

Working Paper #96

**The Changing Geography of
Americans Graduating from
Foreign Medical Schools**

March 2005

by

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This project was funded by the U.S. Department of Health and Human Services, Health Resources and Services Administration, Bureau of Health Professions, National Center for Health Workforce Analysis, Grant No. 6 U79 AP 00003-06.



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The WWAMI Center for Health Workforce Studies is supported by the Bureau of Health Professions' National Center for Health Workforce Information and Analysis. Grant No. 1U76-MB-10006-03; \$250,000; 100%.

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The Changing Geography of Americans Graduating from Foreign Medical Schools

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ABSTRACT

One in ten foreign-trained physicians practicing in the United States is known to have been born in the United States. American physicians graduated from foreign medical schools in increasing numbers since the 1960s. The number of U.S. physicians who graduated from a foreign medical school peaked in the early 1980s, but the phenomenon endures today. However, the countries in which these physicians choose to attend medical schools have changed significantly from the 1950s to the early 2000s. Over time, U.S.-born physicians are much less likely to train in Europe and much more likely to train in certain Caribbean countries. U.S.-born physicians who graduate from medical schools abroad tend to train in just a handful of countries and attend a limited number of medical schools. This study was conducted from 2003-2004 at the Center for Health Workforce Studies, University of Washington.

INTRODUCTION

One in ten of the physicians who received their medical school training abroad, but practice in the United States, is known to be U.S.-born. U.S. physicians first trained abroad during the early 1900s, when training in European schools was thought to complement a physician's education.¹ In the 1930s, some prospective American physicians who were denied admission at U.S. medical schools turned to Europe for medical training.²

Beginning in the 1950s, increasing numbers of Americans trained abroad, either as a first choice or because they failed to obtain entrance into U.S. schools. Between the 1950s and the mid-1970s, U.S. medical school admission became more restrictive and numbers of slots declined relative to residency program opportunities. Competition in the United States, coupled with the ability to return there for residency training made overseas medical education attractive for U.S. students, especially in Italy, Belgium, Spain, France, and Switzerland.³ In response to rising demand for medical education from their own citizens, European schools placed restrictions on the admissions of American students.⁴ Schools in Mexico, particularly the Autonomous University of Guadalajara, responded by increasing recruitment of U.S. students. Additionally, new "offshore" foreign schools opened during the late 1970s and the early 1980s. These schools differ from other foreign schools in that they operate almost entirely for training U.S. citizens. The first such offshore school, St. George's University in Grenada, opened in 1977 and almost two-dozen other offshore schools appeared between the mid-1970s and mid 1980s throughout Mexico and the Caribbean, with a few in Central America and the Philippines.⁵ The growth in offshore schools continued into the 1980s but then declined. Academic and policy attention to U.S.-born, foreign-trained physicians has similarly waxed and waned.

American-born physicians have continued to graduate from foreign medical schools, but there is little information on where they graduated and how their numbers (about 17,097 in active practice in the United States in 2002) compare to previous years. This paper revisits U.S.-born international medical graduates (USIMGs) in order to analyze their changing numbers and the geography of where they train. How many are there? Where do they train? Has this changed over time? What changes might we expect in the future?

To begin, it is helpful to understand exactly who is counted as USIMGs in this study. Country of medical school graduation, rather than citizenship, defines the international medical graduate (IMG)* label. Thus, all students who attend medical school outside the United States are considered IMGs, even if they are U.S. citizens. U.S.-born physicians who graduate from medical schools abroad comprise the entire subcategory of USIMGs. The single exception is the graduate of a Canadian medical school; most physicians who attend medical school in Canada (7,989 of active physicians in the United States in 2002) are not considered IMGs. The rationale behind excluding Canadian physicians from the IMG definition is that the Canadian medical education system is similar to that of the United States. The Liaison Committee on Medical Education (LCME), the body that accredits U.S. medical schools on behalf of the Association of American Medical Colleges (AAMC) and the American Medical Association (AMA), offers reciprocal accreditation to Canadian medical schools accredited by the Committee on Accreditation of Canadian Medical Schools. Canadians are, however, still subject to relevant immigration requirements; for full details see Johnson et al.⁶

Popular perception is that USIMGs could not get into U.S. schools; and indeed some do not have the grades or examination scores to do so. However, some students prefer to attend a foreign medical school. Johnson et al.⁷ found that 55 percent of the 10,460 U.S. citizens who sat for the Educational Commission on Foreign Medical Graduates[†] (ECFMG) examination between 1978 and 1982 had not applied to a U.S. medical school. Presumably, some of these students sought particular educational or living experiences unique to the foreign setting of the schools they chose. Foreign schools also provide a safety valve for those applicants who face difficulty with admission in the United States—typically older applicants or other health professionals.⁵ Cost may also be a consideration; although offshore school tuition is on par with domestic medical schools, living costs in some countries are lower.

