

International Medical Graduates in the US Physician Workforce

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International medical graduates (IMGs) play a vital role in the US health care system. These graduates represent 26% of physicians in practice and 24% of residents in specialty programs. All IMGs go through US medical licensing examination and credentialing verification to receive certification from the Educational Commission for Foreign Medical Graduates to become eligible to enter the US graduate medical education process. Compared with US graduates, IMGs tend to practice in primary care specialties and in underserved and rural areas. The author summarizes available data regarding IMGs in training and in practice to convey the role IMGs play in the US health care system.

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The US physician workforce includes allopathic physicians, osteopathic physicians, and international medical graduates (IMGs), which are grouped based on their medical education. International medical graduates are physicians who received their medical school education outside the United States or Canada.¹ They comprise both US citizens (US IMGs) and citizens of foreign countries (non-US IMGs) who have trained abroad, and they are important segments of the physician population.

The number of physicians trained in US medical schools has been lagging behind demand for physicians over the past several decades, and a shortage of 125,000 physicians is predicted by 2025.² The demand for physicians has resulted in many US health care institutions turning to international medical graduates (IMGs) to supplement their physician workforce. Today, 1 in 4 physicians³ practicing in the United States is trained at a foreign medical school; consequently, IMGs play a crucial role in our health care system. Until major steps are taken to expand the existing US medical education and training infrastructure, the United States' need for overseas medical schools to train physicians is likely to continue. The purpose of the present article is to summarize available data regarding IMGs in training and in practice. These data highlight the gap that IMGs fill in the US health care system.

IMG Certification

For an IMG physician to enter the US workforce, several requirements need to be satisfied. He or she must go through a systematic process of evaluation and credentialing to ensure that all physicians have the same level of training regardless of the place of origin of training. At the core of this process is the Educational Commission for Foreign Medical Graduates (ECFMG).³ This body was established by 6 major regulatory, medical, and educational entities dealing with physician workforce issues: the American Board of Medical Specialties, the American Medical Association, the Association of American Medical Colleges (AAMC), the Association for Hospital Medical Education, the Federation of State Medical Boards, and the National Medical Association.³ Certification has been issued from the ECFMG since 1958 and is the standard for establishing the equivalence of qualifications of IMGs.⁴ Accordingly, all IMGs must obtain ECFMG certification before they qualify to enter a graduate medical education (GME) program in the United States. Certification from the ECFMG is also a requirement for medical licensing, as it is a prerequisite for taking the United States Medical Licensing Examination Step 3.³

Currently, international medical schools are not required to follow a standardized system of accreditation, though they may already follow local or international guidelines as part of their operation. This setup is likely to change, as the ECFMG has announced that by 2023, students who are seeking ECFMG certification should graduate from a properly accredited medical school.⁵ Such an accreditation process should include criteria similar to those used by the Liaison Committee on Medical Education in the United States or criteria accepted by the World Federation for Medical Education.⁵

According to the ECFMG,⁶ 9622 international medical graduates were certified in 2013, which indicates a small decline from 10,815 in 2006. These graduates come from 1089 medical schools located in 143 countries or territories.⁵ English is one of the languages of

instruction in approximately 59% of these medical schools.⁶ Of this group, 30.8% were US IMGs. According to the 2013 ECFMG annual report,⁶ 13.3% of certified IMGs are from medical schools in India, 9.3% from Grenada, 8.5% from Dominica, 5.9% from Pakistan, and 3.8% from St Maarten. The top 5 countries of citizenship of these graduates were the United States, India, Canada, Pakistan, and Nigeria (*Table*).⁶ The majority of US IMGs receive medical education in Caribbean medical schools. Of the 2963 US IMGs who received certificates in 2013, the most common medical schools were in Dominica (674), Grenada (634), St Maarten (294), Antigua and Barbuda (283), and Saint Kitts and Nevis (132).⁶ More than half of US IMGs attended 1 of 4 institutions: Ross University in Dominica (5060 [17.8%]), St. George's University in Grenada (4719 [16.6%]), Universidad Autonoma de Guadalajara in Mexico (2375 [8.3%]), and the American University of the Caribbean School of Medicine in Netherlands Antilles (2271 [8.0%]).⁷

IMGs in Practice

The total number of IMGs practicing in the United States was 200,610 in 2013, constituting approximately 24% of the physician population in the country.⁸ They are originally from 127 countries, and the top 5 countries represented were India, Philippines, Mexico, Pakistan, and Dominican Republic.⁹ The AAMC workforce report¹⁰ indicated that the top 5 states where IMGs practice are New Jersey, New York, Florida, Illinois, and Michigan (*Table*). Their distribution varies widely, with the highest presence in New Jersey (38.6%) and the lowest in Idaho (4.5%).¹⁰

