RECOMMENDATIONS

1. The medical profession should support local and national efforts to enhance the educational opportunities for minority students so there is a larger pool of qualified URM applicants to medical school—the first formal stop on the career path to cardiology.

2. Academic medical centers should work hard to create and maintain an atmosphere that values diversity and, reflecting the focus of our working group, an environment that actively supports and encourages URM students, postgraduate trainees, and faculty members.

3. Academic and practitioner cardiologists should actively encourage URM medical students and internal medicine residents to consider a career in cardiology.

4. Internal medicine training program directors and cardiology training program directors should make an active effort to recruit, matriculate, and graduate increased numbers of URMs.

5. The ACC, together with the Association of Black Cardiologists (ABC), the American Heart Association (AHA), and the Association of Professors of Cardiology (APC), and the cardiology training program directors, should collaborate in the development and implementation of curricula on racial and ethnic disparities in cardiovascular disease status, outcomes, morbidity, and mortality.

WORKING GROUP 3 REFERENCES


Working Group 4: International Medical Graduates and the Cardiology Workforce

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INTRODUCTION

International medical graduates (IMGs) are physicians in practice or in post-graduate training in the U.S. who graduated from medical school outside the U.S., Puerto Rico, or Canada. Although many IMGs are foreign-born and are here on special visas (e.g., J-1 or H), a significant number are U.S.-born citizens and permanent residents who graduated from medical school in another country. Over the years, IMGs have been very important contributors to the science and practice of medicine in the U.S.

During the past quarter-century they have filled the large gap between the number of U.S. medical graduates and the number of residency positions and subsequent opportunities in private practice and academic medicine. Several changes in licensing examinations and immigration laws have occurred over the past few years, however, that have potential impact on the contribution of IMGs to our nation’s physician workforce. The present document examines the current status and future prospects of IMGs in cardiology training and practice in the U.S.
IMPORTANCE OF IMGS IN THE WORKFORCE

Since the 1960s, IMGs have constituted an important part of the physician workforce. In 1963, they comprised about 10% of the physicians in the U.S.; by 1970, this had increased to almost 18%, due mainly to a perceived shortage of practicing physicians (1). In the 1980s and 1990s, a further increase in IMGs occurred, attributed to changes in licensing examinations, new immigration laws, and the break-up of the Soviet Union (2). Currently, IMGs fill approximately 40% of cardiology training positions and represent about 25% of cardiologists in practice in the U.S. The approximate number of IMGs and their activities from 1980 to 2000 are represented in Table 1. Although the total number of IMGs (practicing in all areas of medicine) increased by approximately 100% during this 20-year interval, the number of IMG cardiologists increased by approximately 175%.

The percentage growth of practicing cardiologists who are IMGs is depicted in Figure 1. Although there has been a decline in the growth rate of IMG cardiologists from 1975 to 1980, there has been continued growth (17.7%) over the last five-year period. The actual number of IMG cardiologists in practice increased from 1,249 physicians in the year 1970 to 6,178 in the year 2000 (3).

Traditionally, IMGs have been considered an important resource for providing care to patients in rural and underserved urban (inner-city) areas. This has been a principal mechanism by which IMGs on the J-1 Visitor Exchange visa have been allowed to waive the standard requirement that they return to their country of origin for two years after they complete their training in the U.S. Currently, less than one-third of IMGs in training are on the J-1 Visitor Exchange visa (Fig. 2). Data from New York State study, however, suggest that IMGs tend to practice in suburban or urban settings similar to non-IMGs after they complete their required term of practice in a medically underserved area as required by the waiver (3).

The IMGs also add ethnic and cultural diversity to the nation's physician population. Recent data suggest that some IMGs tend to migrate to areas, often urban, with higher proportions of persons of similar ethnic or national backgrounds, although this varies by ethnic group (1). It is interesting to note that IMGs contribute proportionally more women to the physician workforce than do U.S. medical graduates (especially women who are foreign nationals) (4).

IMGS AND TRAINING PROGRAMS

Although the number of cardiology trainees decreased during the past decade, the percentage of cardiology trainees (including those in interventional and electrophysiology fellowships) that are IMGs has remained fairly stable at about 40% since 1996. In terms of general cardiology trainees, however, there has been a decrease in the percentage that are IMGs (Table 2) (5–11).

