

Knowledge is Power: Assessing Academic Decolonization through Bidirectionality of Training in Global Health Fellowships

Rebecca Fujimura, MD*¹, Yalda Jabbarpour, MD¹

Affiliation: ¹MedStar Health/Georgetown-Washington Hospital Center Family Medicine

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Abstract

There is significant support for decolonization in global health medical education, yet there is little documented on the inclusion of physicians from low- and middle-income countries (LMICs) into U.S.-based training. This paper aims to explore the options that are available to physicians from LMICs to receive academic training in global health at U.S.-based institutions and contemplate solutions that align with the ideals of sustainability and decolonization. A narrative review conducted through library databases and a web-based search of academic websites were carried out in 2022 to find programs that discussed inclusion of physicians from LMICs into U.S.-based global health fellowships. Fifteen articles were found that discussed the inclusion of physicians from LMICs into a U.S.-based program. From the web-based search, five programs plainly stated the acceptance of physicians from LMICs. Therefore, there are limited current U.S.-based academic programs accepting physicians from LMICs, based on a literature search and applicant requirements published online. This shows an important gap in training that is meant to focus on health equity and decolonization, particularly in the realm of knowledge sharing. However, this study was limited by what data was formally published through journal articles or online. Programs that have bidirectional aspects may exist but have no publication or formal website.

Keywords: global health, physician education, decolonization, fellowships

Introduction

Global health education has greatly increased over the past couple of decades, including through the formation and expansion of global health fellowships. Several events have driven the development of global health training and involvement, including the HIV/AIDS epidemic, the Ebola crises, and now the COVID-19 pandemic (1). Events such as these have highlighted the importance of strong healthcare infrastructure throughout the world and the need for enhanced training and collaboration (2). Academic institutions in the Global North have responded with a wide expanse of global health opportunities for U.S. Graduate Medical

Trainees, including an increasing number of global health fellowships (3-11). Global health fellowships are formally organized training opportunities in the field of global medicine for physicians post-residency (5-6). These programs have specified training that is applicable to global health work including clinical care, research, policy, and academics. One example is the growth of Global Emergency Medicine Fellowships, in which eight fellowships were identified in the early 2000s, with now over 42 listed with the Society for Academic Emergency Medicine (12-14).

* Corresponding author: Rebecca Fujimura, MD. Email: RLFujimura@gmail.com

Overall, global health fellowships in the U.S. have nearly doubled since 2010 (15-17). Other global health programs, hosted in a range of departments from Anesthesiology to Pediatrics, allow for additional training in research, diseases prevalent in low- and middle-income countries (LMICs), point of care ultrasound use, faculty development and other realms that pertain to global health and clinical medicine (6, 9, 15, 18). Many have vision and mission statements that focus on health equity, and inclusion, and many comment on the ultimate aim of sustainability of health care processes in LMICs (19). Sustainability in this case refers to interventions that can be carried out long term with increased efficiency and efficacy (19). This global health training is targeted to equip physicians, largely in the Global North, for global health challenges and to encourage research and innovation in this rapidly growing field.

Along with expansion in the academic realm, there has also been growth in the U.S. government sector. In the 2022 United States Agency for International Development (USAID) budget, \$3.9 billion was allotted for strengthening global health leadership (20). These USAID funds are used for projects including, but not limited to, those focused on combatting the HIV/AIDS epidemic, lowering rates of maternal and infant mortality, and responding to infectious disease threats abroad. Additionally, the National Institute of Health (NIH) has funded Fogarty projects, a division focused on international projects, since its induction in 1968 (21). USAID contributions, as well as the expansion of academic training, show a broad-based interdisciplinary investment in building sustainability in global health work.