Although IMGs have been playing an active role in the full spectrum of health care services in the United States, 41% of practicing active IMGs are in primary care disciplines as defined by the AAMC, including internal medicine, family medicine/general practice, pediatrics, internal medicine/pediatrics, and geriat-

Table.
Top 5 Medical Schools, Countries of Citizenship, Training States, and Practice States of International Medical Graduates (IMGs)

Top 5...	% ^a
Medical School Countries of 2013 IMGs⁶	
India	13.3
Grenada	9.3
Dominica	8.5
Pakistan	5.9
St Maarten	3.8
Countries of Citizenship of 2013 IMGs⁶	
United States	30.8
India	14.2
Canada	8.6
Pakistan	5.5
Nigeria	2.2
States With Training IMGs,¹⁵ No. (%)	
New York	6948 (22.1)
Pennsylvania	2082 (6.6)
Michigan	1986 (6.3)
Illinois	1679 (5.4)
Texas	1658 (5.3)
States With Practicing IMGs¹⁰	
New Jersey	38.6
New York	37.5
Florida	35.3
Illinois	31.4
Michigan	29.1

^a Data presented as % except where otherwise indicated.

rics.¹⁰ Distribution of active IMGs by discipline shows that internal medicine has the highest number of IMGs (42,141 [21%]) followed by family medicine/general practice (22,965 [11%]), pediatrics (14,509 [7%]), psychiatry (11,250 [6%]), and anesthesiology (9640 [5%]).¹⁰ Active IMG representation varies in each discipline, with the highest percentage in geriatrics followed by nephrology, interventional cardiology, and critical care medicine.¹⁰

In addition, IMGs are more likely to practice in specialties in which a physician shortage would otherwise go unfilled. For example, a higher proportion of IMGs than other graduates serve socioeconomically disadvantaged populations across the United States.^{11,12} They also tend to fill the gaps in workforce demands in rural areas depending on the particular state. One study¹³ reported that 19.3% of IMGs, compared with 10.4% of osteopathic physicians, are practicing in rural areas. An ambulatory care survey¹⁴ published in 2009 found that most office-based IMG primary care physicians are in areas with physician shortages where Medicare and Medicaid patients are overrepresented. Compared with US medical graduates, a higher percentage of IMGs are also in solo practice.¹⁴ More than half of Caribbean-educated IMGs are involved in direct patient care and practicing in primary care specialties.⁷ Overall, IMGs have been taking up opportunities to practice within patient populations that are facing difficulties caused by uneven distribution of the physician workforce.

IMGs in Training

In the 2013-2014 academic year, 17,531 US allopathic graduates, 6693 IMGs, and 2752 osteopathic graduates were in pipeline programs (ie, programs within specialties that lead to initial board certification).¹⁵ In 2013-2014, training programs from the Accreditation Council for Graduate Medical Education comprised 78,180 allopathic graduates (65%), 31,383 IMGs (26%), 10,340 osteopathic graduates (9%), and 193 Canadian graduates

(<1%).¹⁵ International medical graduates comprise a large portion of specialty and subspecialty residents: 23.9% of specialty program residents and 36.3% of subspecialty programs compared with osteopathic graduates comprising 9.1% of specialty residents and 6.5% of subspecialty residents.¹⁵ The largest number of IMGs were in internal medicine (10,033) followed by family medicine (3528), pediatrics (1989), psychiatry (1664), and surgery (1432).¹⁵ Specialties with the largest percentages of IMGs were nuclear medicine (64%), internal medicine (42%), medical genetics (38%), neurology (37%), and pathology (36%). The numbers varied widely across states, with the largest presence in New York (6948) followed by Pennsylvania (2082), Michigan (1986), Illinois (1679), and Texas (1658) (*Table*).¹⁵

The diversity of IMGs contributes to the rich tapestry of ethnicities and cultures represented in the health care workforce, which is likely to be a factor enhancing health outcomes considering the highly diverse nature of the US patient population.⁹ In terms of ethnic origin, according to a 2008 study,¹⁶ IMGs (2000-2005 ECFMG certified group) were more likely than US medical graduates (2004 graduates) to be Asian or Pacific Islanders (39.2% compared with 20% of US medical graduates) and of Hispanic or Latino descent (7.9% compared with 6.4% of US medical graduates). In contrast, 64% of US medical graduates were non-Hispanic white compared with 27.8% of IMGs.¹⁶

The 2014 Match

The National Resident Matching Program (NRMP) data bank categorized IMGs seeking residency into 2 groups: US IMGs and non-US IMGs.¹⁴ A total of 12,467 IMG (both US and non-US IMG) applicants participated in the 2014 match and submitted a rank order list.¹⁷ Applicants who submitted rank order lists, called “active” applicants, have been steadily increasing since 2010, except for 2014 when the total decreased slightly (196 less than in 2013), which was mostly a result of fewer non-US IMG active applicants.¹⁷

