Journal of the American College of Cardiology
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Published by Elsevier Inc.

Vol. 44, No. 6, 2004
ISSN 0735-1097/04/$30.00
doi:10.1016/j.jacc.2004.05.081

VIEWPOINT

International Medical Graduates and the Cardiology Workforce

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Recent publications have expressed the view that there is a shortage of cardiologists and it is growing worse. Both an increasing demand and a diminishing supply of cardiologists have been projected. An increase in the number of international medical graduates (IMGs) who enter cardiology practice has been proposed as a remedy for a projected shortage. The IMGs have to overcome challenges including clinical practice, language proficiency, and cultural differences before they are incorporated into the fabric of U.S. cardiology. With hard work, perseverance, excellence, compassionate care and support and mentoring, many have contributed to scientific and clinical cardiology in the U.S. Whether in the absence of a present crisis the projected shortage of cardiologists necessitates change in U.S. immigration policy is an open question. (J Am Coll Cardiol 2004;44:1172–4) © 2004 by the American College of Cardiology Foundation

Recent publications have put forward the view that there is a shortage of cardiologists and that it is growing worse (1–3). This view was bolstered by a survey conducted by the American College of Cardiology (ACC) indicating that only one-third of the openings for cardiologists in the U.S. will have been filled by the end of this year (1).

IS THERE AN INCREASED DEMAND?

The reasons for the perceived shortage include the increased demand for cardiologists resulting from the aging of baby boomers, the extraordinary progress in technological innovation and clinical practice, the diffusion of screening technologies, and the ongoing knowledge explosion (1–3). The latter has also increased the need for cardiologists with special procedural or interpretative skills. Broader access to knowledge through the Internet and the higher level of education of the general public about health care issues have also increased the demand for cardiologists.

IS THERE AN ADEQUATE SUPPLY?

The perception of supply shortage begins with the notion that not enough graduates of U.S. medical schools specialize in cardiology. This idea is reinforced among some by the sense that the reductions in reimbursement for cardiologists result in the specialty's being "too much work for too little pay" (4).

Despite the perception of diminishing supply, the numbers do not seem to bear this out. Data from the Accreditation Council for Graduate Medical Education (ACGME) (5) indicate that although the number of cardiovascular disease training programs has declined slightly, from 181 in the 2000 to 2001 academic year to 173 in the year 2003 to 2004, the number of positions filled has increased slightly, from 2,025 to 2,081, respectively (Table 1). In addition, among 156 active programs participating in the cardiovascular disease match (6), 97% were filled, and among the 615 active positions in these programs, 611 (99%) were filled. The majority of the positions were taken by U.S. graduates (64%), followed by international medical graduates (IMGs) (22%), U.S. IMGs (8%), osteopaths (5%) and Canadians (1%) (Table 2). Although the number of first-time takers of the examination for certification in cardiovascular disease as cited by the American Board of Internal Medicine (ABIM) (7) indicates a slight decline, from 748 in 1999 to 701 in 2002, the pass rate increased slightly, from 78% to 83% (Table 3). Taken together, these data indicate that the supply of new cardiologists has not declined markedly. These data neglect the additional services cardiologists can render to every patient and the increased complexity of disease.

SUPPLY BY CATEGORIES?

Although the absolute number of cardiologists has been relatively constant, there are severe shortages among several groups. Only a small number of women have chosen cardiology as a profession despite the fact that the percentage of U.S. medical schools graduates who are women is approaching 50%. Medical students do not have as much exposure to cardiology as in the past because of the short length of hospital stays (2). In addition, women may see hospital-based cardiology as difficult to combine with family life, leading them to choose careers in other specialties. For example, about two-thirds of trainees in obstetrics and gynecology and pediatrics are women (8).

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Manuscript received November 5, 2003; revised manuscript received December 22, 2003, accepted May 25, 2004.

Abbreviations and Acronyms
ACC = American College of Cardiology
IMG = international medical graduate

There is also a significant shortage of African-American cardiologists. According to the Association of Black Cardiologists, there are 75 African-American cardiologists in training, resulting in 25 graduates each year, although approximately 100 graduates are needed yearly to meet the projected demand (9). This shortfall is compounded by a number of cardiologists leaving the practice either to retire or to assume administrative positions.

THE CURRENT STATUS OF IMGS

In medicine, the number of IMGs in graduate year 1 positions overall has decreased by 12.3% between 1999 and 2000 (6,727) and between 2001 and 2002 (5,898) (10). The percentage of clinical faculty who are IMGs has been stable (16% to 17%) over the past two decades (11). Similarly, IMGs have been part of the cardiology fabric in the U.S. for many years. Numbering about 196,000, they account for approximately 25% of the U.S. physician workforce, and 85% of them are involved in patient care (12). The IMGs are usually talented, knowledgeable, and motivated, enhance the diversity of programs, and offer new perspectives about medical care. However, they have to overcome challenges related to clinical care, language proficiency, interpersonal skills, and acculturation (12). Additionally, IMGs may encounter difficulties in obtaining an appropriate visa to enter the U.S. Usually this requires the completion of the requisite examinations of the Educational Commission for Foreign Medical Graduates (ECFMG), including clinical skills assessment, which is administered only in the U.S. For some foreign-born IMGs, the expenses for travel, housing, and examination fees may be a prohibitive financial burden.