U.S. students who have trained abroad but wish to return to the United States for the last part of medical

school or for residency training have three options: transfer to a U.S. school, apply for residency positions through the ECFMG process, or, from a few schools, enter the “Fifth Pathway” Program. The Fifth Pathway program was established in 1971, so named because it provided an additional route into hospital residency programs beyond the four that previously existed.[‡] It provides an opportunity for one year of clinical training in New York State that circumvents the otherwise mandatory fifth year internship in Mexico that U.S. students and educators argue is inappropriate, and thus unnecessary, training for U.S. practice.⁹ Fifth Pathway students can enter residency training without ECFMG certification or a medical degree. Most residency programs and state medical licensing authorities accept the Fifth Pathway program as a qualification for medical practice. In 2004, 171 Residency Match applicants were Fifth Pathway participants.¹⁰

METHODS

To assess USIMGs’ characteristics, we conducted a cross-sectional analysis of the March 2002 American Medical Association (AMA) data.¹¹ We analyzed data on the 682,185 active, patient care physicians working in the United States in 2002, including residents. Of these physicians, 477,140 (69.9%) were born in the United States, 6,639 (1.0%) were born in Canada, and 104,667 (15.3%) were born in countries other than the United States or Canada. Birth country data are missing for 93,739 (13.7%) physicians in the file, including for 44.9% of graduates from foreign medical schools. We excluded physicians in federal employment, such as the prison or VA systems. We produced descriptive statistics on country of birth, country of medical school training, and year of training for all foreign-trained physicians whose birth country is known. We confined the analysis to physicians engaged in direct patient care because most policy and academic interest in USIMGs pertains to physicians engaged in clinical practice. We supplemented information from the AMA data with National Resident Matching Program^{10,12-14} statistics, foreign medical school Web sites, and published literature.

This study was conducted from 2003-2004 at the Center for Health Workforce Studies, University of Washington. It was approved by the University of Washington IRB.

RESULTS

HOW MANY USIMGS ARE THERE?

A total of 17,097 patient care physicians known to have been born in the United States graduated from medical schools abroad. These physicians comprise 11 percent of all foreign-trained physicians and 4 percent of all U.S.-born physicians. The remaining analysis is based on these physicians (i.e., those known to be both U.S.-born and graduates of foreign medical schools). An additional 1,565 USIMGs were employed in the United States in a non-patient care capacity.

IN WHICH COUNTRIES AND SCHOOLS DO USIMGS GRADUATE FROM MEDICAL SCHOOL?