A total of 26,678 postgraduate year 1 positions (accredited through the Accreditation Council of Graduate Medical Education) were offered in the 2014 Match. Of 9892 non-US IMG applicants, 7334 were active applicants; of 6952 US IMGs, 5133 were active applicants.¹⁷ The Match rate for non-US IMGs was 49.5% and for US IMGs was 53.0%.¹⁷ In comparison, 17,374 allopathic graduates (94.4% match rate) and 2738 osteopathic graduates (77.7% match rate) participated in the 2014 Match (which does not include osteopathic graduates who participated in the osteopathic Match). Of those who matched to a first-year GME position in 2014, 16,399 were allopathic graduates, 2127 were osteopathic graduates, and 6355 were IMGs.¹⁷ The Match rate was steady for US allopathic participants, and the match rate increased for US IMGs (compared with 2005) and non-US IMGs (compared with 2013). Internal medicine had the largest proportion of IMG matches (42.7%) followed by family medicine (16.7%) and pediatrics (7.5%).¹⁷ Similar to US medical graduates, the majority of IMGs matched into their first-choice residency.¹⁷

Among active applicants, 975 allopathic graduates did not match into a first-year GME position in 2014, whereas 3701 non-US IMGs and 2411 US IMGs did not match.¹⁷ For the first time in 10 years, the number of IMGs who did not match decreased, from 6416 in 2013 to 6112 in 2014.¹⁷

Supplemental Offer and Acceptance Program

A total of 13,276 graduates were eligible for post-Match residency selection in 2014, which is now called the Supplemental Offer and Acceptance Program (SOAP).¹⁷ Participating in SOAP is open to anyone who was registered in the main Match, who unmatched or partially matched, and who is eligible to begin residency in July. The number of non-US IMGs and osteopathic graduates applying in 2014 decreased slightly compared with 2013.¹⁷

Of the 540 unfilled programs with 1181 unfilled positions, 455 programs with 1067 positions participated in SOAP.¹⁷ First-year positions made up the majority of available slots (51.8%). Match results through SOAP were as follows: 609 of 2050 allopathic graduates, 95 of 3724 US IMGs, 81 of 5688 non-US IMGs, and 114 of 752 osteopathic graduates were accepted to a position.¹⁷

These collective Match results suggest that in the current environment, IMGs were able to get into a training program in the US health care system with a match rate of about 50%.

IMGs Waiting for Residency

Approximately 9326 IMGs were eligible to start a residency in July 2014 but did not match to a residency.¹⁷ Meanwhile, since 2002, the number of trainees entering GME positions has increased 5% but the number of funded first-year residency spots has increased by 1.4%.¹⁸

The total number of residency programs increased slowly over the past 10 years, from 8037 in the 2004-2005 academic year to 9527 in the 2013-2014 academic year, and the number of total GME trainees increased from 101,810 to 120,108.¹³ Pipeline programs increased from 4306 to 5588 and residents entering pipeline programs increased from 24,069 to 27,004 during the same 10-year period. With the implementation of the Patient Protection and Affordable Care Act, Kirch et al¹⁹ predicted a shortage of 91,500 physicians in 2020. Both the AAMC and the American Association of Colleges of Osteopathic Medicine have been actively taking steps to increase matriculation in US allopathic and osteopathic schools, as well as to establish new allopathic and osteopathic medical schools in the United States to meet the demand. In fall 2013, first-year allopathic medical school enrollment was 20,055, and in fall 2014, osteopathic enrollment was 6,786.^{20,21} If these students graduate on time and the number of PGY-1 residency slots does not

substantially increase, competition to get into residency programs will likewise also increase among all of the graduates. However, with efforts of various interested stakeholders involved in health care reform, more GME positions will be available within the next few years. With the adoption of a single GME accreditation system for osteopathic and allopathic residency positions, additional GME positions previously available only to osteopathic graduates may add to the overall pool of GME opportunities.

Conclusion

International medical graduates currently represent a quarter of the physician workforce and physicians in training. They have long been an integral part of the US health care system, contributing substantially to primary care disciplines and providing care in underserved populations. As the US health care system continues to evolve, leaders must recognize the important role that IMGs fill.

