

ORIGINAL RESEARCH

Bidirectional Exchanges of Medical Students Between Institutional Partners in Global Health Clinical Education Programs: Putting Ethical Principles into Practice



Robert Rohrbaugh, MD, Anne Kelleth, BA, Michael J. Peluso, MD, MPhil, MHS

New Haven, Connecticut, and Boston, Massachusetts

Abstract

BACKGROUND One-third of US medical students participate in global health (GH) education, and approximately one-quarter of US medical schools have structured programs that offer special recognition in GH. GH clinical electives (GHCEs) are opportunities for students to experience a medical system and culture different from their own. GHCEs are administered through institutional affiliation agreements, often between an institution in a high-income country (HIC) and one in a low- or middle-income country (LMIC). Although these agreements suggest the exchange of students in both directions, GHCEs are traditionally characterized by students from HICs traveling to LMICs.

OBJECTIVES The goal of this study was to investigate the availability of opportunities for students from LMICs participating in GHCEs at partner institutions in HICs and to describe the costs of these opportunities for students from LMICs.

METHODS We conducted a web-based search of 30 US institutions previously identified as having structured programs in GH. We determined which of these schools have programs that accept medical students from international schools for GHCEs, as well as the administrative requirements, types of fees, and other costs to the international student based on information available on the web. Descriptive statistics were employed for the quantitative analysis of costs.

FINDINGS We found that, although the majority of US institutions with structured GH programs sending students to sites abroad accept international students at their sites in the United States, nearly one-fifth of programs do not offer such opportunities for bidirectional exchange. We also characterized the substantial costs of such experiences, because this can represent a significant barrier for students from LMICs.

CONCLUSIONS Access to GHCEs in US partner institutions should be an important underlying ethical principle in the establishment of institutional partnerships. The opportunities available to and experiences of students from LMIC partner institutions are important areas for future GH education research.

KEY WORDS global health education, global health clinical electives, inter-institutional partnerships, bidirectional exchange, capacity building, ethics

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INTRODUCTION

The expansion of opportunities in global health (GH) education over the last 2 decades has resulted in an unprecedented number of medical trainees engaging in GH experiences. These experiences, which may take place at institutions in other countries, reflect the increasing interconnectedness of health and health systems worldwide. According to the Association of American Medical Colleges, approximately 30% of US medical school graduates have participated in a GH experience, which includes clinical electives (GHCEs), during each of the last 5 years.¹ It has previously been reported that nearly one-quarter of US medical schools that grant an MD degree have a structured GH curriculum, defined as a longitudinal program with multiple experiences that leads to certification or special recognition in GH.²

Although many students from high-income countries (HICs) are engaged in GHCEs in low- and middle-income countries (LMICs), interest in GHCEs is not limited to medical students from HICs. GHCEs are administered through institutional affiliation agreements, often between an institution in an HIC and an institution in an LMIC; these inter-institutional affiliation agreements suggest the exchange of students in both directions. There has been a recent movement away from unidirectional global health programs (in which an institution in a HIC sends students to a partner institution in an LMIC) and a greater focus on “institutional partnerships,”^{3–6} which are meant to reflect a mutual benefit and may facilitate the bilateral exchange of students, trainees, and faculty. Despite these trends, GHCEs are traditionally represented by students from a HIC traveling to an LMIC; there are limited data on how often this principle of bilateral exchange of students is implemented in practice. The purpose of this study was to determine whether those US medical schools engaged in medical student GH education at the structured program level are also hosting international students for GHCEs at their own institutions, and to gather initial data on financial and other barriers for students from LMICs who wish to participate in GHCEs in the United States.

METHODS

A website review of the 30 US MD-granting medical schools previously identified as having a structured program in GH education² was conducted in January 2014 to determine which of these