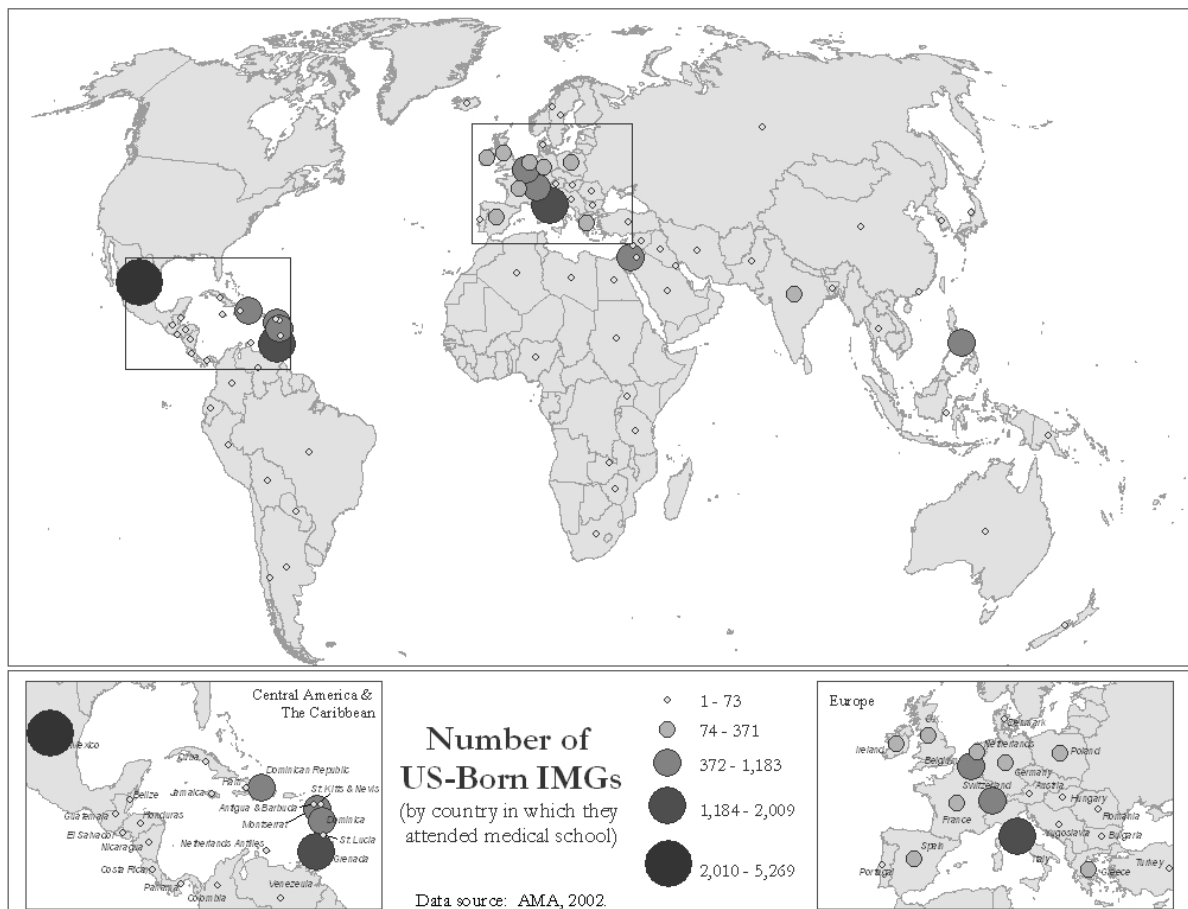
As Figure 1 illustrates, known USIMGs trained in 83 countries, in all parts of the world. Ninety-four percent of USIMGs graduated from medical school in only 20 countries, as depicted in Table 1. Further, 58 percent graduated from schools in the Caribbean and Mexico alone, and when limited to only graduates during the

last decade, that number rises to 65 percent. The top five USIMG-graduating countries are Mexico, Italy, Grenada, the Dominican Republic, and Montserrat.

Table 1 illustrates that countries that train the most USIMGs produce a relatively higher proportion of USIMGs to foreign-born IMGs, compared to other foreign countries. This pattern suggests that the schools that graduate a large number of USIMGs focus on training U.S.-born students who ultimately practice in the United States, although this observation is difficult to document in the absence of comprehensive data from multiple countries. Over half the IMGs now in the United States who were trained in Mexico, Italy, Montserrat, Switzerland and Belgium were U.S.-born. At least 20 percent of IMGs from Grenada, the Dominican Republic, Dominica, Israel, the Netherlands, and France are also known to be U.S.-born.

In addition to training in only a handful of countries, most known USIMGs come from a couple dozen medical schools. Only 25 schools in the world have

Figure 1: Where Did Currently Practicing USIMGs Attend Medical School?



Note: birth country data available for 55% of IMGs.

