Physician Migration Reexamined

The magnitude of the migration of foreign physicians to the United States since 1965 has been overstated.

Rosemary Stevens, Louis Wolf Goodman,
Stephen S. Mick, June G. Darge

Much attention is being given to the growing importance in the United States of physicians born and educated in foreign countries [see for example (*1*–*3*)]. Such physicians, often called FMG's (foreign medical graduates), now constitute a third of all house-staff physicians in U.S. hospitals and a fifth of all U.S. physicians (*4*). Not unnaturally, it has been assumed that an ever-increasing number of FMG's have been entering the country year by year, particularly since changes in the Immigration Law in 1965. Current estimates lend support to that assumption and also suggest that an increasing proportion of these entrants are from Asia (*5*; *6*, pp. 91, 96); but as a recent congressional study points out, all matters of fact concerning the supposed "brain drain" of scientists and physicians have been cloaked in mystery because of a lack of "accurate, comprehensive, and rationally structured statistics" (*7*).

It is the purpose of this article to shed some light on the discussions by presenting new analyses of this migration based on unpublished government sources. The findings show (i) that current projections of the flow of FMG's into the United States markedly overestimate the number actually arriving year by year; (ii) that the annual number has not risen since the 1965 law took effect; and (iii) that the proportion of FMG's entering yearly from Asia has remained substantially the same during that period.

The discrepancies have arisen because of double counting in published statistics. Foreigners enter the country either on temporary or on permanent (immigrant) visas. The U.S. Immigration and Naturalization Service (INS) publishes separate statistics for the two kinds of visa; and the National Science Foundation, which publishes reports on the immigration of scientists, engineers, and physicians (based on INS data) does likewise. In the absence of more refined data, it has been customary to combine the two sets of visa figures to produce an estimate of "new arrivals." Changes in immigration procedures have, however, enabled an increasing number of FMG's who entered the country on temporary visas to change to immigrant status here. Because such individuals are counted in both sets of published statistics, there has been inflation of largely unknown proportions in the estimate of new arrivals in any given year.

We show here that this double counting was of slight consequence in the early and middle 1960's, when the physicians who converted their visa status numbered only a few hundred. But since then, as may be seen in Table 1, visa changes have become much more common and the magnitude of the error has been considerable. For example, the old figures make it appear that the number of FMG's arriving has been steadily exceeding the number of students graduating from U.S. medical schools. The correct figures show that, except in 1967 and 1968, that has not been the case. The corrected estimate gives the number of new FMG entrants into the United States in 1973 as 8123, the uncorrected estimate as 12,262, that is, about 50 percent higher. The corrected estimate of the total number of foreign physicians who entered between 1965 and 1973 is 66,575—less by 15,258, or 23 percent, than the prediction based on earlier estimates.

The magnitude of these differences indicates the necessity of revising current thinking about the patterns of physician migration to the United States. If the number of new FMG's is not increasing at the high rates reported by commonly used statistics, measures to curb the entry of FMG's may be unnecessary.

Laws Affecting Physician Migration

The figures can be fully understood only in the tortuous context of the immigration legislation of the last decade. United States immigration law provides for two large visa programs that facilitate medical migration: the Immigrant Visa Program and the Exchange Visitor Visa Program. These programs, in theory, should serve quite different functions. Persons entering on immigrant visas are assumed to intend to remain in the United States permanently or for most of their careers. Those entering on exchange visitor visas are officially viewed as temporary migrants who will return to their native countries with additional skills and, presumably, feelings of friendship toward the United States (*8*). Between 1962 and 1971, 29,000 physicians entered this country on immigrant visas and 47,000 as exchange visitors (*6*, p. 96). In practice, however, the distinction between the two kinds of visa had lost much of its significance well before 1965.

The passage of the Immigration Act of 1965 (Public Law 80–236) changed the character of physician migration, especially for the physicians—about 4000 a year by the early 1960's—who were entering as exchange visitors. Prior to the passage of this legislation, immigration was restricted by quotas imposed according to country of origin. Physicians who were natives of countries with large quotas—for example the United Kingdom—were able to enter freely on immigrant visas; those from countries with very small quotas—for example the Philippines, India, and Korea—could usually enter only as exchange visitors or on other temporary visas. The 1965 act replaced the system of unequal national quotas with a more flexible one that placed a premium on occupation and skills, not on ethnic considerations or nationality (*9*).

These changes were to have two striking influences on the visa status of physicians. First, the total number of physicians on immigrant visas has risen. From 1957 through 1965 it fluctuated at around 2000 a year. The rise began in 1966, anticipating the new law, which took full effect in 1968. More than 7000 immigrant visas went to physicians in 1972 and in 1973. (The figures are given in Table 1.)

