

Moderator: Antoinette S. Peters, PhD

Discussant: Ann W. Frye, PhD

Medical Education in the Caribbean: Variability in Medical School Programs and Performance of Students

Marta van Zanten and John R. Boulet

Abstract

Background

The purpose of this study was to examine the structure of medical training programs in the Caribbean and the performance of the students.

Method

There are 56 medical schools in 16 countries currently recognized and open in the Caribbean. Almost 30,000 students from this region applied for exams leading to Educational Commission

for Foreign Medical Graduates (ECFMG) certification between 1993 and 2007. The authors summarized school characteristics and pass rates on United States Medical Licensing Examinations, by country.

Results

The structure of medical education varies across the region, including existence of accrediting bodies and review processes. First-attempt pass rates by country ranged from 19.4% to 84.4% for Step 1, from

26.3% to 79.7% for the Step 2 Clinical Knowledge Examination, and from 60.6% to 97.2% for the Step 2 Clinical Skills Examination.

Conclusions

There is significant variability in undergraduate medical education and the performance of students of medical schools in Caribbean nations.

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There is significant variation in the structure of medical education worldwide.¹ However, in the United States, undergraduate allopathic medical school programs are accredited by the Liaison Committee on Medical Education, ensuring the quality and consistency of the educational experience of U.S. medical graduates (USMGs). Although the majority of physicians in residency training and practice in the United States are USMGs, approximately one quarter are graduates of international medical schools (IMGs).^{2,3} IMGs play an important role in the provision of patient care because they are more likely than USMGs to specialize in primary care disciplines and to fill positions in underserved areas.^{4,5} The ECFMG certification process ensures the readiness of IMGs to enter Accreditation Council for Graduate Medical Education-accredited training programs in the United States.

A large portion of IMGs certified by ECFMG are U.S. citizens who train abroad (USIMGs), many of whom studied at schools located in the Caribbean region.^{2,6} Although

international medical schools that attract a predominantly U.S. student population are located in countries around the world, including Israel, Ireland, Poland, etc., the geographic proximity and prevalence of the English language in the Caribbean has made this region an attractive location for medical education institutions. Currently over 100 nondomestically owned and operated universities are operating in the English-speaking Caribbean, many of which offer medical degrees.⁷

Large numbers of U.S. students have been seeking medical education opportunities in the Caribbean since the 1970s. Fifty years ago, there were only a small number of medical schools in the region, including national schools in Cuba, the Dominican Republic, Haiti, and Jamaica. The student population at these established schools has been primarily comprised of nationals from the respective countries who complete physician training and remain in their country to practice. The second half of the 20th century saw a slow but steady increase in the creation of medical education institutions in the region, including the opening of a small number of schools aimed primarily for a U.S. student population. The most prolific growth has occurred most recently, with

a 40% increase in the number of medical schools opened since 2000,⁸ and this growth is expected to continue. For example, plans are currently underway to establish additional medical schools in Anguilla, Montserrat, and St. Kitts and Nevis.⁹ Unlike the domestic student body at some of the more established educational institutions, these newly created schools recruit, almost exclusively, an international population of students, including a large number of U.S. citizens.

Because of a lack of uniform oversight processes in the region and the rapid growth in the number of new schools being created, there have been continuing concerns regarding the quality of the educational experiences offered at Caribbean institutions.^{10–12} Thirty years ago, studies indicated that U.S. citizens who completed part or all of their studies abroad did not perform as well on knowledge assessments as did USMGs.^{13,14} More recently, a study of performance of physicians who attended medical schools in the Caribbean showed considerable variation in quality indicators. Ultimate ECFMG certification rates varied by school from 28% to 86%. Specialty board certification rates were also analyzed, with 63% of USIMGs (compared with the historical 88% for

Correspondence: Marta van Zanten, MEd, FAIMER, 3624 Market Street, Philadelphia, PA 19104; e-mail: (mvanzanten@faimer.org).

