of reorientation of our “excess capacity” in medical education might prove more acceptable to medical schools and teaching hospitals than would arbitrary cuts in student enrollment or residency training positions. At the same time, the pursuit of this policy could provide long range health benefits to those developing nations who elected to participate.

Strategies For Change

At least two strategies for an exchange program in medical education could offer potential benefits for developing countries. The first approach is oriented to the education and training of primary care physicians. This strategy would involve undergraduate medical education and postgraduate training in family medicine or other primary care specialties. It would provide medical graduates for those countries who have the resources to support and utilize these doctors in a national health service or basic primary care delivery system. However, the education and training of practitioners in the United States is probably not the most cost-effective use of scarce resources for many developing countries, nor do many of these countries have delivery systems outside of urban centers that would enable them to use additional primary care doctors effectively.

A second strategy that might be more productive for many Third World countries would be to educate and/or train physicians for service in public health, health systems administration, and medical education and research. Developing countries might use this program to educate their qualified university graduates, train their medical graduates for leadership positions in a national health system, staff their own medical school faculties, direct training programs for ancillary health personnel, administer public health operations, or research important indigenous health problems. This strategy also would be expensive, but should be regarded by developing countries or other sponsors of the program as a long-range investment in leadership and development for a comprehensive health care system.
The proposal, regardless of the strategy selected, might not be suited to the majority of U.S. medical schools or academic health centers. There are, however, a number of institutions that could successfully execute this plan, and in so doing make a lasting contribution to international health. Attributes that characterize these institutions include a strong education/training program in ambulatory primary care; educational opportunities in public health and epidemiology; faculty commitment to, and a record of accomplishment in, international health; and the administrative flexibility necessary to adapt educational policy and curriculum to accommodate this plan.

If the medical education and training of foreign nationals in the United States is to take place on other than a random basis, a national program must be planned and developed in cooperation with the federal government and our academic medical centers. The initial acceptance and eventual success of an exchange program in medical education will require that several key issues be addressed in the development phase. In the first instance, it is unlikely that U.S. efforts would be well received or useful unless the health systems and manpower needs of the Third World countries are evaluated and an appropriate educational exchange developed. In the second place, the cost must be affordable for Third World nations. U.S. medical schools will require reimbursement for educating foreign students to support their operating budgets, and exchange students will require some form of stipend support. Depending on the changes that take place in the sources and amount of funding for residency training, many institutions might also require reimbursement for postdoctoral trainee stipends. These expenses may require subsidization from our government or from the World Health Organization or the World Bank that could be justified in the interest of international development and stability. A third concern is the identification of one or more sponsoring bodies to operate an exchange program in medical education. This role might be filled by agencies of the federal government (for example, the Department of Health and Human Services, United States Information Agency, or the Agency for International Development), the Association of American Medical Colleges, the World Health Organization, or private foundations with an interest in international affairs and health.

In order to insure that this program would not compound the medical “brain-drain” of recent years, an appropriate immigration policy would need to be formulated by the United States; and, in turn, Third World governments would need to establish some form of contractual arrangement with the sponsored students or postgraduate trainees to guarantee their return. The latter agreement might be structured in a manner analogous to the National Health Service Corps scholarships in this country. The more difficult problem of how to guarantee that graduates of the program would provide long-term primary care, public health service, or
medical education and research in their native countries has no obvious solution. A well-designed procedure for the selection of students and trainees who are highly motivated to develop and implement a national health service in their homeland might help avoid both frustration and short-term commitments on the part of returning medical graduates.

Arguments Against Change

Aside from the complexity of planning and operating an educational exchange program that ideally would involve a number of Third World countries and selected academic medical centers in the United States, there are other concerns that deserve comment. The opportunity to benefit from a program for medical education in the United States might be viewed with disinterest or even disfavor by the governments and health officials of many Third World nations. Apart from any economic or political considerations, it is widely held that medical curricula and the process of medical education in the United States and other Western countries is not well suited for the preparation of doctors who will deliver basic care and address the health problems of developing countries. The Western paradigm was used to create systems of medical education in many parts of the Third World during the period of colonial rule and has been perpetuated after these countries achieved independence.

There are two points of contention regarding the shortcomings of our Western system for medical education. The first disagreement is with the system’s orientation to the delivery of “curative” services to the ill patient, a process which often utilizes expensive technology as opposed to an emphasis on the provision of “care” for people through preventive measures (immunization, family planning) and environmental or social change (sanitation, nutrition). The second point questions the need for additional doctors in many developing nations, particularly if a health system infrastructure and resources to support medical practice are not in place or affordable. This argument proposes that a broad base of ancillary workers (volunteers, medical assistants, midwives) are more effective and must be in place before additional physicians will be of benefit to the country.

India is an example of a major developing country which has tried to create a basic national health system through a series of five-year plans that featured the large scale expansion of medical schools on the Western model and hospitals. This resulted in a great increase in the number of doctors, nurses, and hospital beds between 1951 and 1979. At the same time, health status indices have shown improvement, for example, a decline in the crude and neonatal death rates and an increase in life expectancy from birth. These gains, however, are counterbalanced by the observation that approximately 80 percent of physicians and 90 percent of hospital beds are located in urban areas, whereas nearly 80 percent of
India’s enormous population is rural. One can conclude from these data that the distribution of resources is far from satisfactory in India and that improved health status may have occurred primarily in cities, but it would seem unwarranted to conclude that the medical education model is primarily to blame for this situation.