Within various forms of global health training there has been advanced discussion regarding decolonization and bidirectionality (1). Bidirectionality is the concept of sharing resources and input from both the Global North and Global South to better achieve equality in global health work (1, 22). Eichbaum et al. bring forth the idea of decolonization as breaking down superiority that can enforce discrimination. They discuss the idea that "knowledge is power" and that those that hold the

knowledge will continue to hold power over those that do not. Education and knowledge sharing are two areas to be explored within the ideas of decolonization. When informational power and the most up-to-date academic opportunities continue to be provided to individuals from the Global North, this determines who has control. According to Bhakuni et al. there is injustice in global health academics, with biases leading to exclusions of various groups, resulting in marginalization and deficits in the affected group's credibility (23). Others have explored the idea of knowledge sharing, and how withholding information can violate one's dignity and therefore health equity as a whole (24). If governmental expansion, private funding, non-governmental organization (NGO) investment, and academic opportunities lie primarily in the Global North, with limited access for those outside of high-income countries (HICs), the risk is that these efforts could exacerbate inequity while still holding development and sustainability as a mission (1).

Multiple studies show that most U.S.-based physicians that participate in global health fellowships do not ultimately practice in a low resource setting abroad; most end up in U.S. academic-based centers (9, 12, 18). Respondents to one survey found that 28.2% of fellowship graduates went on to work in LMICs after graduation (9). Another survey showed the median time engaging in work in LMICs after fellowship was one month out of the calendar year (18). Overall, there is a distinct difference in who stays to continue to work in these communities, with more physicians from LMICs staying in their home country and providing care long term (9, 18).

Due to the factors discussed above, such as the growing number of global health fellowships, expanding financial investment and increased discussion of decolonization in academia, our primary objective was to explore the options that are available to physicians from LMICs to receive academic training in global health at U.S.-based institutions, specifically in the area of post-residency training fellowships in global health. Given the educational investment of academic centers and financial investment from the U.S. government, there is clear value placed on developing sustainable ways to

manage global health issues. Studies have shown the payoff in investing in physician's from LMICs who end up providing longstanding care in their home countries (9, 18). We evaluated the implementation of global health fellowship programs for physicians from LMICs in academic settings in the U.S. as a means of working towards sustainability. The data from our narrative review and web search was used to assess the gaps in accessibility to training for physicians from LMICs and contemplate solutions that align with the ideals of decolonization, such as inclusion when it comes to informational sharing, research opportunities, global health projects and new clinical care techniques.

Methods

PubMed, Embase, Global Health, and Web of Science databases were searched by an author and two librarians in 2022. MeSH search terms included: "global health", "fellowship", "graduate medical education", and "developing countries". "Developing countries" was chosen because search terms for LMICs did not exist or did not yield adequate results. "Global health", "fellowship", and "graduate medical education" provided us with information on the programs we were searching for. The MeSH terms for physician were excluded, as they did not narrow the search to the targeted programs [See Online Supplementary Material 1]. From here articles were screened according to the following inclusion criteria: 1) The article was written in English. 2) The article discussed global health fellowships. Articles discussing current and past programs were included, as well as articles about programs that have closed since the publication of the article. Fellowships were defined as a part-time or full-time formally organized training, with a supporting institution, in the field of global health post-residency. 3) The fellowships were based out of a U.S. academic institution. 4) The fellowship involved the participation of physicians from LMICs. There was no time limit placed on the publication date. These inclusion criteria were chosen to clearly define the aspect of training we aimed to explore, which in this case was post-residency training in global health (10, 13-14, 16).

Exclusion criteria included the following: 1) conference

abstracts, 2) articles that only discussed fellowships based out of an academic center outside of the United States, 3) articles that only discussed programs that existed outside of an academic center (i.e., NGO, governmental program, etc.), and 4) articles that discussed medical fellowships that included only a global health component. A global health component was defined as an additional or limited portion of a specialty-specific fellowship, such as one designated for Cardiology or Gastroenterology. Examples of this would be a choice to travel to a LMIC or attend optional didactic sessions on global health along with specialty-specific training. We also excluded 5) articles that only involved students or health care workers other than physicians. These exclusion criteria were used to capture the most accurate results of what was defined as a global health fellowship for physicians following residency (10, 13-14, 16).