Data from New York State Graduate Exit surveys indicate that IMGs on J visas are almost twice as likely as U.S. medical graduates to subspecialize (62% vs. 36%), but IMGs who are U.S. citizens or permanent residents subspecialize

Table 1. Approximate Number of IMGs 1980 and 2000

<table>
<thead>
<tr>
<th></th>
<th>1980</th>
<th>2000</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiology IMGs</td>
<td>2,248</td>
<td>6,178</td>
<td>+175%</td>
</tr>
<tr>
<td>Total IMGs</td>
<td>97,726</td>
<td>196,000</td>
<td>+100%</td>
</tr>
</tbody>
</table>


IMG = international medical graduate.


Figure 2. International medical graduates’ (IMGs) visa status: approximately one-half of IMGs in U.S. residencies are U.S. citizens or permanent residents. Source: Area Resource File 2003. The National Center for Health Workforce Analysis, Bureau of Health Professions, Health Resources and Services Administration (HRSA).
at a rate comparable to U.S. medical graduates (12). Active IMG physicians come from many countries. Some countries of origin tend to be overrepresented in the U.S. population of IMGs, however, such as India (18%) and the Philippines (9%). These two countries account for almost one-third of active IMG physicians practicing in the U.S. (Fig. 3) (2). This may reflect, in part, the fact that most college-educated students in those countries learned to speak and read English during (or even before) secondary school. Meanwhile, IMGs from Spanish-speaking countries are underrepresented. For example, only 5% of IMGs are from Mexico. These data are interesting, considering the fact that the Hispanic population is the fastest growing minority group in the U.S., and that the census from the year 2000 counted 34.3 million Hispanic Americans.

Current trends indicate an increase in the proportion of IMGs who are U.S. citizens or permanent residents (see subsequent text), now about two-thirds of all IMGs (13). Data from the 158 cardiology programs participating in the National Residency Matching program for 2004 indicate that 30% of physicians in the match were IMGs (14). The geographic distribution of IMGs after graduation tends to follow the same state as their last residency training location (15) and, at least for J-1 visa waiver physicians, is more likely to be located in areas with low physician/population ratios (16–18).

**CURRENT CHALLENGES TO IMGS**

IMGs face several challenges, including board certification, immigration issues, and ultimate employment opportunities. Certification requires passing steps 1 and 2 of the United States Medical Licensing Examination (USMLE), and more recently, an English proficiency test and the Educational Commission for Foreign Medical Graduates (ECFMG) clinical skills assessment (CSA). The CSA became mandatory for all IMGs in 1998. It is relatively expensive, and until Atlanta was added recently, the CSA test was offered only in Philadelphia.

Beginning in June 2004, the CSA will be phased out and replaced by the new USMLE clinical skills examination (CSE). The CSE is being implemented as a component of the USMLE Steps examination and will be mandatory for all U.S. medical students and graduates as well as IMGs. The CSE has been developed and tested in coordination with the ECFMG and will be similar to the current CSA in content and format. As a result of the transition to the CSE, the test will be given in more cities (Atlanta, Chicago, Houston, Los Angeles, and Philadelphia). Despite recent national security concerns that make the process of obtaining a visa to the U.S. more prolonged and difficult (especially for citizens of countries in the Middle East), there are no plans to offer the CSE at international testing centers. All of these factors have contributed to a decrease in the

<table>
<thead>
<tr>
<th>Year</th>
<th>General Cardiology Trainees (%)</th>
<th>Clinical Cardiac Electrophysiology (%)</th>
<th>Interventional Cardiology (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>36.6%</td>
<td>18.5%</td>
<td>NA</td>
</tr>
<tr>
<td>1997</td>
<td>40.0%</td>
<td>33.7%</td>
<td>NA</td>
</tr>
<tr>
<td>1998</td>
<td>42.0%</td>
<td>44.6%</td>
<td>NA</td>
</tr>
<tr>
<td>1999</td>
<td>41.2%</td>
<td>48.4%</td>
<td>39.7%</td>
</tr>
<tr>
<td>2000</td>
<td>38.6%</td>
<td>37.2%</td>
<td>55.8%</td>
</tr>
<tr>
<td>2001</td>
<td>36.7%</td>
<td>43.0%</td>
<td>49.1%</td>
</tr>
<tr>
<td>2002</td>
<td>32.9%</td>
<td>41.7%</td>
<td>42.1%</td>
</tr>
</tbody>
</table>