Second, the rise was greatest among nationals who had been barred from immigrant status by the national-quota system.

Dr. Stevens is professor of public health, Yale University, New Haven, Connecticut 06510. Dr. Goodman is staff associate, Social Science Research Council, 605 Third Avenue, New York 10016. Dr. Mick is assistant professor of public health, Yale University. Ms. Darge is an associate in research, Yale University.

Table 1. Entry of foreign medical graduates into the United States and size of U.S. medical graduating classes, 1965 to 1973. [Data from (*6, 16, 17*)]

Fiscal year	Foreign medical graduates								Total U.S. medical graduates
	Immigrants			Nonimmigrants			Total new entries	Previous estimates	
	Number recorded	Adjustments of status	New entries	Exchange visitors	H-1, H-2, H-3 visas	Total			
1965	2,012	112	1,900	3,904	210	4,114	6,014	6,382	7,409
1966	2,549	474	2,075	4,370	183	4,553	6,628	7,105	7,574
1967	3,325	841	2,484	5,264	367	5,631	8,115	8,897	7,743
1968	3,060	652	2,408	5,701	296	5,997	8,405	9,125	7,973
1969	2,756	576	2,180	4,460	299	4,759	6,939	7,515	8,059
1970	3,155	890	2,265	5,008	357	5,365	7,630	8,523	8,367
1971	5,748	2,902	2,846	4,784	249	5,033	7,879	10,789	8,974
1972	7,143	4,389	2,754	3,932	338	4,270	7,024	11,417	9,551
1973	7,119	4,140	2,979	4,614	530	5,144	8,123	12,262	10,391
Total	36,867	14,976	21,891	42,037	2,829	44,866	66,757	82,015	76,041

In 1965, fewer than 300 doctors from countries in Asia became U.S. immigrants; in 1972 and 1973, the annual number was well over 5000.

Not only were thousands of physicians already in the United States on temporary visas able to change to immigrant status under the new arrangements, but a substantial number of physicians continued to enter the United States on exchange visitor and other temporary visas and subsequently changed their visa status.

The effects of the legislation were complicated, however, by continuing changes in the visa system. During an interim period between 1965 and 1968, before the 1965 law became equally applicable to all countries, the old immigration quotas of the 1952 law were maintained in modified form. When the quota of any country was undersubscribed, the unused visas were put into a pool from which they were made available to applicants from countries whose quotas were filled. The results of this interim legislation were reflected in the published statistics in an immediate increase in the number of Asian physicians who became immigrants: 285 in 1965, 708 in 1966, 1326 in 1967, 1307 in 1968. These numbers were to rise again in 1969 and in 1971 as the 1965 law, and a 1970 change in the law covering exchange visitors, took effect. Before 1971 an exchange visitor who wanted to become an immigrant was required to leave the United States for a period of 2 years before applying for admission as an immigrant; to avoid the 2-year rule a formal application for a waiver had to be made to the Secretary of State on the grounds that admission to the United States as an immigrant was in the public interest or that the enforced absence of the individual would constitute an undue personal hardship. The 1970 law (Public Law 91-225) virtually abolished the 2-year requirement. Under the new provisions exchange visitors—with some exceptions (*10*)—were allowed to begin the process of visa "adjustment" at any time after arrival in the United States.

The new legislation offered an immediate incentive to exchange visitors already in the United States to take advantage of adjustment procedures. However, the published statistics from INS and from the National Science Foundation made it impossible to tell how many physicians were in fact doing so. Throughout the various changes the separate publication of two sets of statistics, one for all immigrants in a given year, and one for temporary visitors, confused the picture. INS did not note in its regularly published statistics how many of the new immigrant physicians were in fact already in the United States under temporary visa arrangements when they became "immigrants." It had no particular interest in doing so. From the point of view of those overseeing immigration laws, the salient question is whether persons admitted as immigrants are properly qualified under the legislation and its regulations. In the INS statistics the phrase "admitted as an immigrant" means "qualified to reside in the United States permanently and to apply to become a United States citizen"; the date of such "admission" has no necessary correlation with the date the individual actually arrived in the United States. Exchange visitors are dealt with under different arrangements, hence figures relating to their entry are tabulated separately (*11*). The result has been the double counting already described.

Tables 1 and 2, based on published and unpublished data from the INS and the National Science Foundation, represent the first attempt to measure the net annual migration of physicians to the United States under the changed laws. The analysis was designed to answer the following crucial questions: Has there been, as is generally assumed, a large increase in the flow of foreign physicians into the United States since the 1965 Immigration Act? Has there been a massive inflow of Asian physicians and a reduction in the number arriving from Western Europe?