Once articles were identified through searches using the MeSH terms, the above criteria were used to exclude articles based on their format, title, and abstract. Articles that passed through this initial screening then underwent full text review and were screened for terms such as bidirectionality, inclusion, decolonization, collaboration with physicians from LMICs and their recognition as a fellow, or clear statement of participation of physicians from LMICs.

A web search of U.S.-based global health fellowships supplemented the peer reviewed literature search. This included all fellowships, as defined above, housed in departments of medicine. We used a global health fellowship database (globalhealthfellowships.org) and reviewed the program websites for application requirements and acceptance qualifications. An individual web search was also carried out to find U.S.-based programs that were not listed on the database. We assessed the database and web results for programs that discussed acceptance of physicians from LMICs in the application process or had another bidirectional training component such as inclusion in training, research, or projects. We then collected data on which institutions explicitly stated these aspects on their website versus those who did not.

Results

The initial literature review yielded 381 articles. Of these, 88 articles were duplicates and 28 articles were conference abstracts, both of which were excluded. From there, 233 articles were eliminated based on title and abstract review. After full text review, only 15 articles discussed the inclusion of physicians from LMICs. Of these remaining articles, seven discussed the Afya Bora Consortium, five discussed the Fogarty International Clinical Research Scholars and Fellows Program, and the remaining articles discussed three other independent global health fellowships (3, 22, 25-38). These included a short-term Global Patient Safety Fellowship, a one-year

public and global health research fellowship called the Kuskaya training partnership, and a short-term exchange fellowship involving health professionals from Malawi, Zambia, and the U.S. (Figure 1).

In the web-based search, 108 global health fellowship programs across all specialties were identified. These included only global health fellowships as defined previously. Those that only contained a global health component in the context of a specialty specific fellowship were excluded. The departments that housed the global health fellowship programs included Anesthesiology, Emergency Medicine, Family Medicine, Internal Medicine, OBGYN, Pediatrics, Psychiatry, and

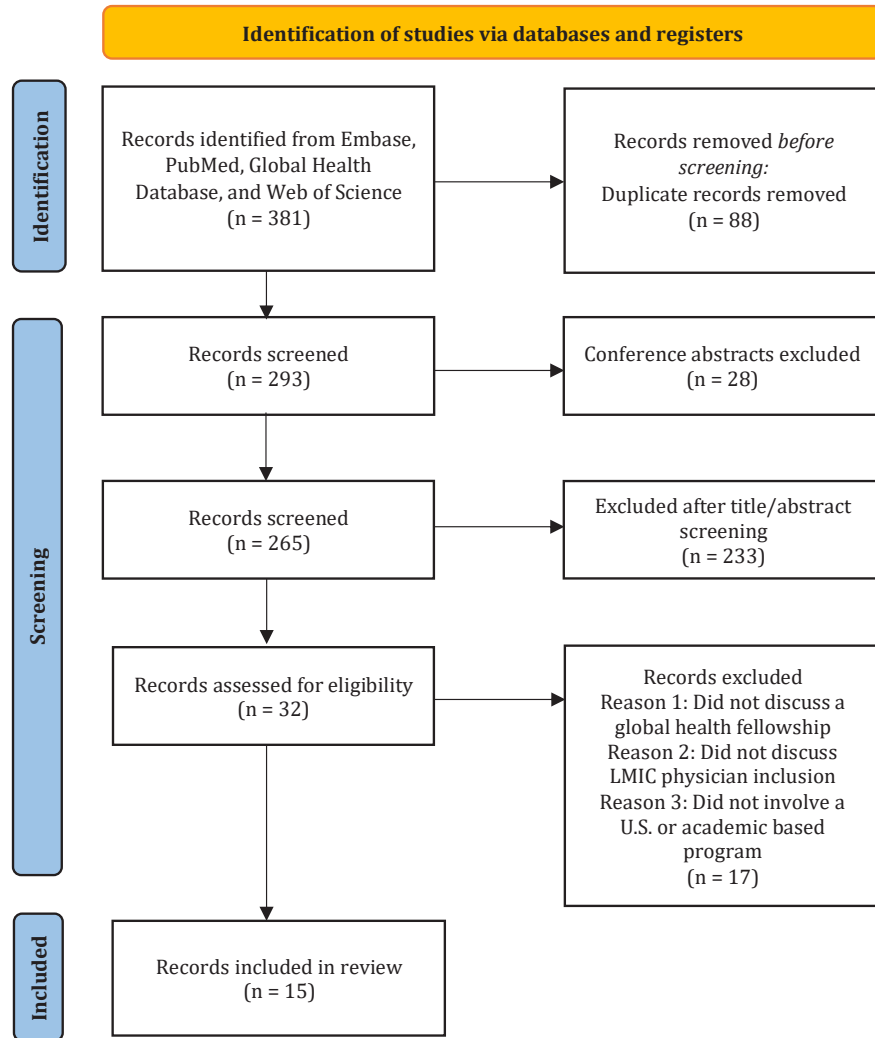
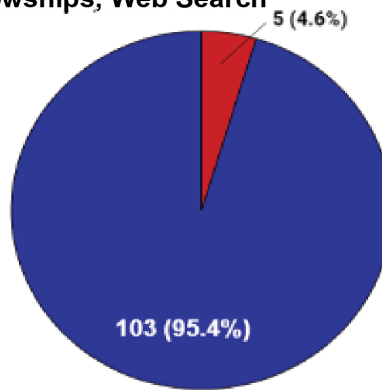