USMGs) ultimately achieving this marker of quality.¹⁵ In a study of students' transcripts and survey responses from the 10 schools that supplied the most USIMGs seeking ECFMG certification between 2001 and 2004, there were significant differences in the educational experiences of USIMGs from Caribbean schools as compared with a representative sample of USMGs.¹⁶ Comparison of performance of this study population on the United States Medical Licensing Examinations (USMLE) Step 1 and Step 2 Clinical Knowledge (CK) exams also showed remarkable variation, with USMGs performing the best, followed by non-USIMGs and, lastly, USIMGs.

Often, Caribbean medical schools are viewed as a single entity, ignoring the variability in training programs and performance of students. The purpose of this study is to follow up on previous research^{15,16} by describing the variability of educational experiences, structure and oversight of medical schools, and performance of students who attended medical schools in the region. Specifically, descriptive information is provided summarizing the various structures of medical education, degrees offered, languages of instruction, and student populations at Caribbean institutions. Additionally, the diverse systems of accreditation of medical school programs are described, and data depicting the variability in USMLE performance is provided, by country, for students attempting ECFMG certification. Current ECFMG policies prohibit reporting school-level performance data.

Method

There are 16 countries located in the Caribbean that have a total of 56 open medical schools listed in the International Medical Education Directory (IMED) (<http://imed.ecfmg.org>). A medical school is listed in IMED after the Foundation for Advancement of International Medical Education and Research receives confirmation from the ministry of health or other appropriate agency in the country where the medical school is located that the medical school is recognized by the ministry or other appropriate agency.

Data used to describe the structure and content of medical education and demographic student profiles were drawn from IMED and culled from medical

school Web sites. This information was supplemented with data from a previous study that included a random sample of 100 medical student transcripts and a survey of 418 medical students.¹⁶

Accreditation information was gathered from a variety of sources, including specific organizations that accredit the educational institutions, the U.S. Department of Education's National Committee on Foreign Medical Education and Accreditation, and medical school Web sites.

Among other requirements, passing the USMLE Step 1, Step 2 CK, and Step 2 Clinical Skills (CS) exams are necessary for ECFMG certification. We analyzed a cohort of applicants who applied for an exam leading to ECFMG certification between 1993 and 2007, inclusive. First-attempt pass rates on these exams, summarized for the 15-year period, are provided.

Results

Medical schools. Of the 56 currently operating medical schools in the Caribbean listed in IMED, the distribution of schools per country is as follows: six countries each have one school, four countries have two schools, one country has three schools, one country has four schools, one country has five schools, one country has six schools, one country has 10 schools, and one country has 14 schools. The majority ($n = 50$) of the schools in the region offer a doctor of medicine (MD) degree. Three schools offer a bachelor of medicine and bachelor of surgery (MBBS), and three schools are capable of awarding both degrees, depending on the course of study followed. In general, the official languages of the various countries in the region correspond to the language of instruction at the medical schools, although there are some exceptions. English is the mode of instruction at 29 schools, and Spanish is used at 21 schools. Three schools offer instruction in both Spanish and English, and three schools use French. The duration of the curriculum at Caribbean schools also varies across the region, ranging from just more than three years (e.g., some schools in Antigua and Barbuda and Aruba) to six years (e.g., Cuban and Haitian schools).

Accreditation. There is a wide variety of oversight and formal accreditation

practices in the region. In the past, review of the educational quality of medical programs was conducted sporadically by various organizations, depending on the country and the affiliations of the schools in question. Some countries, such as Cuba and the Dominican Republic, have a governmental agency in place that oversees medical education quality. In countries without a national system of accreditation, some schools have chosen to become accredited by entities located outside of the region. For example, an independent organization, the Accreditation Commission on Colleges of Medicine, has accredited medical schools located in various Caribbean countries, such as the Cayman Islands and Netherlands Antilles.¹⁷⁻¹⁹

Before 2003, the University of the West Indies (UWI) in Jamaica and its associated campuses located in Barbados and Trinidad and Tobago were accredited by the General Medical Council (GMC) located in the United Kingdom. When the GMC ceased accrediting programs located abroad, the Caribbean Community (CARICOM) member states established the Caribbean Accreditation Authority for Education in Medicine and Other Health Professions (CAAM-HP) in 2004 as an independent regional accreditation authority to fulfill this need. To date, CAAM-HP has reviewed six medical schools in the region (e.g., the UWI campuses and some schools in Montserrat) (www.CAAM-HP.org).