Limitations of the Data

Some limitations in the data should be noted. Together with the State Department, the INS is concerned with administering a series of visa programs, some more important than others. More information is available about immigrants than about exchange visitors and temporary workers; and there is very little information about the host of nonworking visitors, students, and others who enter the United States each year. Of nonimmigrant physicians the tables presented here include only those who came to the United States on visas designating them as exchange visitors, as temporary workers of distinguished merit, as persons rendering services not available in the United States, and as industrial trainees. Other physicians do come to the United States—for example as students, visitors, or refugees—and some of these may also change to immigrant status once here (*12*).

A more serious limitation appears when regional and national comparisons are attempted. Immigration statistics are usually tabulated according to both country of birth (since the INS is interested in citizenship) and country of last permanent residence; but "adjustment of status" figures are calculated only on the basis of country of birth. Exchange visitor and other temporary visas are tabulated according to country of last permanent residence or nationality (on the grounds that that is the country to which, presumably, the temporary visa holder will return). Data describing countries and regions are therefore only approximate. Cross-matched studies

show that approximately 80 percent of all physicians "admitted as immigrants" enter the United States directly from permanent residence in their native countries (*13*).

The Revised Estimates

Basic information on the migration of physicians since 1965 is given in Table 1. The table shows that a substantial proportion of the increase in the number of immigrants since 1965 reflects adjustment of status by physicians already in the United States. It can be seen that changes took place in two stages, the first beginning in 1966 (following the passage of the 1965 legislation), the second in 1971 (when the 1970 legislation took effect). At both times there was a sharp rise in the proportion of immigrants who adjusted their visa status. The number of immigrants who were new arrivals to the United States also increased but at a much slower rate. By 1973, only 42 percent of new "immigrants" (2979/7119) were actually new arrivals to the United States, compared with 94 percent (1900/2012) in 1965.

The number of nonimmigrant new arrivals shows fluctuations year by year but no major trend over the 9-year period. Total new entries also show no clear trend. The highest entry of physicians, immigrants and nonimmigrants combined, was in 1968, chiefly because of an unusually high number of exchange visitors in that year. All together, 66,757 foreign physicians actually entered the United States between 1965 and 1973 inclusive. Of these, 21,891 entered as immigrants and 44,866 on temporary visas. Over the same period, 14,976 physicians had their visas adjusted from temporary to immigrant status. Some of these had entered the United States before 1965; others entered during the period and are counted in the nonimmigrant tabulations.

The importance of taking adjustments into account in checking assertions regarding migration from particular world regions is illustrated by reviewing visa and migration trends from countries in Asia (*14*). Of the total of 5414 Asian doctors who became immigrants in 1973, 65 percent did so by adjustment of status; only 1891 were new entrants. The adjusted figures show almost a doubling in the annual arrival of Asian FMG's between 1965 and 1968, from 2376 to 4157, respectively. After 1968 the annual average was only 3678, with 3754 entering in 1973. Thus, there has been no rapid increase in the annual entry of doctors from countries in Asia since 1968, contrary to projections which do not take into account adjustments of visa status.

Table 2. New entries of immigrant and nonimmigrant physicians into the United States, by continents, 1965 to 1973. Immigrants are counted according to country of birth, nonimmigrants according to country of last permanent residence. [Data from (*16*)]

Fiscal year	North and Central America	South America	Europe	Asia	Africa	All other areas
1965	1,282	528	1,567	2,376	*	261*
1966	1,206	538	1,637	2,980	*	267*
1967	1,147	562	2,211	3,838	207	150
1968	1,228	706	2,002	4,157	219	93
1969	959	526	1,722	3,331	273	128
1970	1,031	599	1,922	3,571	365	142
1971	1,221	821	1,359	4,106	303	69
1972	920	737	1,367	3,630	274	96
1973	1,193	946	1,598	3,754	471	161
Total	10,187	5,963	15,385	31,743	2,112*	1,367

*African entrants for 1965 and 1966 are included under "All other areas."

Similar findings emerge when other regions of the world are examined (Table 2). There has been no major decline in the number of doctors coming to the United States from Europe since 1965. In 1965 the number was 1567; in 1973 it was 1598. The peak year was 1967, with 2211 entrants. The annual numbers of entrants from North America, Central America, South America, and Africa also have shown neither rapid nor consistent increases since 1968, although some year-to-year changes have been marked.