Figure 1. PRISMA diagram detailing the selection of included articles.

Global Health Fellowships, Web Search



- Program-specific website states that program accepts physicians from LMICs
- Program-specific website does not state that they accept physicians from LMICs

Figure 2. Proportion of global health fellowships that explicitly state on their website the inclusion of physicians from LMICs.

Surgery. There were also multiple interdisciplinary programs reviewed. The majority of the programs were within Emergency Medicine. Based on published website data, five of these programs plainly stated the acceptance or inclusion of physicians from LMICs (Figure 2).

Of the programs explicitly including participation of physicians from LMICs, the largest program was the one through the NIH’s Fogarty International Center. The center funds collaborative research and includes six U.S. university consortia which partner with multiple host academic institutions in LMICs (38). There was a wide overlap between this web search and what was published in the literature, with Fogarty and Afya Bora being prominent in both. Another large program that stated inclusion of physicians from LMICs was the University of California San Francisco (UCSF) Health Equity, Actions and Leadership (HEAL) fellowship, which was found online but not in the literature.

Bidirectional Programs: Execution and Successes

Multiple programs were highlighted in the literature as having success with acceptance of physicians from LMICs. See Table 1 for participating centers and program descriptions.

One fellowship that was prominent in the literature was the Afya Bora Consortium, which provides a one-year

fellowship for healthcare professionals from LMICs to be trained at a variety of U.S.-based academic centers such as UCSF and Johns Hopkins University (27). As of 2021, they had trained a total of 98 nurses, 78 medical doctors and 11 public health officials (33). Of the participants surveyed, all returned to their countries and felt that the fellowship had a positive impact on their health-related work and research capacity. The results showed 68% had an advancement in their position at work, 84% spearheaded improvements, and 97% remained in contact with fellowship colleagues (35). The article reports major successes when it comes to national health program implementation, education, and advancement of fellows into leadership positions (36).