Because of the overlap in jurisdictions of some accrediting entities or the desire to promote quality claims, a small number of educational institutions have voluntarily chosen to be reviewed by more than one accrediting body. Conversely, some schools in the region have never undergone a formal accreditation process by an external review body because of the noncompulsory nature of the process, the lack of a national system in some countries, or the perceived lack of value of the system.

Applicants. Between 1993 and 2007, 29,321 individuals who attended a school in the Caribbean applied for an exam leading to ECFMG certification. The three countries producing the most applicants were Dominica ($n = 6,678$), Grenada ($n = 6,384$), and the Netherlands Antilles ($n = 4,916$). Almost two thirds of the applicants were U.S. citizens, and 62% self reported English as

their native language. The mean age of initial exam applicants was 29.5 years, and 38% were female.

Exam performance. Exam performance by country of medical school summary data is shown in Table 1. Of all Caribbean medical school students who took an exam leading to ECFMG certification during this 15-year study period, 57.4% passed the USMLE Step 1 on the first attempt, 61.7% passed Step 2 CK, and 88.0% passed Step 2 CS or the previous requirement, the Clinical Skills Assessment (CSA). Pass rates by country ranged from 19.4% to 84.4% for Step 1, from 26.3% to 79.7% for Step 2 CK, and from 60.6% to 97.2% for Step 2 CS/CSA.

Because training programs and medical student characteristics are heterogeneous, even within a country, exam performances were also summarized by school and examinee characteristics. On first attempts of Step 1, USIMGs (n = 19,425) outperformed non-USIMGs (n = 9,837) with pass rates of 60.6% and 51.1%, respectively. Examinees who attended

schools with English as the language of instruction (n = 24,890) passed Step 1 at a rate of 62.9%, whereas students at non-English schools (n = 4,425) had a 26.5% first-attempt success rate. Results for Step 2 CK and CS/CSA were similar, with USIMGs and those attending schools with English instruction modestly outperforming their counterparts.

Discussion

The purpose of this study was to examine, in detail, Caribbean medical education structure and oversight and the performance of students. A large portion of physicians seeking to enter graduate medical training and eventual practice in the United States are currently training in the Caribbean. With the anticipated shortage of physicians²⁰ and a relatively slow increase in domestic education opportunities, this trend of individuals looking outside of the United States for medical training is likely to continue. Given the expanded role of Caribbean-trained doctors in the United States, it is important to know more

about the characteristics of the medical education programs and the qualities of the students and graduates.

Often, generalizations about individual schools, associated countries, and graduates are made based on the Caribbean as a whole. However, the results of this study show wide variability in the structure of medical education throughout the region. Likewise, the existence of quality-control oversight measures by an external body, the rigor of the review, and the level of transparency of the process and standards used also vary significantly throughout the region. A number of countries require that schools be periodically reviewed and accredited by a governmental body in order to continue to function, whereas in other countries the initial granting of a charter is the only requirement for operation. The recent creation of CAAM-HP and its governmentally sanctioned jurisdiction over a large portion of medical schools located in the Caribbean provides evidence of a commitment of CARICOM nations toward increased oversight in the region.