Table 1: U.S.-Born, U.S.-Based Physicians Practicing in Patient Care Who Graduate from Foreign Medical Schools, by Country

Country	# (%) USIMGs Graduated	% of all Foreign Country Medical School Graduates in the U.S. Known to Be U.S.-Born	# Schools that Graduated USIMGs	# Schools that Graduated > 100 USIMGs	% of All IMGs Graduating from Schools that Graduated > 100 USIMGs
Mexico	5,269 (30.8)	56.1	35	6	60.1
Italy	2,010 (11.8)	53.9	26	3	66.1
Grenada	1,512 (8.8)	44.7	1	1	44.7
Dominican Republic	1,184 (6.9)	30.4	13	3	40.7
Montserrat	1,072 (6.3)	51.7	1	1	51.7
Dominica	829 (4.8)	36.1	1	1	36.1
Switzerland	621 (3.6)	54.0	5	2	60.8
Philippines	588 (3.4)	3.8	21	3	3.4
Belgium	558 (3.3)	49.7	7	2	51.7
Israel	531 (3.1)	28.2	4	1	41.6
Spain	372 (2.2)	18.0	20	0	0
Ireland	257 (1.5)	15.7	6	2	17.1
Germany	228 (1.3)	9.3	40	0	0
France	226 (1.3)	24.3	34	0	0
India	199 (1.2)	0.6	72	0	0
United Kingdom	163 (1.0)	6.1	33	0	0
Netherlands	152 (0.9)	28.8	6	0	0
Greece	123 (0.7)	11.2	5	0	0
Poland	119 (0.7)	5.8	8	0	0
Columbia	74 (0.4)	3.9	15	0	0
All other countries	1,010 (5.9)	1.6	217	0	0
Total	17,097	11.0	570	25	36.4

Source: AMA (2002).

Note: birth country data available for 55% of IMGs.

graduated more than 100 current USIMGs. In total, they have graduated 75 percent of currently practicing USIMGs. These schools are located in 11 countries: Mexico, Italy, Dominican Republic, Philippines, Switzerland, Belgium, Ireland, Grenada, Montserrat, Dominica, and Israel. In the 1980s, two schools, Universidad Autonoma de Guadalajara in Mexico and St. George's University School of Medicine in Grenada, each graduated more U.S.-born physicians currently practicing in the U.S. than the average U.S.-based school (i.e., 1,455 and 1,021, compared to 956). In the 1990s, the top five medical schools from which USIMGs graduated were St. George's in Grenada, Ross University in Dominica, American University of the Caribbean in Montserrat, Tel Aviv University in Israel, and Universidad Autonoma de Guadalajara in Mexico. Individual schools in France, Italy, the United Kingdom, the Dominican Republic and Montserrat have graduated more U.S.-born doctors that now practice in the United States than nationals of their own countries who now practice in the United States.

Some USIMGs graduate from medical schools in countries that produce very few USIMGs (for example, Indonesia, Libya, Papua New Guinea, Uganda, Tanzania and Zambia). These physicians are likely influenced by unique personal circumstances, rather than attending schools that are actively recruiting U.S. students.

HAVE THE COUNTRIES IN WHICH USIMGS TRAIN CHANGED OVER TIME?

The pattern of foreign countries and schools where known USIMGs train has changed from the 1950s to today. As Figure 2 illustrates, the majority of currently practicing USIMGs who trained in Belgium, France, Germany, Greece, Ireland, Italy, Mexico, the Netherlands, Spain, Switzerland, and the UK graduated before 1980. This pattern shifted remarkably during the 1980s; the majority of USIMGs who trained in Columbia, Dominica, the Dominican Republic, Grenada, Israel, Montserrat, the Philippines and Poland graduated between 1980 and 1989. Only four countries have continued to train large numbers of USIMGs into the 1990s: Dominica, Grenada, Israel, and Montserrat each graduated over one-quarter of their currently practicing USIMGs in the 1990s.

Several countries began to train or expanded their training of USIMGs in the 1990s. These countries include the Netherlands Antilles (in the Caribbean), Nigeria, Hungary, Thailand, Saudi Arabia, Sudan, Belize, Indonesia, Libya, Papua New Guinea, Uganda and Tanzania. These schools are not just training Americans, but rather appear to be recruiting an international student body. For example, health sciences students at Hungary's University of Debrecen

in the 2003/2004 academic year include 82 Americans, 75 Iranians, 182 Israelis, and 202 Norwegians.¹⁵ Some countries that graduated small numbers of USIMGs in the past have not done so in the 1990s. These countries include Portugal, Honduras, Japan, Denmark, Iceland, and Zimbabwe.

WILL THE NUMBER OF USIMGS GROW, DECLINE, OR REMAIN STABLE?

About 44 percent of currently practicing known USIMGs graduated from medical school between 1981 and 1990. Only 12 percent, however, graduated after 1990, which suggests that the numbers of USIMGs may be leveling off. We compared this observation from the AMA data to the NRMP residency match data. Most students are placed in residency slots through the annual residency match, so the residency match data are good indicators of trends in the physician pipeline.