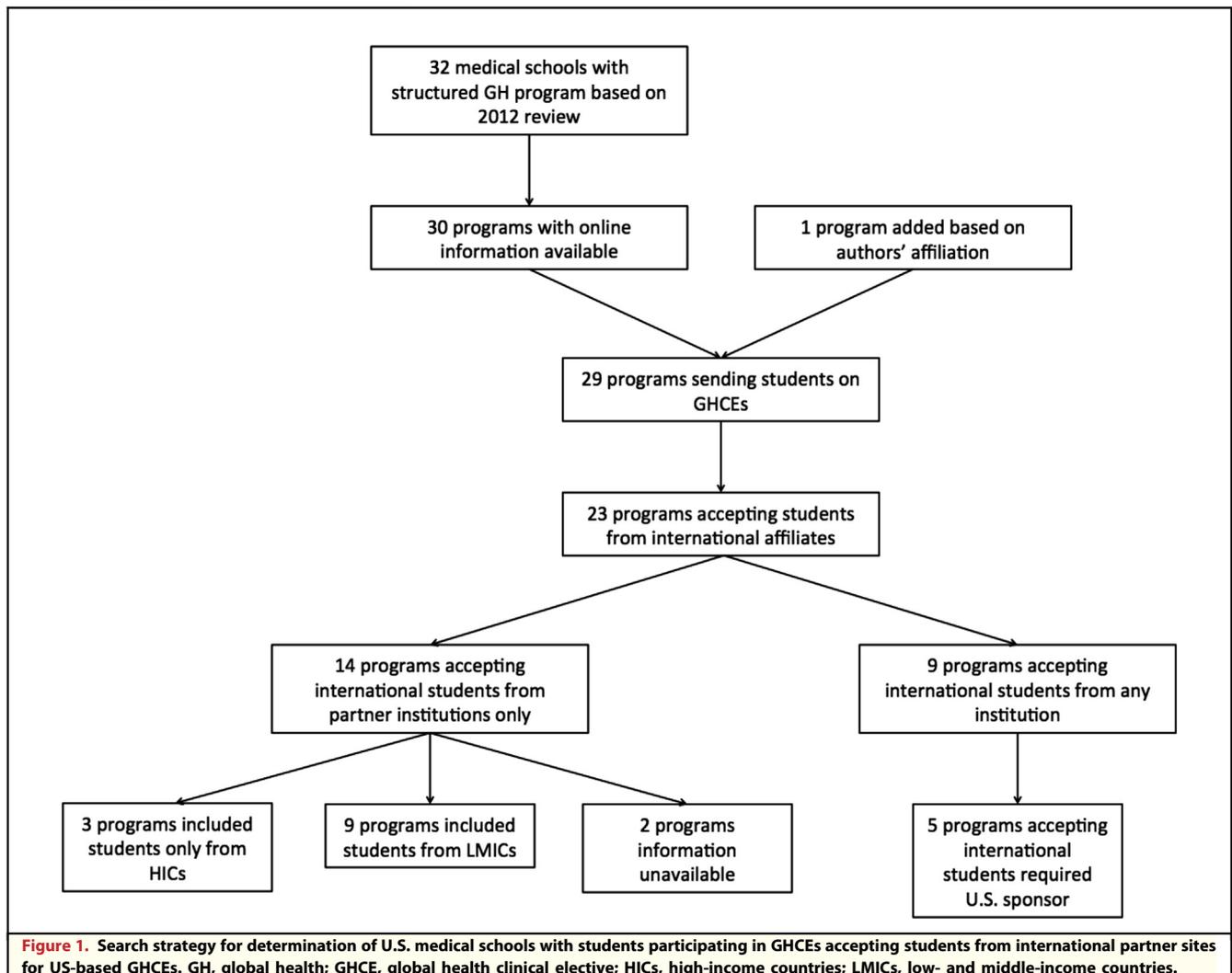
medical schools sent students on international GHCEs as of that date. To this list, we added the institution with which 2 of the authors are affiliated (R.R. and A.K.), which had developed a structured GH education program in the interim. A similar search strategy was utilized to determine which of the medical schools that are sending students to international sites have programs that accept medical students from international schools for GHCEs at their own institutions. For those US institutions that accepted students from international schools for GHCEs, we determined the administrative requirements, types of fees, and other costs to the international student based on information available on the web. We used World Bank–based country level data to identify international institutions as being located within HICs or LMICs.⁷ Basic statistics were employed for the quantitative analysis of costs. The study received an exemption from the Yale University School of Medicine Institutional Review Board.

RESULTS

The results of the search algorithm are displayed in [Figure 1](#). In the previous study, 30 medical schools had structured GH programs with information available online. These 30 schools were reanalyzed in January 2014; at that time, 28 of 30 (93%) indicated that they sent students on international GHCEs. To this number, we added the institution with which 2 of the authors (R.R. and A.K.) are affiliated, because a structured GH program had been developed there after the previous study. This resulted in 29 institutions included in this analysis.