Of the total of 66,757 physicians entering the United States between 1965 and 1973, inclusive, 23 percent came from Europe, 48 percent from Asia, 15 percent from North and Central America, 9 percent from South America, 3 percent from Africa, and 2 percent from other areas. As the number of entrants has risen, the proportions from different regions has changed somewhat, but by no means as much as has been generally assumed. For example, in 1965, 26 percent of the entrants came from Europe and 40 percent from Asia; in 1973, 20 percent came from Europe and 46 percent from Asia.

Summary and Conclusions

The importance of FMG's to the supply of physicians in the United States, and current debates over whether this supply is reasonable in relation to requirements, underline the urgent need for accurate statistics. Virtually all the published papers and projections drawn from INS data to this date have been erroneous. The exaggeration in the projections has been profound.

The corrected figures for new entrants to the United States are not only much lower than has been accepted but show different trends. The two sets of figures show a massive difference of more than 15,000 physicians over the period 1965 to 1973. If we assume that, as recent surveys have shown (*15*), at least two-thirds of the physicians entering are likely to remain in the United States, the use of uncorrected data leads to overestimating the long-term contribution of FMG's by more than 10,000 physicians within a 9-year period.

Moreover, instead of showing a pattern characterized by sharp increases in 1967 and 1971, the corrected estimates indicate a more gradual increase in annual migration over the period. An average of approximately 7300 physicians a year entered in the years 1965 to 1968, compared with 7500 between 1969 and 1973. If we compare only 1965 and 1973, our revised figures show an increase in the annual entry of physicians of 35 percent; the uncorrected figures would give an increase of as much as 92 percent. The increase is still substantial, but far less than has been previously suggested. For 1973 there was more than a 50 percent discrepancy between the two sets of figures—a direct reflection of increases in the "adjustments of status," which are accounted for in the revised figures.

These facts cannot be too strongly stressed, as previous projections have helped fuel what appears to be a general backlash against foreign physicians, particularly those from Eastern countries. Furthermore, there is the possibility, as a result of new legislation, that the number of incoming FMG's will be sharply reduced in the next few years, with erroneous data being used as justification.

The primary reason for the unsatisfactory state of affairs is that no one agency has been responsible for the production of accurate data on physician manpower. The principal conclusion of this paper is that the need for assigning such responsibility is urgent. Whether the agency is governmental, such as the Department of Health,

Education, and Welfare, or professional, for example the American Medical Association, is far less important than that accurate information be available.

The second conclusion is that assumptions relating to FMG's should be regarded as not proven until incontrovertible evidence is available.