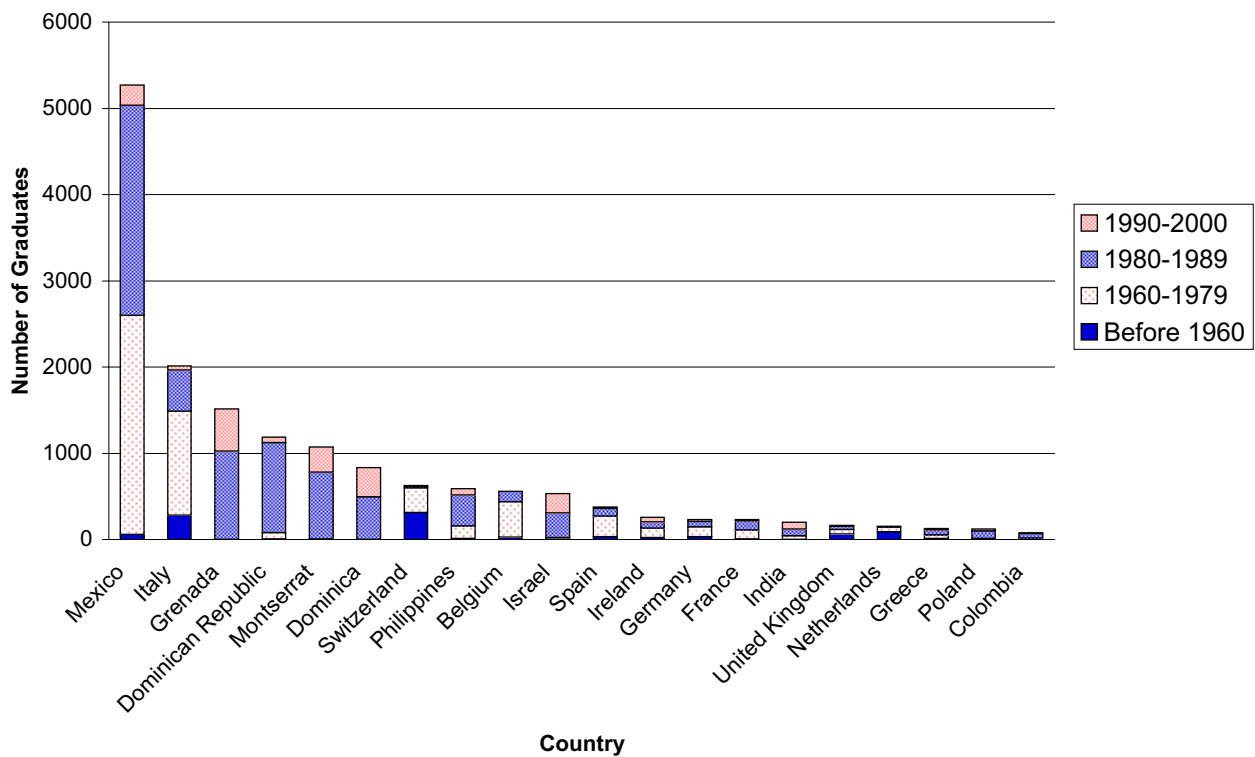
Analysis of NRMP data does not support a downward trend in USIMGs. Figure 3 shows a decline in the number of USIMGs who matched beginning in the 1980s (both Fifth Pathway and not), but in the mid-

1990s rates and numbers began to increase again. In general, IMG match trends follow those of all applicants, but periods of increased competition for residency positions, especially in the late 1980s, affect foreign-born IMGs most, indicated by a relatively small percentage of matches. The apparently smaller numbers of USIMGs in the 1990s compared to the 1980s may indicate that foreign-educated physicians enter the U.S. pipeline more slowly than domestically-educated physicians. Over the next few years, additional USIMGs who trained during the 1990s will probably start U.S. practice.