Another fellowship widely discussed was the NIH Fogarty International Fellows program. The articles report success in using a twinning model between U.S. and international fellows, as well as implementing a Support Center to run the program efficiently (3). The twinning model involves an institution-to-institution partnership with the program run from both HICs and LMICs. There is a peer matching component with projects and educational exchanges between the two, with the goal being that the exchange is mutually beneficial. A survey of alumni, half of which were former fellows from LMICs, found that 63% remained engaged with LMICs and 70% remained involved in academics or research (22). Additionally, there were a total of 5,318 publications

Table 1. List of U.S.-based global health fellowships from the literature review that state acceptance or inclusion of physicians from LMICs.

Fellowship	Academic Centers	Description
Afya Bora Consortium	<ul style="list-style-type: none"> University of Botswana University of Buea University of Nairobi University of Muhimbili University of Makerere University of California San Francisco Johns Hopkins University University of Pennsylvania University of Washington (26, 27) 	Fellows take part in a teaching module, classroom sessions, and two apprenticeship opportunities. There is a curricular focus on global health leadership, management, monitoring and evaluation, grant writing and research (33). This program is currently paused.
Fogarty International Fellows program	<ul style="list-style-type: none"> Northern/Pacific Universities Global Health Research Training Consortium (NPGH) Partnership for Global Health Research Training Program (HBNU) UJMT Global Consortium: Building Research Capacity through Mentored Training (UJMT) University of California Global Health Institute Program for Fellows and Scholars (GLOCAL) Vanderbilt-Emory-Cornell-Duke Consortium for Global Health Fellows (VECDOR) (38) 	This is a year-long research training program that accepts health professionals and post-residency participants from the U.S. and LMICs and places them in sites around the world to carry out projects (3, 30, 37). This program is currently active.
Kuskaya training program	<ul style="list-style-type: none"> University of Washington Universidad Peruana Cayetano Heredia (25) 	This program paired U.S.-based health care personnel with health professionals in Peru to complete global health work through mentorship, research, and courses (25). This program is currently inactive.
Duke Global Health Patient Safety Fellowship	<ul style="list-style-type: none"> Duke University Roosevelt Hospital/ University of San Carlos in Guatemala (34) 	This program was a 4-week course for physicians from LMICs, particularly Guatemala and Pakistan, to receive training on patient safety and quality improvement as it pertains to global health (34). This program is currently inactive.
Malawi / Zambia exchange	<ul style="list-style-type: none"> University of Zambia National Institute of Public Administration in Zambia University of Malawi Global AIDS Interfaith Alliance in Malawi University of Alabama at Birmingham Samford University McWhorter School of Pharmacy University of California San Francisco (29) 	This program had a focus on global health educational exchange, teaching tactics and promotion of clinical experiences (29). This program is currently inactive.

authored by alumni (22). Individuals from LMICs deemed mentorship to be one of the most influential parts of the program and fellows from both international and U.S.-based sites reported that the fellowship influenced their career trajectories (38). A separate fellowship funded through Fogarty was the Kuskaya training program. The article reported a successful bidirectional training program that was “South driven”, with an exchange of trainings between U.S.-based physicians and physicians in Peru. All participants were equal contributors of the research (25).

Further, the Duke Global Health Patient Safety Fellowship was a short-term fellowship that lasted for four weeks. The goal of the fellowship was to “train the trainer” and provide tools for individuals to bring back to their home countries (34). A short-term exchange of healthcare professionals from Malawi, Zambia, and the U.S. also reported success in achieving their objectives. Participants from Malawi and Zambia were brought to the U.S. for trainings and taught about new technologies and innovations in clinical medicine, as well as about leadership and research practices (29).

Discussion

Despite extensive discussion in journals and academia about decolonization, health equity, and diversity and inclusion in global health in recent years, our findings show a clear disparity in U.S.-based global health fellowship opportunities between physicians from LMICs and those from the U.S. While there are some examples of successful implementation of bidirectional training, the majority of programs appear to still be limiting access to resources and training by offering admission only to U.S.-based physicians.