Of the 29 schools included, 23 (79%) accepted international students for GHCEs at their institution. The majority (14 of 23; 61%) of US schools that accepted international students for GHCEs did so only for students from affiliated institutions where their own students were hosted. Four of 23 (17%) US medical schools accepted international students for GHCEs regardless of whether they were from an affiliated site, whereas the remaining (5 of 23; 22%) accepted students from unaffiliated sites only when the student had a faculty sponsor at the US institution.

Of schools that accepted international students only from affiliated institutions, 9 of 14 (64%) included affiliated institutions in LMICs. Three of 14 (21%) only accepted students from HICs. We were unable to determine the countries of origin of accepted students for 2 of 14 (14%) schools.



Types of fees and costs associated with participating in clinical electives for international visiting medical students could be divided into 6 categories, including: (1) application fees; (2) pre-entrance examinations needed to qualify for acceptance (eg, TOEFL English Language Proficiency Test and United States Medical Licensing Examination [USMLE] Step 1); (3) tuition and associated costs to participate (eg, state-specific eligibility certification, malpractice insurance, drug testing, background checks); (4) student health (eg, required vaccinations and health insurance); (5) travel (eg, air and ground transportation, visas); and (6) housing and meals. The percentages of schools requiring these pre-entrance examinations, fees or costs, and the range and mean fee or cost are provided in [Table 1](#).

DISCUSSION

The goal of this study was to determine the scope of what we feel is an ethical dilemma resulting from US medical schools sending students abroad for GHCEs but not hosting students from international sites for GHCEs at their own institution. Others have previously expressed concern over the perceived imbalance between HICs and LMICs involved in such partnerships,⁸ and it is our opinion that offering opportunities for students and trainees from institutions that are commonly on the receiving end of such collaborations is a necessary step in the achievement of equitable and mutually beneficial institutional partnerships. Along these lines, we believe that the inequality of access to educational experiences in GH represents a fundamental

Table 1. Administrative Costs Associated with US Global Health Clinical Electives for International Students

Type of Fee	Schools Requiring Fee n (%)	Mean Cost (USD)	Range (USD)
Application fee	13/23 (57)	216	50-500
Pre-entrance exam*	8/23 (35)	—	—
TOEFL English Language Proficiency Test	5/23 (22)	189	160-240
USMLE Step 1	4/23 (17)	915	Not applicable
Tuition and other costs*	8/23 (35)	2705	500-6000

USMLE, United States Medical Licensing Examination.
* One school required either TOEFL or USMLE Step 1 and so is listed twice. Of note, these administrative fees do not include costs associated with trainee health (ie, required vaccinations), health insurance, malpractice insurance, travel, housing, and meals.

contradiction to the spirit of training in global health, which by definition is rooted in principles of equality and equity.^{9,10} Although there are limited data on the perspectives of international partner institutions in these relationships, the existing data suggest that such institutions see reciprocity in general and the bidirectional flow of students in particular as important steps in developing sustainable partnerships.^{11,12}

Although the majority of US institutional partners do accept international students, we found that more than one-fifth of schools with a structured GH program do not accept students from their international collaborators in return. If the gap is this large in schools that have committed resources to developing a structured GH program, we hypothesize that the gap in US schools that send students on GHCEs but do not have a structured GH program is likely to be much larger.

Even when US schools do accept students from international partners, there are significant administrative and financial barriers for these students, especially those from LMICs. These barriers include application fees, costly pre-entrance examinations that may not be easily accessed in some international settings, tuition, immunizations, and insurance. In addition to these costs, travel expenses can easily reach \$1000 per GHCE and housing and food add another \$2000 per month of experience. Because these expenses are considerable, many students from LMICs are unlikely to be able to overcome such barriers without assistance. Many of the administrative fees outlined in Table 1 do seem possible to mitigate; for example, although English fluency will be important to ensure patient safety, a teleconference or phone interview might be able to provide a good assessment of oral fluency and a review of written materials (eg, an essay) could demonstrate writing capacity in English. Even for schools that waive tuition or application fees for

students from affiliated sites, is the ethical dilemma solved if students from an affiliated site are unable to cover the other costs, including travel expenses, associated with a GHCE in the United States? Further research on the number of students from schools in LMICs who access GHCEs in their partner US institutions, the ratio of students sent by US schools to students received from affiliated international schools, and the kinds of financial and administrative assistance provided by US schools will help inform this important ethical discussion.