References and Notes

1. T. D. Dublin, *Science* **185**, 407 (1974).
2. R. Stevens, *Prism* **3**, 10 (February 1975); S. S. Mick, *Sci. Am.* **232**, 14 (February 1975).
3. Office of International Health Manpower Studies, Bureau of Health Resources Development, Department of Health, Education, and Welfare, *Foreign Medical Graduates and Physician Manpower in the United States*, DHEW publication No. (HRA) 74-30 (1974).
4. Foreign medical graduates constituted 31 percent of interns and residents in 1973–74, as against 25 percent in 1963–64 [*J. Am. Med. Assoc.* **231** (Suppl.), 49 (1975)]. According to records of the American Medical Association, there were 31,000 FMG's in the United States in 1963 and 71,000 in 1973 [C. N. Theodore and J. N. Haug, *Selected Characteristics of the Physician Population in 1963 and 1967* (American Medical Association, Chicago, 1968), p. 294; J. Warner and P. Aherne, Eds., *Reference Data on Profile of Medical Practice* (American Medical Association, Chicago, 1974), p. 111].
5. Such estimates are in wide circulation. We ourselves may have contributed to their use: In a study published in 1972 we noted that the combined totals of FMG immigrants and exchange visitors rose from 6172 in 1965 to 10,540 in 1971, asserted that 33,000 FMG's entered between 1968 and 1971 alone, and asked, "Is the United States to capture an ever-increasing supply of the world's physicians . . . ?" (*6*, pp. 91, 96). Dublin, quoting the same combined figures, states that the American output of physicians rose by 25 percent in the decade 1962–71 whereas "the importation of FMG's has increased 83 percent in this decade" [T. D. Dublin, *N. Engl. J. Med.* **286**, 870 (1972)]. A report issued by the Association of American Medical Colleges asserts that the number of FMG's admitted annually to the United States rose from 6172 in 1965 to 12,285 in 1973 and also notes a "major shift in nationality of physicians coming to the United States," with the proportion of Asians increasing dramatically [Task Force on Foreign Medical Graduates, Executive Council of the Association of American Medical Colleges, *J. Med. Educ.* **49**, 811 (1974)]. A report issued by the Department of Health, Education, and Welfare, although it remarks on the existence of double counting in its data presentation, concludes that "increasing numbers of FMGs are entering the United States each year and that more FMGs are coming from Asia" (*3*, p. 66).
6. R. Stevens and J. Vermeulen, *Foreign Trained Physicians and American Medicine*, DHEW publication No. (NIH) 73-325 (Department of Health, Education, and Welfare, Washington, D.C., 1975).
7. *Brain Drain: A Study of the Persistent Issue of International Scientific Mobility*, committee print, prepared for the Subcommittee on National Security Policy and Scientific Developments, Committee on Foreign Affairs, House of Representatives, by the Foreign Affairs Division, Congressional Research Service, Library of Congress (September 1974), p. 4.
8. The development of visa programs and the relative roles of the various agencies are described in (*6*).
9. Quota immigrants are limited to a total of 290,000 a year for all occupations—170,000 from the Eastern Hemisphere (with a further limit of 20,000 per country) and 120,000 from the Western Hemisphere. There are each year some immigrants who are exempt from Eastern and Western Hemisphere numerical limitations. In 1973 there were 117,152 of these, 100,953 of whom were immediate relatives—spouses or parents—of U.S. citizens; this group accounted for 7 percent of immigrant physicians in that year.
10. Exchange visitors financed by their own governments or by the United States government are exceptions to this privilege, as are those deemed necessary to the country of last permanent residence according to the application of a "skills list" developed by the State Department. However, the skills list provision does not apply to those who entered before May 1972.
11. Basic figures are published in the *Annual Reports* of the INS. The National Science Foundation publishes a brief annual report on the immigration of scientists, engineers, physicians, and surgeons, and more comprehensive information intermittently. All the National Science Foundation's information, published and unpublished, is based on figures provided by the INS.
12. Figures on the number of physician temporary visitors who adjust status are not available. In a survey of interns and residents in the United States in 1974, we found less than 4 percent of a sample of 672 FMG's on visas which were not permanent resident, exchange visitor, temporary worker, or other H visas. Of the 637 FMG's who arrived between 1965 and 1973, 11 percent had entered as students, parolees, refugees, or visitors. Details of this study will be reported shortly.
13. Dublin (*1*, table 5) presents data for eight Asian countries, and also Egypt, the United Kingdom, and Canada, pertaining to FMG's "admitted" in 1972. Of the 5070 born in the eight Asian countries, 82 percent—including 60 persons born in mainland China—had entered the United States from their native countries: 5 percent had entered from another of the eight countries—for example, many born in China had come from Taiwan, many born in Pakistan from India; 6 percent had come from Canada or the United Kingdom.
14. Further studies are needed to determine how many physicians enter the United States on temporary visas directly from countries of which they are not citizens (for example, an Asian or Latin American physician may work for a time in the United Kingdom or Canada and then move to the United States). These need to be subtracted from the annual migration rates of the countries of last residence and added to the migration rates of the countries of which they are citizens.
15. J. N. Haug and R. Stevens, *Inquiry* **10**, 26 (March 1973); R. Stevens, L. W. Goodman, S. S. Mick, *ibid.* **11**, 112 (June 1974).
16. National Science Foundation, *Reviews of Data on Science Resources*, No. 13, NSF publication No. 68-14 (March 1968), p. 12; *ibid.*, No. 18, NSF publication No. 69-36 (November 1969), pp. 5, 12, 14; *Scientists, Engineers, and Physicians from Abroad, Fiscal Years 1966 and 1967* (National Science Foundation, Washington, D.C., 1969), pp. 5, 23; *Scientists, Engineers, and Physicians from Abroad: Trends Through Fiscal Year 1970* (National Science Foundation, Washington, D.C., 1972), pp. 7, 28, 38; *Science Resources Studies Highlights*, NSF publication No. 73-311 (20 August 1973), p. 2; *ibid.*, NSF publication No. 74-302 (29 March 1974), p. 2; unpublished data from the National Science Foundation, from data of the Immigration and Naturalization Service.
17. *J. Am. Med. Assoc.* **226**, 910 (1973).

18. Supported by grant USPHS 1-RO1-HS-00767 from the National Center for Health Services Research, Health Resources Administration (formerly the National Center for Health Services Research and Development, Health Services and Mental Health Administration), Department of Health, Education, and Welfare. Our thanks are due to staffs of the Department of Justice, Immigration and Naturalization Service, and of the National Science Foundation, for providing data for this analysis.