DISCUSSION

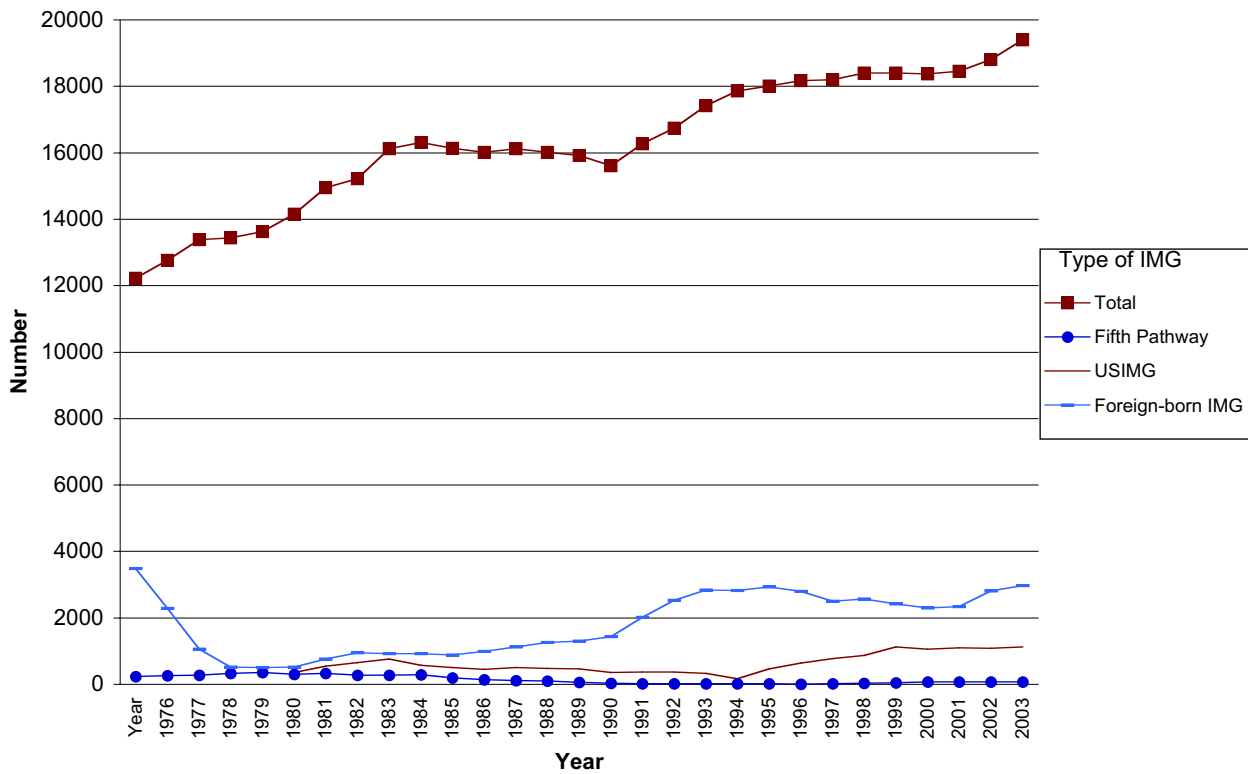
Our findings show that Americans continue to attend medical school abroad in large numbers. Residency data indicate that over 1,000 USIMGs have entered the physician workforce each year since 2000, suggesting a new growth spurt surging from a low of 166 USIMGs matching to residency positions in 1995. Small numbers of U.S.-born physicians have trained at foreign medical schools for decades. However, the geography of where the majority of students train has

Figure 2: Number of Currently Practicing, U.S.-Based USIMGs Graduating from Schools in Elected Countries, by Year



Source: AMA (2002).
Note: birth country data available for 55% of IMGs.

Figure 3: Number of IMGs Matched to Residencies through the National Resident Matching Program, by Type of IMG and Year



Source: NRMP (1984, 1990, 1997, 2004).

changed over time, with a declining portion training in Europe and an increasing portion in the Caribbean, India, and Israel. A variety of other countries also continues to provide U.S. students with medical school training.

The USIMG pipeline from offshore schools in the 1970s narrowed during the 1980s when the number of residency positions declined.¹⁶ Simultaneously, opinions of politicians and educators about USIMGs, and particularly offshore schools, became increasingly negative between the early 1970s and late 1980s. Debates about the quality of offshore schools were prominent, playing out on the pages of *The Lancet*^{17,18} and *The New England Journal of Medicine*^{19,20} and fueled by General Accounting Office site visit reports in 1980²¹ and 1985.²² By 1986, IMG numbers dropped slightly below 1980 levels and the proportion of IMGs that were U.S.-born declined to near where it had been in 1982.