Obtaining an entry-level training position in the U.S. medical system is another hurdle IMGs, especially foreign-born IMGs, must overcome. Training program directors prefer graduates of American medical schools, which means IMGs usually enroll in training programs of lower quality with higher emphasis on fulfilling clinical duties. There are few educationally rewarding activities and certainly a lack of guidance and mentoring to help graduates choose a career path. This further compounds the problems of IMGs because their educational pedigrees become inferior to those of American medical school graduates, which diminishes their opportunities to obtain highly competitive academic positions. A surprising statistic relates to labor availability in rural areas, where it is generally thought of where IMGs "end up." In a study examining the 2000 American Medical Association Masterfile and Area Resource File, the percentage of primary care U.S. medical graduates practicing in rural, underserved areas (2.1%) was equal to that of IMGs practicing in these areas (2.1%) (13).

The IMGs adapt to and overcome these challenges in many ways, including accepting inferior or lower-paying (and, occasionally, unpaid) positions early in their career, moving to an underserved area, and joining medical groups in regions with a heavy representation of immigrants from their native country.

Table 1. Cardiovascular Disease Programs (5)

Year	Number of Programs	Number of Positions Filled
2000–2001	181	2,025
2001–2002	178	2,005
2002–2003	175	2,088
2003–2004	173	2,081

Table 2. 2003 Cardiovascular Disease Match (6)

Active programs	156	
Programs filled	152	(97%)
Programs unfilled	4	(3%)
Active positions	615	
Positions filled	611	(99%)
Positions unfilled	4	(1%)
Matched School Applicants		**Matched Percent**
U.S. graduate	394	64%
U.S. foreign	46	8%
Pathway	1	0%
Osteopathic	29	5%
Foreign	137	22%
Canadian	4	1%

POSSIBLE SOLUTIONS

A place to begin in redressing the potential shortage of cardiologists is to encourage more women to choose careers in cardiology. Appropriate changes in cardiology practice styles, to allow better balance between the professional and personal lives of cardiologists, may encourage more women to seek cardiology training. Also, training program directors should be encouraged to enroll African-American physicians in their cardiology programs, and African-American physicians should be offered incentives to seek cardiology training (9). In both instances, the increased presence of role models on faculties would be valuable. Establishing appropriate reimbursement for cardiology services and redefining the role of nurses, doctors of pharmacy, exercise scientists, physician's assistants, and other health care associates will help alleviate a potential shortage (1).

The IMGs who are already in training programs in the U.S. may be another source to tap into to optimize the

Table 3. Certification in Cardiovascular Disease (7)

Year	First-Time Takers	Pass Rate
1999	748	78%
2000	668	79%
2001	682	85%
2002	701	83%

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cardiology workforce. Many IMGs are proficient, hard-working, and well trained in patient care. Academic leaders should recognize these attributes in IMGs when they are present, offer them academic positions, mentor them, encourage them, and help them become independent.

Encouragement and facilitation of the entry of IMGs into the cardiology workforce remains a controversial and unproven route to address the issue of a potential cardiology workforce shortage. It has been suggested that a significant number of IMGs trained in cardiology in the U.S. are precluded from practicing here because of the requirements of the J-1 exchange visitor program. A change in the fundamental purpose of this program, ultimately requiring governmental action, has been advocated. The J-1 exchange visitor visa for foreign national physicians is a temporary, non-immigration visa. Its purpose is to facilitate the exchange of medical information and knowledge. All foreign-trained physicians engaged in clinical training on a J-1 visa are automatically subject to a two-year home return requirement. In certain prescribed circumstances, a physician may seek a waiver of this obligation to return home after training. A revision of the purpose of the J-1 program would raise a number of complexities and would require careful study; this option remains an open question.

No discussion of revision of the J-1 exchange visitor program would be complete without some consideration of the effect that encouraging and assisting IMGs to join the U.S. cardiology workforce would have on their home country. These individuals are usually among the best and brightest of their country and are critically needed to provide medical care in their own homeland. Their relocation will often leave a significant void in their native land. Any solution to the labor shortage in medicine which involves IMGs must take this into consideration.

WHAT IS NEEDED?

In the meantime, a rational study of the projected demand for different types of cardiologists is needed, given that cardiology has subspecialized to a degree that makes it impossible for a single individual to provide the whole spectrum of interpretative and procedural skills available now. This trend will no doubt accelerate. Therefore, the need for specific types of cardiologists (e.g., interventional cardiologists, electrophysiologists, nuclear cardiologists) must be evaluated. The creation of a different cardiology educational track in general cardiology, whose graduates would take care of people with heart disease but not personally perform high-tech therapeutic or diagnostic procedures, has been proposed (2).

The ACC Foundation recently sponsored the "35th Bethesda Conference: Cardiology's Workforce Crisis: A Pragmatic Approach" (14) to focus on whether our nation is training enough cardiovascular specialists to care for the growing burden of cardiovascular disease in our aging population.

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