Implementing the Idea of Decolonization and Health Equity

Based on the web data and literature review, there appears to be a lack of implementation of some decolonization ideals, with U.S.-based global health fellowships often limited to physicians from the U.S. This includes the transfer of trainees from the U.S. to LMIC settings for travel and projects. Importantly, most of

these global health fellowship programs are outside the Accreditation Council of Graduate Medical Education (ACGME), which means they are at the independent discretion of the housing institution (15). These U.S.-based institutions can set their own admission criteria, including who they accept and why, and create their own independent curriculum for their programs. As discussed previously, there are examples of successful fellowships with models of inclusivity such as travel exchanges or acceptance of physicians from LMICs into programs for bidirectional projects or research (see Table 1). Outside of global health fellowships, there have been other bidirectional programs successfully implemented which involve travel or participation of trainees from LMICs in programs based in the U.S. These have included Global Surgery exchanges, an enhanced training in Oncology Care globally, and a Pediatric Critical Care bidirectional partnership (39-43). Creating more of these programs will aid in the goal of equity in resources, particularly knowledge and research opportunities, and contribute to the breakdown of power dynamics.

Benefits of Training Physicians from LMICs

There are a variety of advantages to training physicians from LMICs in global health settings in HICs, which could be carried out through global health fellowships.

First, everyone is susceptible to showing bias, and there is a need to address this in order to combat discriminatory treatment of patients (44). One step to help address this could be to expose all physicians to cultural safety training. It is also important for clinicians to work alongside peers from different backgrounds. Having structured lectures on bias, as well as working with a diverse group of individuals, can help break down stereotypes that can lead to bias in medical practice (44).

Second, it is important to consider research processes and publications. Studies have shown that researchers at academic institutions in HICs often hold more power in research collaborations and publish more than their colleagues in LMICs (25, 45-48). Inclusions in training would allow for more opportunities within research for physicians from LMICs, as well as access to mentorship.

Many studies that are carried out regarding LMICs are led by authors from HICs, and inclusivity would allow more opportunities for authorship for physicians from LMICs. Additionally, it could expand access to the most up-to-date information for physicians from LMICs (33, 37).

Experience with novel research technologies, such as newer imaging modalities, would also be beneficial for physicians from LMICs. A great example of this is point-of-care ultrasound, which allows for bedside testing and has become widely used in medicine (14). Physicians in U.S.-based global health fellowships frequently gain in-depth training and experience in the use of these modalities. Physicians from LMICs would likely utilize this technology just as much, if not more, than physicians from HICs, as many of these clinicians do not always have access to other imaging such as CT scans or MRIs (14).

Additionally, further training in diverse disease pathologies and treatments would be given to physicians from LMICs who are, long term, more likely to be exposed to them. Investing in training for physicians from LMICs would allow them to better care for their future patients and communities who face these illnesses. This is particularly important given that evidence shows that physicians from LMICs are more likely to practice in LMICs in the long-term (9, 18).

Above all, inclusion of a diverse group of physicians would create a collaborative learning and work environment that is important in the complex field of medicine. It would also work towards achieving health equity and decolonization in practice, as it pertains to training and implementation of efforts. Knowledge exchange between parties would be beneficial for all. Physicians from HICs would also gain imperative skills from their LMIC colleagues' experience in lower resource settings. Physicians in LMICs who find innovative ways to operate in health systems with less financing and resources could teach physicians from HICs valuable ideas about healthcare delivery and systems (49).

Ideally, having global health fellowships in HICs include physicians from LMICs would only be one component

of a wider effort to achieve academic decolonization. The ultimate goal would be to have adequate access to academia, research, clinical knowledge and learning opportunities in all countries. Having equitable power dynamics is essential, but in the interim, sharing resources from HICs will be key to reach this end point.

Academics as a Means to Development and Sustainability

As discussed previously, most studies show that physicians from LMICs tend to stay and work in their home country for longer than physicians who are originally from HICs (9, 17). When applying principles of sustainability, investing in the training of physicians from LMICs will have a larger and longer impact on global health aspects, such as care management, research, leadership, and academia in LMICs.