Table 1

First-Attempt United States Medical Licensing Examination (USMLE) Exam Pass Rates by Country of Medical School (1993–2007)

Country	USMLE Step 1 Basic Science			USMLE Step 2 Clinical Knowledge		USMLE Step 2 Clinical Skills/Clinical Skills Assessment	
	No. of schools	No. of test takers [*]	% Pass rate	No. of test takers [*]	% Pass rate	No. of test takers [*]	% Pass rate
Antigua and Barbuda	2	684	22.9	223	37.2	157	80.2
Aruba	2	143	30.1	42	38.1	57	64.9
Barbados	1	75	72.0	79	77.2	58	96.6
Cayman Islands	1	1,378	33.4	562	44.3	601	79.4
Cuba	14	1,722	30.9	1,748	32.8	719	64.8
Dominica	2	6,694	69.7	5,398	70.6	4,731	90.9
Dominican Republic	12 [†]	3,910	27.7	3,035	31.8	1,415	75.3
Grenada	1	6,379	84.4	5,419	79.7	4,217	94.0
Haiti	3	487	32.0	403	39.2	170	60.6
Jamaica	1	744	72.6	678	79.1	284	97.2
Montserrat	2	‡	‡	‡	‡	‡	‡
Netherlands Antilles	6	4,904	59.4	3,722	67.7	3,043	91.0
Saint Kitts and Nevis	6 [§]	975	40.2	465	64.5	463	87.0
Saint Lucia	4	741	19.4	552	26.3	315	73.6
Saint Vincent and the Grenadines	1	**	**	**	**	**	**
Trinidad and Tobago	1	474	61.8	435	71.7	282	93.6

* For a variety of reasons, these numbers do not equal the numbers of students enrolled or the numbers of graduates.

† Two of these schools have closed.

‡ n < 40.

§ One of these schools has closed.

** The medical school is affiliated with another medical school.

Additional time is needed to determine whether schools will choose to undergo the review process, and the impact and outcomes of the decisions.

Results of analysis of a 15-year period show wide variability in USMLE exam performance of students of Caribbean medical schools. The variability is greatest with Step 1, whereas pass rates on Step 2 CS are somewhat more similar across the Caribbean countries. Countries with medical schools that typically cater to large numbers of U.S. citizens (e.g., Dominica, Grenada, the Netherlands Antilles) tend to have higher pass rates. Likewise, students from countries with long-standing oversight mechanisms (e.g., Jamaica) also perform well. Finally, students who attend schools in countries that typically provide medical education in languages other than English (e.g., Cuba, Dominican Republic, and Haiti) tend to underperform compared with other Caribbean-trained peers.

Although efforts were made to ensure the accuracy of the descriptive school information (i.e., each institution's accreditation status was verified directly with the appropriate accreditation organization), some data were based solely on school reports, which could potentially bias the results. Specifically, data regarding language of instruction, degrees offered, and curriculum duration were drawn from IMED, where available, and supplemented directly from medical school Web sites, but not independently verified.

Despite the differences of pass rates by country, these performance results should also be interpreted with caution. Most Caribbean countries have more than one medical school, with varying numbers of students per school, and with potentially great variation in admission requirements, quality of teaching, and resources available. Additionally, pass rates are reported by country for the entire 15-year block, obscuring changes in student performance over time. Because these results include only the first attempt of all applicants who took an exam leading to ECFMG certification, and not only those who eventually achieved certification, the motivation levels of some of these students may have

varied. Some students, especially non-U.S. citizens, may attempt USMLE exams even though they intend to practice in a country other than the United States. Conversely, schools in some countries may require passage of the USMLE for progression. Additionally, the attrition rates at these schools are unknown, and, therefore, the number of test takers does not necessarily equal the number of students enrolled or the number of graduates. Finally, a student who transfers from a Caribbean medical school to another institution during his or her education would have all exam scores categorized under the country he or she attended when beginning the ECFMG certification application process.

The number of graduates of Caribbean medical schools seeking training positions and licensure in the United States is expected to continue to increase. Results of this study provide baseline data indicating that there is wide variation in the structure of the education and performance of the students on ECFMG certifying exams. Further research is necessary to determine how the characteristics and qualities of medical programs in the Caribbean, students' clinical training experiences (which can vary within a medical school), and national and regional accreditation activities impact student performance. This research will be essential to link medical education and student-selection practices at individual schools to relevant performance measures, including practice-based patient outcomes, for those doctors who return to the United States.

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