Estimating Impacts on Developing Countries of the Decrease in U.S. Training Opportunities for Foreign Medical Graduates

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Abstract—Between 1973 and 1983, the number of foreign nationals from developing nations who entered the United States for graduate medical education decreased by approximately 90%. Many of those who would have studied in the United States if this decrease had not occurred would have returned home to serve their countries. To estimate the impact of this loss, a survey was conducted in six major cities in Latin America between 1983 and 1989. Selected local medical students interviewed 554 physicians who had returned home after U.S. training and 60 of their classmates who had not trained there. The findings indicate that the returned physicians had given approximately twice as much time to teaching, research, and medical administration as did those who had not left home. The authors maintain that this and related findings show how the curtailment of opportunities for training foreign nationals in the United States is detrimental to both the aspirations of developing nations and the influence of the United States in world affairs. *Acad. Med.* 66(1991):707-709.

Prior to World War I, the great medical centers of Europe dominated in training physicians from other countries. It was only after World War II that foreign medical graduates turned in large numbers to the United States for advanced study, propelled by devastation abroad and drawn by a spirit of new destiny and responsibility in the United States, by a war-enhanced climate of inquiry, by the influx of displaced academicians and scientists, and by the growth of public and private support for medical research.

By the early 1970s, there were nearly 10,000 foreign nationals in residency programs in the United States, approximately one-fifth of the total number of graduate medical trainees.[1] Nearly half of them remained in the United States; a disproportionate number of this group had come from the most needy nations. At the same time, there were growing concerns in the United States about the effect here on the quality of medical care given by imported physicians. Accordingly, efforts were initiated by the United States to increase enrollment in its existing schools of medicine and to develop new ones. Independently, proliferation of schools of medicine was well under way throughout the world, especially in developing nations.

By the late 1970s, there was a doubling of graduates of medical schools, both American (USMGs) and foreign (FMGs). The second group consisted of both United States citizens (USFMGs) and foreign nationals (FNFMGs). In addition, about 2,000 new osteopathic physicians entered the pool.

With the increase in the number of better trained physicians, entry of all FMGs for training in the United States became much more difficult. And, despite attainment of better scores on the Foreign Medical Graduate Examination in Medical Sciences, FNFMGs became much less likely than USFMGs to be accepted by accredited housestaff programs.

We designed a survey to assess effects that the curtailment of U.S. training opportunities for FNFMGs had on six Latin American countries by estimating the impacts that physicians in these countries could have had if they had been able to train in the United States and had returned home afterwards.

Study Design

Our survey took place over a six-year period between 1983 and 1989. It included only urban centers, for two reasons. In Latin America even more so than in the United States, the great majority of physicians reside in cities. In addition, one objective was to evaluate the backgrounds of faculty in medical schools; nearly all of these schools are located in major population centers. Six major cities were selected, each a national or state capital in a country different from the other five in degree of underdevelopment, natural resources, cultural characteristics, and form and stability of government. The cities chosen were Bogota, Colombia; Lima, Peru; Porto Alegre, Brasil; Quito, Ecuador; Santiago, Chile; and Santo Domingo, Dominican Republic.

Candidates for interviews had to

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have had at least one year of graduate medical training in the United States since 1950. They were identified through personal knowledge of the adjunct faculty of the University of Miami who reside in the area, through medical society and faculty rosters, and from staff membership lists of major hospitals. We recognize the bias in the selection process, but a hoped-for byproduct of our study was to determine means to enhance the value to FNFMGs' own countries of U.S. training programs for FNFMGs who would return home

We developed a questionnaire for this group of physicians who had returned after U.S. training: the *test* group. The questionnaire contained 18 questions comprising 129 items. In addition to standard personal data, information was requested on sites of training, kinds and duration of training, and activities of the trainees after their return home. A written questionnaire and an oral interview were used to query each candidate. A total of 554 physicians in the test group were interviewed.

One of the questions requested that the physicians identify former classmates who had attained similar academic rank in their medical schools but had not received graduate training in the United States. Five hundred and eighty six names were provided. These were randomized and ten selected blindly from the list in each of the six cities. These physicians constituted the control group.

To conduct the interviews, local medical students well known to our adjunct faculty were selected on the basis of their known reliability and genuine interest in the project. It was felt that students rather than clerical staff or doctors in practice would be most readily accommodated by the physicians interviewed in the survey. The questionnaire for the control group was similar to that for the test group, omitting only questions that were not applicable to the controls, who had not trained in the United States.

Results

The majority of the 554 physicians in the test group were between 35 and 64 years of age and had received the M.D. degree between 1956 and 1980. Only 5% were women.