**Table 2. IMG Cardiology Residency Trends**


IMG = international medical graduate.
number of IMG registrations for the certification examinations (Fig. 4) (19). This decrease in foreign-born IMGs seeking certification also has resulted in U.S. citizens representing a higher percentage of all candidates seeking ECFMG certification. Although U.S. citizens represented only 10% of the IMG applicant pool taking the Steps examination in 1995, in 2001 they represented nearly 25%.

These trends are unlikely to change even after the number of testing centers is increased as a result of the implementation of the CSE.

Measures of performance on the USMLE indicate that current IMGs are more likely to pass the test on their first attempt than in previous years (possibly a manifestation of self-selection among applicants) (13). Generally, IMGs have scored higher than U.S. medical graduates on the In-Training Examination in Internal Medicine (Fig. 5) (20).

In addition to affecting their residency and subspecialty training opportunities, immigration laws that apply to IMGs can also influence their chances of joining the workforce after graduation. Recently, two-thirds of IMGs entering practice are either U.S. citizens, permanent residents, or refugees with permanent status. This means that immigration laws affect less than one-third of IMGs, primarily those who enter residency training on exchange visas (Fig. 2) (1,21,22). Multiple factors are likely responsible for this, including the new requirements for testing discussed above. As a corollary, non-U.S. citizen IMG participants in the National Residency Match Program (NRMP) declined by 36% between 1997 (8,100) and 2001 (5,100) (19,23). Cardiology-specific data available from the New York State Resident Exit survey indicated a similar decrease in the percentage of IMG residents from 32% in 2000 to 23% in 2001 (24). With increased security concerns following the September 11, 2001, terrorist attack, these trends are likely to continue.

Post-training employment opportunities for IMGs are related significantly to visa status. For U.S. citizens and permanent U.S. residents, the current high demand for cardiologists virtually ensures employment (25). For individuals on H visas, an employment offer may allow him or her to apply for permanent immigration status. However, the J-1 visa holders, face significant obstacles if they seek employment in this country. In the past, the U.S. Department of Agriculture (USDA) was the major source of J-1 visa waivers in exchange for a three-year commitment from the physician to practice in a federally designated Health Professional Shortage Area (HPSA) or medically underserved area (26). In February 2002 the USDA stopped providing placements for IMGs through this mechanism based on security concerns (27). This policy change led Congress to increase the number of waivers that individual states could make under the so-called Conrad 20 program. Details of this program are beyond the scope of this review, but the effect is to increase the number of waivers each state


![Figure 5](image-url) Comparison of scores on the in-training examination in internal medicine between international medical graduates and U.S. medical school graduates. In each cohort, resident performance on the examination is shown by training year (postgraduate year 1, 2, or 3 [PGY1, PGY2, PGY3]). Examination was administered in October instead of July. Reprinted with permission from Garibaldi et al. Ann Intern Med 2002;137:505–10.
can issue from 20 to 30. This program has implications for IMG cardiologists because only 25% of waivers can go to specialists (75% go to primary care physicians) (28). Finally, many states do not accept application for J-1 visa waivers to fill primary care slots from trainees who have had any subspecialty training (19). This will adversely affect placement of IMGs in cardiology training in the J-1 visa program.

IMGs face cultural obstacles that, in some cases, have been exacerbated by recent international events. Similar to other immigrants to the U.S. and U.S. born citizens from minority ethnic or racial groups, IMGs and their families may confront various types of prejudice and bias, which may be more prevalent in some rural communities that traditionally have not been as diverse as large cities. In the past, however, the HPSA program resulted in a significant number of IMGs on J-1 visa waivers practicing in rural communities that were medically underserved.