References

1. International medical graduate (IMGs). American Medical Association website. <http://www.ama-assn.org/ama/pub/about-ama/our-people/member-groups-sections/international-medical-graduates.page>. Accessed January 4, 2015.
2. Dill MJ, Slasberg ES; Center for Workforce Studies. *The Complexities of Physician Supply and Demand: Projections Through 2025*. Washington, DC; Association of American Medical Colleges; 2008. http://www.innovationlabs.com/pa_future/1/background_docs/AAMC%20Complexities%20of%20physician%20demand,%202008.pdf. Accessed March 9, 2015.
3. About ECFMG: overview. Educational Commission for Foreign Medical Graduates website. <http://www.ecfmg.org/about/index.html>. Accessed February 8, 2015.
4. About ECFMG: history. Educational Commission for Foreign Medical Graduates website. <http://www.ecfmg.org/about/history.html>. Accessed March 3, 2015.
5. About ECFMG: initiatives—medical school accreditation requirement for ECFMG certification. Educational Commission for Foreign Medical Graduates website. <http://www.ecfmg.org/about/initiatives-accreditation-requirement.html>. Updated February 13, 2015. Accessed March 3, 2015.

6. Educational Commission for Foreign Medical Graduates (ECFMG). *2013 Annual Report*. Philadelphia, PA: ECGMG; 2014. <http://www.ecfm.org/resources/ECFMG-2013-annual-report.pdf>. Accessed March 2, 2015.
7. Boulet JR, Cooper RA, Seeling SS, Norcini JJ, McKinley DW. U.S. citizens who obtain their medical degrees abroad: an overview, 1992-2006. *Health Aff (Millwood)*. 2009;28(1):226-233. doi:10.1377/hlthaff.28.1.226.
8. Center for Workforce Studies. *2014 Physician specialty Data Book*. Washington, DC: Association of American Medical Colleges; November 2014. https://members.aamc.org/eweb/upload/14-086%20Specialty%20DataBook%202014_711.pdf. Accessed March 12, 2015.
9. AMA-IMG Section Governing Council. *International Medical Graduates in American Medicine: Contemporary Challenges and Opportunities*. Chicago, IL: American Medical Association; 2013.
10. Center for Workforce Studies. *2013 State Physician Workforce Data Book*. Washington, DC: American Association of Medical Colleges; 2013. <https://www.aamc.org/download/362168/data/2013statephysicianworkforcedatabook.pdf>. Accessed February 8, 2015.
11. Hart LG, Skillman SM, Fordyce M, Thompson M, Hagopian A, Konrad TR. International medical graduate physicians in the United States: changes since 1981. *Health Aff (Millwood)*. 2007;26(4):1159-1169.
12. Chen PG, Auerbach DI, Muench U, Curry LA, Bradley EH. Policy solutions to address the foreign-educated and foreign-born health care workforce in the United States. *Health Aff (Millwood)*. 2013;32(11):1906-1913.
13. Fordyce MA, Doescher MP, Chen FM, Hart LG. Osteopathic physicians and international medical graduates in the rural primary care physician workforce. *Fam Med*. 2012;44(6):396-403.
14. Hing E, Lin S. Role of international medical graduates providing office-based medical care: United States, 2005-2006. *NCHS Data Brief*. 2009;(13):1-8. <http://www.cdc.gov/nchs/data/databriefs/db13.pdf>. Accessed March 3, 2015.
15. Accreditation Council for Graduate Medical Education (ACGME). *Data Resource Book: Academic Year 2013-2014*. Chicago, IL: ACGME; 2014. <http://www.acgme.org/acgmeweb/tabid/259/Publications/GraduateMedicalEducationDataResourceBook.aspx>. Accessed March 2, 2015.
16. Norcini JJ, van Zanten M, Boulet JR. The contribution of international medical graduates to diversity in the U.S. physician workforce: graduate medical education. *J Health Care Poor Underserved*. 2008;19(2):493-499. doi:10.1353/hpu.0.0015.
17. National Resident Matching Program (NRMP). *Results and Data: 2014 Main Residency Match*. Washington, DC: NRMP; 2014. <http://www.nrmp.org/wp-content/uploads/2014/04/Main-Match-Results-and-Data-2014.pdf>. Accessed February 8, 2015.
18. Holt KD, Miller RS, Philibert I, Nasca TJ. Patterns of change in ACGME-accredited residency programs and positions: implication for the adequacy of GME positions and supply of physicians in the United States. *J Grad Med Educ*. 2014;6(2):399-403. doi:10.4300/JGME-D-14-00140.1.
19. Kirch DG, Henderson MK, Dill MJ. Physician workforce projections in an era of health care reform. *Annu Rev Med*. 2012;63:435-445. doi:10.1146/annurev-med-050310-134634.
20. Preliminary enrollment for osteopathic graduates 2014. American Association of Colleges of Osteopathic Medicine website. <http://www.aacom.org/docs/default-source/data-and-trends/fall-2014-preliminary-enrollment-report-fast-facts.pdf?sfvrsn=8>.
21. Center for Workforce Studies. Table 3. In: *Results of the 2013 Medical School Enrollment Survey*. Washington, DC: Association of American Medical Colleges; March 2014.

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