

FELLOWS-IN-TRAINING & EARLY CAREER PAGE

Deficiencies in Global Health Training for Cardiovascular Fellows



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By 2020, 7 of 10 deaths in developing countries are predicted to be due to noncommunicable diseases—the majority of which would be due to preventable cardiovascular diseases (CVDs) (1). Section IV.A.5 (a) of the Accreditation Council for Graduate Medical Education's Program requirements for graduate medical education (GME) in cardiovascular disease recommends that fellows-in-training (FITs) must demonstrate competence in the practice of health promotion, disease prevention, diagnosis, care, and treatment of patients of each sex, from adolescence to old age, during health and all stages of illness (2). However, there is an unmet and unrecognized need for U.S. cardiology fellowship programs to offer an opportunity to incorporate global health training in cardiology during the 36 months of core training (2).

A unique aspect of the U.S. GME program is the systematic integration of physicians trained outside of the United States (international medical graduates) into the post-graduate medical training programs alongside American medical graduates, often creating a melting pot of shared knowledge. More than 25% of the 797 positions for cardiovascular disease in the 2014 match were filled by non-U.S. international medical graduates (3). This tremendous pool of shared cultures and diversities is an asset that can be tapped when formulating and implementing a national global health training policy.

As an international medical graduate, I have witnessed the tremendous burden of cardiovascular disease on the socioeconomics of a developing nation. I spent most of my time during my internship in rural India treating coronary heart disease, hypertension, diabetes, and heart failure. As I began my post-graduate medical training in the United States,

I realized that in many ways, medical graduates during their residencies and fellowships are sheltered from global (international) health. This is mostly a function of the social, economic, and geographic position of the United States; a part of it, however, might be due to the current underappreciation of the importance of global health. The recent Ebola pandemic in West Africa (2014 to 2015) and several others (severe acute respiratory syndrome, Middle East respiratory syndrome, and H1N1 influenza) have caused periodic rise in interest in global health as it relates to infectious diseases. However, the burden of chronic noncommunicable diseases on global health and its international effect is more difficult to conceptualize, as its effect is less dramatic in the short term. The World Health Organization estimates that cardiovascular diseases are, and will remain, the leading cause of death globally at least until 2030 (4,5); >80% of these CVD deaths take place in low- and middle-income countries (6). This has a crippling effect on these fragile economies (7). In the last 10 years, China and India have lost \$558 billion and \$237 billion, respectively, compared with the United Kingdom's loss of \$33 billion, in domestic income from CVD, partly because of reduced economic productivity per WHO estimates (8). This has a more direct and faster economic effect on the United States. Recognizing this urgency, the U.S. Institute of Medicine committee in 2010 provided 12 concrete recommendations (9). These recommendations included ways to reduce global CVD burden by *improving access to CVD diagnostics*. This recommendation might be a place to start for FITs who have an interest in pursuing a career in global health.

HOW CAN U.S. CARDIOVASCULAR FITs TAKE PART?

IMPROVING ACCESS OF LOW- AND MIDDLE- INCOME COUNTRIES TO CVD DIAGNOSTICS. U.S. cardiology FITs (senior and subspecialty fellows) are uniquely

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positioned to take their technical and procedural skills to the proverbial “bedside” of the patients in low- and middle-income countries where there is still significant physician shortage (e.g., in India: 6.5 physicians/10,000 population vs. 14.2/10,000 population worldwide) (10). This will require partnership and collaborations among nongovernmental organizations, member associations, and academic institutions. There are examples of this sort of partnership on a smaller scale. For instance, the American Association of Physicians of Indian Origin and World Heart Federation has conducted several medical camps enlisting U.S.-trained physicians for voluntary work in Southeast Asia and Africa involving medical education, echocardiography scans, rural medical/health camps, and vaccinations. This strategy has the potential to recruit a much larger number of physicians if the pool of cardiology FITs can be recruited. If senior and subspecialty FITs were given the opportunity to pursue a foreign elective rotation for global cardiovascular care during their fellowship, it would not only open up a huge pool of competent physicians for global health endeavors, but would also be a tremendous learning experience for FITs to expand their horizons.

CURRENT OPTIONS

There are enormous benefits to global health cardiovascular training, such as those recently summarized by Abdalla et al. (11) in the *Journal*. They described the new ACC International Cardiovascular Exchange Database, which houses contact information for >50 host institutions from 24 countries that can serve as the starting point of an exchange program.

Clinical and research fellowships in global health are obtainable, and many traditional residencies (surgical specialties, internal medicine, and emergency medicine GME) now offer global health tracks (12). The International Healthcare Opportunities Clearinghouse maintained by the University of Massachusetts Medical School indexes all major international opportunities, including: the Fogarty International Clinical Research Fellows Program, Fogarty International Research Scientist Development (National Institutes of Health K-level Awards), Fulbright Fellowship, Lancet International Fellowship, Bill and Melinda Gates Grand Challenges, Doris Duke Charitable Foundation, Foundation LeDucq, and Icahn School of Medicine at Mount Sinai.

However, *specific* opportunities for U.S. cardiovascular FITs are still lacking. The availability of an international elective for cardiovascular FITs would arguably be beneficial to the fellow (providing career directionality and clinical expertise, and expanding

his or her clinical viewpoint), as well as to the home institution in fostering cultural sensitivity and developing models of high-quality cost-effective cardiovascular care (13), international cooperation, global health, and economic integration in an increasingly globalized world. This merits a discussion among GME policy makers.

BARRIERS

There are several personal barriers to pursuing a global health elective rotation in a foreign country, including finances and medico-legal considerations. However, the most important barriers may be external, including the lack of institutional recognition of the importance of this rotation and the lack of clear guidelines pertaining to training in global cardiovascular disease.

1. *Financial constraints.* Surveys have shown that one of the primary concerns of trainees and early career physicians is repayment of student loans (14). This is complicated by the fact that global health initiatives as an employment opportunity does not compare with the current compensations and expectations of U.S.-based physicians. For instance, the median salary of U.S. cardiologists is \$425,000 (15), compared with the annual salary of \$72,390 to \$130,800 for an overseas medical officer of the Centers for Disease Control and Prevention or the \$1,913 per month (tax deductible) paid by the Doctors Without Borders/Médecins Sans Frontières (16). This disparity in remuneration will inevitably result in serious repercussions. Novel federal initiative programs for student loan forgiveness, such as the Global Health Service Partnership (17), which is a public-private collaboration among Seed Global Health, the Peace Corps, and the U.S. President’s Emergency Plan for AIDS Relief, can be very helpful in this regard. The Global Health Service Partnership program provides \$30,000 of loan repayment per year of service along with travel and lodging expenses. However, it would be unrealistic to expect that voluntarily working in an economically underdeveloped country would demand comparable remuneration to working full time in the United States. Thus, a certain amount of altruism and sacrifice would need to fill this gap.
2. *Lack of dedicated time during training.* The absence of a dedicated “elective” rotation in certain postgraduate training programs can be a significant deterrent for some. I would recommend that the professional cardiovascular community, the Accreditation Council for Graduate Medical

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