Existing literature does not account for the currently continuing and possibly increasing entry of USIMGs into the U.S. physician workforce. This phenomenon can be attributed to the continued competition for U.S. medical school positions and declining concerns about the quality of training provided in foreign medical

schools. Efforts to limit the entry of unqualified physicians into the U.S. pipeline continues—most recently with the addition of the Clinical Skills Assessment portion of the ECFMG examinations and the adoption of new state and federal standards that restrict graduates of medical schools considered to be inferior from entering internship, residency or state licensing.

In a move toward more generous consideration of foreign schools, meanwhile, the AAMC conducted site visits to offshore schools in 2004, in consideration of an LCME role in helping U.S. medical education and licensing bodies better assess the suitability of the curriculum at foreign schools for U.S. practice, perhaps even leading to foreign medical school accreditation. These developments may provide additional opportunities for U.S. students to attend medical school abroad and easily continue into U.S. residency programs. “Offshore schools obviously aren’t going away, so it’s clearly absurd to think we shouldn’t know more about what kind of educational experience they’re providing and what we can do to be more helpful,” the current AAMC Senior Vice President, Division of Medical Education, Michael E. Whitcomb, recently remarked.²³

LIMITATIONS

The AMA data used as the primary data source for this analysis introduces some limitations. First, we assessed retrospective patterns based on a current cohort. To validate the distribution of country of training in our cohort, we compared the information on USIMGs who sat for the ECFMG exams from 1969-1982.² Overall, Dublin and colleagues' numbers (but not proportions) were higher, explained by the common phenomenon of students taking the written ECFMG examination more than once. The rank order of Dublin's country graduation data was largely consistent with ours. Second, the data source tells us the least about the most recent IMGs since it takes some time for them to enter the U.S. medical workforce pipeline and for relevant data to be recorded in the AMA data file. Third, the AMA file lacked birth country information for 93,739 (13.7%) physicians. We assume that most of these physicians are foreign-born since 74 percent of them were foreign-trained. Said another way, 44.9 percent of IMGs were missing country of birth compared to 4.6 percent of U.S.- and Canadian-trained physicians. However, it is probable that some of these physicians are U.S.-born; thus our analysis probably undercounts USIMGs.

The secondary data source used in this paper also prohibits us from fully understanding some of the patterns that we described above. Additional research is required to comprehensively answer questions about why students go to foreign schools and why foreign schools recruit U.S. students. Finally, primary data collection from foreign schools would be required to learn more about what percentage of all graduates of foreign schools (not just those that locate within the U.S.) are U.S.-born.

CONCLUSION

While only 4 percent of U.S. physicians known to have been born in the United States attended medical school in foreign countries, these physicians represent at least 11 percent of the physicians we call IMGs. Americans continue to pursue medical education abroad. The majority of USIMGs trained in just a dozen countries and at just two-dozen medical schools. Several foreign medical schools have contributed more graduates to the current practice pool than U.S. medical schools. Currently practicing older USIMGs were most likely to have attended medical school in Europe and Mexico, while more recent USIMGs are most likely to have attended medical school in Mexico and the Caribbean. U.S.-born students comprise a large percentage of the total IMGs from those countries. Offshore medical schools continue to train large numbers of Americans, but in smaller numbers than in the 1980s. The places where U.S.-born students now primarily attend medical school seem to have shifted in the 1970s. Schools in European countries became less prominent and relatively new schools in Caribbean countries became more popular. This pattern changed little in the 1990s and 2000s. However, we are seeing two new developments: (1) greater popularity of schools in different countries than before, especially Hungary, Costa Rica and Israel, and (2) students who successfully enter U.S. practice graduating from a smaller number of schools.

NOTES

* The reader may find it helpful to note the distinction between the acronym IMG, which indicates all international medical graduates, and USIMG, which indicates only those IMGs who are U.S.-born.

† This body assesses the readiness of international medical graduates to enter residency or fellowship programs in the United States.

‡ The other four were: graduation from a U.S. medical school; certification by the ECFMG; full and unrestricted licensure by a U.S. licensing jurisdiction; and passing the Spanish language licensing examination in Puerto Rico.⁸

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