Ninety-two percent had spent between one and six years in the United States and 8% had been there longer. Of the 81 training institutions listed, those attended by ten or more respondents were, in decreasing order: Harvard Medical School; Johns Hopkins University School of Medicine; University of Miami School of Medicine; University of Pennsylvania School of Medicine; Cornell University Medical College; Columbia University College of Physicians and Surgeons; University of California, Los Angeles, School of Medicine; Cleveland Clinic; Tulane University School of Medicine; Washington University School of Medicine; New York University School of Medicine; the National Institutes of Health; and Georgetown University School of Medicine. Fifty-seven percent had received housestaff stipends, 20% had used their own resources, 16% had had funding from U.S. private foundations, 14% had been subsidized by their own governments or institutions, 9% had received U.S. government support, and 6% had received international awards. A few had had other resources.

Five hundred and forty-five of the respondents listed their fields of training. There were 196 in internal medicine, 92 in surgery, 44 in pediatrics, 26 in obstetrics and gynecology, and 22 in pathology. Twelve other categories made up the remainder. Two hundred and forty-five (44%) listed certification by one or more of the American Boards of Medical Specialists, including its subspecialty boards; the most numerous were internal medicine, 73, surgery, 28, pediatrics, 15, pathology, 15, and obstetrics and gynecology, 14.

In addition to the 554 in the test group, a few potential candidates declined to participate.

The FNFMGs; responses make it clear that several highly charged issues had led many of them to consider remaining in the United States. But in the ultimate decision—to return home—family considerations ("roots") were especially important. Politics and other factors were often involved. Economic factors, while meaningful, were held to be the least critical. It is probable that many of those who returned home had reasonably favorable economic security in their own lands.

Forty-seven percent of the cumulative effort of the test group was given to teaching, research, and medical administration in their home countries after their return. In their medical schools, 46% held the academic rank of full professor; 20%, associate professor; 18%, assistant professor; and 12% were of lower rank. Research constituted approximately 15% of their effort. Nearly 80% of the test group had published in competitive national or international journals, with an average of 17 articles; most of the topics were relevant to their countries' needs.

The control group listed a total effort in teaching, research, and administration of only 22%. Research constituted less than 5% of the effort in the control group. Only 18% of this group did any scientific writing and averaged only three publications.

Discussion

Travel to a foreign country for the purpose of a medical education has roots in antiquity. For example, Hippocrates gathered his disciples from the reaches of the known world during the Golden Age of Greece and tutored them under the old plane tree on the Isle of Cos.

We agree with those who believe that the United States has an obligation to share its resources for education and research and should stand ready to assist foreign countries in training their medical manpower.[3-6] This role has been long recognized, first by missionaries and foundations and then by U.S. schools of medicine and public health.

Also important and inherent in the professional contributions of the FNFMGs who have returned home is a medical form of scholarship diplomacy. Physicians are generally esteemed and influential in their own countries; those who return home serve as the United States' best ambassadors of international goodwill, a very timely consideration in 1991. To

ensure that the FNFMGs eventually return home will require more rigid control than has been customary in the selection of candidates and enforcement of immigration regulations.

In all respects the contributions of the FNFMGs we studied have been positive and emphasize the desirability of expanding opportunities for foreign nationals in both undergraduate and graduate medical education in the United States. This action would be in keeping with our heritage of concern for the welfare of less fortunate people in other lands. It would also anticipate a future expanded role for graduate medical training of foreign nationals in this era of extraordinary change in international relationships.

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BRIEF COMMUNICATIONS

Investigating Whether Timing of Students' Third-year Internal Medicine Clerkships Affects Their Performances as Seniors on the NBME Examination

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One study[1] investigating the effect on students' medicine clerkship grades of the timing of their clerkships during the academic year showed that scores on a National Board of Medical Examiners' (NBME) subject examination administered at the end of the clerkship improved as the academic year progressed. Does the testing advantage that obtains for taking the medicine clerkship late in the academic year persist for senior students?

All medical students taking their basic internal medicine clerkship at the University of Illinois College of Medicine at Chicago during the academic years 1984-85 and 1985-86 sat for an NBME subjective examination at the end of each 12-week clerkship. Three hundred and forty-seven students constituted the study population, and their clerkship assignments were divided almost evenly among the summer (group 1), fall (group 2), winter (group 3), and spring (group 4) clerkships. Their mean scores on the examination were 426 (SD 106), 445 (SD 82), 466 (SD 91), and 493 (SD 103) for groups 1 through 4, respectively (analysis of variance, $p = .0001$). The same students (minus two who ultimately failed to graduate) took the NBME Part II examination in their senior years, most commonly in the fall administration. Their scores on the medicine subcomponent were 482 (SD 89), 493 (SD 98), 498 (SD 91), and 492 (SD 106) for groups 1 through 4, respectively (analysis of variance $p = .70$).

That cognitive achievement on third-year clerkships could be at least partially dependent on the accident of scheduling should concern medical educators. However, the findings of this study suggest that any advantage that students taking a basic medicine rotation late in the academic year enjoy is apparently erased by the time they graduate.

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Comparing the Resource Use of Sympathetic and Empathetic Physicians

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