Countervailing arguments, to the effect that many concepts in Western medical education and certain aspects of our health care systems have much to offer developing countries, should be evaluated. The developed nations have evolved health care systems in stages over many decades. The first stage was the improvement of socioeconomic conditions and the institution of public health programs to attack infectious diseases and malnutrition, next came the development of personal health services to cure or alleviate chronic disease, and finally preventive programs were aimed at protecting or improving the country’s health status as the environment and life-styles changed with industrialization and acquired wealth. It has been proposed that underdeveloped nations, whose technical development may be taking place on a compressed time scale, might take advantage of Western medical knowledge and technology more rapidly by virtue of simultaneously developing these three stages of health care.

In fact, the mixture of agrarian populations with industrialized urban populations in many of these countries seems to call for a mixture of these health system components. The challenge for the Third World is to invest the money and human resources needed to acquire public health workers and programs, primary care physicians, health systems managers, and a limited number of urban medical centers equipped with modern medical technology through a relatively simultaneous process. It can also be argued that medical students and postdoctoral trainees in developing countries should receive a quality clinical education that focuses on the patient, acquired if necessary in foreign countries, and that the development and support of national teaching hospitals should not be sacrificed in these counties to the need for rural health care systems and community-oriented medical education.

One also can anticipate reluctance on the part of medical schools and teaching hospitals in the United States to take part in the education and training of foreign nationals. There will be concern regarding language barriers hampering their participation in effective medical education or patient care activities. This factor may limit the number of foreign medical students, just as it has done in past years for those seeking residency training in the U.S. On the other hand, English is often required in the process of secondary education, and in many developing countries has become the basic language for professional and technical activities.

A more important concern is the extent to which Third World students would be prepared to enter U.S. medical schools. Deficiencies in quantitative skills and science knowledge might seriously disadvantage
the foreign medical student or, in turn, interfere with the progress of the educational program. In this case, remedial programs to prepare for medical education, special assistance during the medical curriculum, or alternative curriculum tracks might prove necessary. A demonstration project to evaluate the extent of potential problems with language and premedical preparation would be useful in the course of program development. A qualifying examination equivalent to the Medical College Admission Test could be used to screen candidates for exchange student positions, just as the ECFMG examination or the Visa Qualifying Examination are now used to certify foreign applicants for residency training. It seems likely that fewer problems in terms of academic qualification would be encountered if the program has as its primary goal the preparation of selected students for roles as medical educators, public health specialists, and researchers. Nevertheless, medical faculties might need to revise their standards of performance to accommodate these exchange students. The ease with which such adjustments could be accomplished would depend on the degree of altruism that faculties bring to bear on the problem. The acceptance of an exchange student program might depend, in large part, on the willingness of institutions to adapt in order to make a contribution to the solution of world health problems.

Another disincentive to providing medical education and training for significant numbers of foreign nationals is the current level of domestic competition for these positions. Arguments against the provision of medical school or residency positions to foreign exchange students can be anticipated at a time when U.S. candidates are denied admission or seek education in foreign institutions. In this regard, the ratio of applicants to first-year enrollment in U.S. medical schools has remained at 2.1:1 over the past three years (1979-82), while the ratio of entry level resident training positions offered through the National Resident Matching Program (NRMP) to U.S. medical graduates has fallen from 1.2:1 in 1978 to 1.1:1 in 1983. Nineteen eighty-three is the first year in which the number of active applicants (20,044), that is, U.S. and qualified alien medical graduates, exceeded the number of first-year training positions offered through NRMP (17,952). The decline in available training positions that has taken place in recent years (21,145 in 1978 versus 17,952 in 1983) is likely to continue as accreditation standards become more strict, new hospital reimbursement policies limit the funds available for resident stipends, and proprietary hospitals with little interest in providing postgraduate training acquire a large share of the U.S. hospital market. The number of graduates from U.S. medical schools (allopathic and osteopathic) appears likely to stabilize over the next decade, whereas the number of U.S. and alien foreign medical graduates seeking postgraduate training in the U.S. will increase if recent trends persist. These factors will increase the competition for resident training positions, especially for those
programs located in our major academic medical centers. The force and effect of arguments against foreign exchange students and/or postgraduate trainees will depend, in part, on the changes that take place in the number and quality of U.S. applicants for undergraduate and postgraduate medical education in future years. This dilemma is philosophical to a large extent and entails the balancing of national and international interest.

In conclusion, the concept that “excess capacity” in the U.S. system of medical education and training can be used selectively to address health manpower problems in the Third World seems worthy of pursuit, but also bound to evoke considerable controversy. The planning, development, and implementation of a national program to provide medical education and postgraduate training for exchange foreign students would be complicated and would require the cooperation of both public and private organizations and sponsors on both the domestic and international level. The potential benefits, which include the enhancement of international relations; long-range contributions to the health status, economic growth, and stability of Third World countries; and the establishment of valuable personal and institutional contacts between the Third World and the United States, appear to be worth the cost and effort. Finally, we cannot afford to ignore the fact that countries whose ideology is opposite to our beliefs are actively engaged in providing medical education and medical assistance to many of the world’s developing countries.

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