GHCEs in postgraduate medical education programs are also becoming more common,¹³ and although difficult to quantify, recent work has suggested that faculty participating in such GHCE exchanges also accrue considerable benefit.³ Financial barriers similar to those outlined in this report exist for bilateral exchanges at the residency and faculty level. However, administrative barriers are much greater for residents and faculty from international schools because of US state licensing requirements for medical school graduates providing patient care. These administrative barriers for residents and faculty from international institutions contribute significantly to the inequality of access to GHCEs.

Although sending and receiving an equal number of students would seem to be the best way to manage the ethics of bidirectional exchanges, other values may also need to be considered. For example, is it ethical for students from LMICs who may have family financial resources to be provided tuition-free GHCEs if matriculated indigent students (who may be from the same LMIC) are charged tuition for the same experience? How can we ensure that experiences had by students from LMICs in the United States are truly high-quality GH experiences? Given these issues for medical students and the additional challenges of providing GHCEs for residents and faculty, we believe that in the short term it is unlikely that an equal

number of trainees from LMICs will come to the United States as leave for GHCEs. To address this disparity, we suggest the need for US institutions to develop and disseminate innovative methods to support education, clinical care, and research at their partner institutions in LMICs.

One potential concern that may be voiced in response to enhanced LMIC student participation in bilateral global health exchanges is the question of so-called brain drain. That is, does providing a GHCE for an LMIC student increase the likelihood that he or she will want to continue training or practicing in an HIC setting at the expense of either training or working in his home country's health care system? "Brain drain" is a real challenge affecting human resources for health in the era of globalization and migration, but its causes are more complex than the relative attractiveness of work opportunities in HICs.^{14,15} It has been estimated that approximately one-quarter of medical school graduates from sub-Saharan Africa, for example, migrate out of their home country within 5 years of graduation.¹⁶ Data from scientific studies of LMIC participants in GHCEs are scarce; 1 single-center survey suggested that a significant percentage of Ghanaian medical students felt more inclined to pursue training opportunities or a career outside of their home country after participating in a GHCE,¹⁷ although the authors themselves point out that this statement of interest can be assumed to be neither generalizable nor an indicator of future migration. Related work has found that the vast majority of African migrants practicing in the US emigrated from only 3 countries (including Ghana) and 10 medical schools (including 1 of the schools in the aforementioned study),¹⁴ and we would therefore caution against extrapolation of these data to all LMIC participants in GHCEs. We would also recommend consideration of many of the potential positive impacts on students from LMICs participating in GHCEs—the enhancement of clinical knowledge and skills, the

opportunity to experience a different educational and health care system (and in many cases, see that even the "best" systems are far from perfect), the ability to form meaningful professional relationships with potentially lifelong colleagues and mentors, and most importantly, the opportunity to take something back to their home institutions, just as their HIC counterparts are expected to do.^{18,19} In addition, we note the mounting evidence regarding the effects of underinvestment in LMIC health care systems on brain drain and the potential benefits of educational partnerships in LMIC settings on capacity building, health system strengthening, sustainability, and workforce retention.^{4,20} Nevertheless, this issue, particularly within the context of GHCEs, requires further investigation, and there will be great value in studying LMIC students involved in bilateral exchanges that are supported by institutional partnerships.

Finally, we note the value of educational collaboration and the bilateral exchange of ideas in situations where logistics or funding prevents the actual exchange of individuals through GHCEs. This includes efforts like mobile health platforms,²¹ joint electronic learning and collaboration platforms,²²⁻²⁴ and simultaneous shared learning activities.²⁵ Detailed exploration of these approaches is beyond the scope of this article.

The current study has a number of important limitations, most notably its use of a sample derived from an earlier web-based review of structured GH programs.² Although most of the data were derived from the web and updated information was sought after the initial review, it is possible that individual institutions have provided incomplete or outdated information in this forum. Still, this preliminary study provides a useful starting point for further exploration of the extent to which bidirectional exchanges are present in US medical schools with structured GH education programs and brings to light an important ethical challenge that needs to be considered at the institutional level.

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