As a result of visa requirements, the initial post-training job options for IMGs are more limited than is the case for U.S. medical graduates whose postgraduate training may be equivalent to that of the international graduate. Many circumstances affect the ability of fully trained cardiologists and cardiology subspecialists who are IMGs to find a position that matches their interests and abilities. For example, highly trained electrophysiologists or interventional cardiologists sometimes must work as general clinical cardiologists in small community hospitals that do not have the need or the support structure for subspecialty cardiology. Given the nation’s need for more general clinical cardiologists, the IMGs who serve in these areas contribute significantly to the care of patients with cardiovascular disease who otherwise might not have access to a trained cardiovascular specialist.

Communication obstacles may present IMGs with subtle and unanticipated challenges. Understandably, some IMGs have accents that may interfere with communication between the physician and his or her patients and their family members, staff, and other physicians. Thus, IMGs may find it more difficult to treat the “whole patient” due to differences in values, and to ethical and religious beliefs that may influence important medical decisions such as end-of-life care (29–31). Clinical skills in practicing medicine extend beyond English proficiency and involve the understanding of subtle implications and meanings of words and phrases, the cultural context of life-changing events, the impact of illness on the physical, financial, and emotional well-being of the patient and his or her family. Both IMGs and patients may have difficulty in voice, face, and name recognition accuracy, which might influence the perception of the efficiency and effectiveness of some IMGs practicing in the U.S. (32). It is evident, however, that a large percentage of IMGs are willing to work hard to overcome such obstacles in order to live and practice in the U.S. for a variety of social, economic, and professional reasons.

**CONSIDERATION FOR “SHORT-TRACK” TRAINING OF IMGS WITH PREVIOUS POST-GRADUATE TRAINING**

Regardless of post-graduate training abroad, IMGs are presently required to obtain full post-graduate residency and fellowship training in the U.S. in order to qualify for licensure and board certification. Significant variations exist in the content, length, and quality of pre-medical education, medical education, and postgraduate education in countries around the globe. This is one of the main justifications for requiring IMGs to pass specific examinations and repeat postgraduate training in the U.S. before they can be licensed or become board eligible. Many IMGs who have done additional (and often redundant) post-graduate medical training in the U.S. acknowledge that the cultural adaptation and skills acquired during their training were of great value, even if portions of their technical medical training were somewhat repetitive.

On a case-by-case basis it might be reasonable to consider giving an IMG who has had extensive internal medicine and cardiology training (and perhaps practice or academic faculty experience) abroad credit toward the required years of training in the U.S. At present, however, no established mechanisms exist to identify, verify, or test such individuals. Piloting a program for individuals who have completed both their internal medicine residency and cardiology fellowship training abroad that would give them credit for one year of internal medicine training in the U.S. seems reasonable. The length of cardiology training would be unchanged. Outcome measures could be developed, including performance on ABIM examinations, to evaluate the impact such a change might have on the quality and competence of trainees.

**CURRENT AND FUTURE IMPLICATIONS OF THE CHANGING POOL OF IMGS ON THE CARDIOLOGY WORKFORCE**

Currently, the supply of cardiologists in the U.S. is not meeting the demand as outlined in the introduction to this report. As noted earlier, various social, economic, and political factors affect the prospects of IMGs joining the U.S. cardiology workforce. For example, if the percentage of IMGs in cardiology training positions were to remain stable but immigration issues prohibit IMGs from remaining in the U.S. after training, the numbers of newly trained cardiologists available to accept positions in private practice or academic medicine would be reduced significantly. Thus, any increase in recruitment of IMGs into traditional or innovative “short-track” internal medicine–cardiology training programs must be matched by supportive immigration and visa policies so as to have a positive impact on the total numbers of cardiologists in the U.S.

Recent international events and concerns over immigration and terrorism could further discourage or limit IMGs from entering the U.S. for postgraduate training. Although
the ACC workforce survey indicated there were adequate numbers of qualified applicants, restricting talented and highly qualified IMGs from the applicant pool might have a negative impact on the nation’s output of cardiologists (33). Monitoring the impact of these factors on the pool of IMG applicants and their eventual role in cardiology practice and academic medicine will be important. This will help inform future decisions and policies affecting the role of IMGs in American cardiology.

**BALANCING WORKFORCE NEEDS WITH THE ETHICS OF INTERNATIONAL RECRUITMENT**

One important consideration with respect to the long-standing tradition of encouraging IMGs to come to the U.S. for postgraduate medical and specialty training (with the assumption that a significant number will remain here to meet our nation’s demand for physicians) is the impact this phenomenon has on the physician’s home country. Many IMGs come to the U.S. from nations that could benefit from the additional training they receive in the U.S. Some of these countries have a shortage of physicians. This is a challenging issue that applies to all medical fields, not only to cardiology. It is especially problematic, however, as evidence now indicates that the incidence of cardiovascular disease is growing significantly in developing nations.

Developing countries often do not have the resources to effectively absorb all their medical graduates into postgraduate training programs. This contributes to physician migration from developing to developed countries. Some nations even provide stipends for physicians to train abroad. Economic and other incentives, particularly in the U.S., however, tend to promote retention of IMGs in this country, possibly depriving other countries of some of their brightest and best-educated physicians. In many nations the cost of medical school is subsidized mainly by the government. Therefore, the recruitment of post-graduate physicians from developing countries to the U.S., England, and other developed countries has been criticized because there is no mechanism to compensate the country of origin for its educational investment in the emigrating physician. A unilateral “brain drain” of IMGs from developing countries is likely to have a negative impact on world health care.

In response to these issues, the 5th World Organization of National Colleges, Academies, and Academic Associations of General Practitioners/Family Physicians (WONCA) World Rural Health Conference submitted a document in May 2002 outlining an ethical code of practice for international recruitment of health care professionals entitled “the Melbourne Manifesto” (34). The World Medical Association also recently created a committee to develop a policy concerning the exploitation of doctors recruited to work in other countries (35). Balancing and matching training opportunities with health care needs at the local, national, and international levels is desirable.

**WORKING GROUP RECOMMENDATIONS**

The infusion of IMGs into cardiology and medicine in general in the U.S. has had a significant number of beneficial effects that transcend the diversity they bring to our nation and its health care system. Although most IMGs practice—and provide care to a significant percentage of our population—many remain in academic medicine where they contribute to research and education. In formulating recommendations regarding IMGs, our working group believed that any changes in policy should acknowledge the vital contributions that IMGs have made and potentially will make to the delivery of care to an expanding population of patients with cardiovascular disease.

**Recommendations**

1. Continue to acknowledge that IMGs are a vital component of the U.S. cardiology community and make important contributions to practice, research, and education.

2. Because IMGs have demonstrated their ability to compete effectively with U.S. medical graduates for positions in the nation’s cardiology training programs, there should be no arbitrary system developed that precludes qualified IMGs from applying to internal medicine and cardiology training programs in the U.S.

3. Consider developing and piloting a “short track” training program for select IMGs who already completed internal medicine and cardiology training before entering a postgraduate training program in the U.S.

4. Develop programs that encourage greater international exchange between cardiologists. For example, programs could be piloted that would make it possible for IMGs who practice, perform research, or teach in the U.S. to return to their country of origin for variable periods of time in order to contribute to that country’s healthcare. The ACC sponsored such programs (known as International Circuit Courses) for several decades and should consider reestablishing this model of international outreach.

**WORKING GROUP 4 REFERENCES**


6. Graduate Medical Education. Appendix II, Table 6. Citizenship/Visa Status of All Resident Physicians and International Medical Graduates
Nurses have assisted physicians in delivering care for generations. During the past half-century cardiologists, nurses, and other non-physician clinicians have collaborated in a variety of ways in various contexts to develop new models of healthcare delivery to patients with known or suspected heart disease. The most visible and dramatic example of the development of the team-care concept in cardiology was the creation of the coronary care unit concept in the 1960s. Nurses and other non-physician clinicians (such as nurse practitioners and physician assistants) and individuals trained to assist in diagnostic tests (such as sonographers and X-ray technicians) are now indispensable members of the cardiac care team.

The need to provide efficient, high-quality care to a large