Another development tool is education itself. Knowledge and training can be tools of oppression via gatekeeping, which can be used to continue to hold the informational power of one entity over another. With more equal and inclusive forms of information sharing, physicians from LMICs will be empowered with more resources and knowledge to bring to their patients and communities and to train future generations of healthcare providers. This would be a more sustainable use of information sharing, with flow going between the two parties consistently. With this, partnerships would be on more equal standing, minimizing risks of biases or one side taking advantage of another because everyone would have access to the same academic opportunities.

Challenges of Bidirectional Training and Proposed Solutions

Although bidirectional training can be beneficial, there are various challenges that may arise. Based on difficulties with global health fellowships that were discussed in the literature, we compiled a list and extrapolated further challenges we could foresee based on the ones stated (3, 7, 9, 11-13, 15, 22, 25-37). This list is not comprehensive but is meant to provide considerations and guide possible further research. Table 2 presents potential challenges with proposed solutions.

A limitation of this search is that all articles reviewed were written in English. Publications written in another language that discussed an exchange opportunity or experience could have been missed. Additionally, our search did not include partnerships with institutions that may have an exchange outside of a formal training program, or pilot programs that are not published. Another limitation is that most websites are archived if their programs are not active. This could lead to programs that included physicians from LMICs but are no longer published online being missed. There could also

be participation of physicians from LMICs with projects or training in their home country, without any recognition of this stated. Lastly, this study only looked at a specific area in global health training. A variety of training at different levels of academia and in other HICs could have included these ideas of bidirectional training. Further research is needed to explore the program curricula (i.e., do the curricula themselves center decolonization) and the ideas of knowledge sharing within these other academic opportunities.

Table 2. Challenges of participation of physicians from LMICs in U.S.-based academic global health fellowships and proposed solutions.

Challenges	Proposed Solutions
<p>Fellows from the U.S. will often use the income they generate as a practicing physician to fund their fellowship (15). If physicians from other countries are included in the fellowship programs, they would likely not have privileges to practice medicine in the U.S. and could therefore face more challenges funding their fellowship experience.</p>	<p>Use funds generated by U.S. fellows working to offset the cost of allowing physicians from LMICs to participate in trainings. This funding could also be obtained through private foundations, grants, scholarships, or department funds, which are common sources of support (15).</p>
<p>There may be visa challenges or other barriers that prevent some individuals from being present in the U.S. for training. There may also be liability in hosting from a U.S.-based program, which could vary from housing to safety of the student (50).</p>	<p>Expand programs which have training brought to the country of the participant. Fellows based out of the U.S. could travel to a partner site and hold academic sessions or training there. This would allow access to those in-country, with recognition of those who participate. Additionally, with the expansion of virtual learning, open access modules or learning materials can be provided to those outside of the U.S. This was demonstrated in the Kuskaya and Duke patient safety programs (25, 34)</p>
<p>Most training and resources may be in English, which may pose a language barrier. There may also be important cultural differences that need to be considered when it comes to the academic program (50).</p>	<p>Provide translators for all sessions. Written material can be translated into the participants' native language. This could be an opportunity for cross-cultural learning for all participants (for example, learning medical descriptors for pain that do not have an English translation). Additionally, sessions regarding cultural norms or practices could be included as part of the training.</p>
<p>There may be limitations on what portions of the curricula physicians from LMICs may take part in (ex. they may not be able to engage in clinical work in the U.S.). In some cases, it may not be fair to give them the same educational designation as others who participated in more work or activities.</p>	<p>Since most of these fellowships are outside of ACGME jurisdiction, there is flexibility in creating curricula. If the physician from a LMIC still participates in activities, opportunities can be provided for a designation such as "honorary fellow". Additionally, many U.S.-based physicians may receive training or education from a physician from a LMIC while in their country. Allow for distinctions for the physicians from LMICs that participate in this way.</p>

Conclusion

Although there are increasing numbers of global health fellowships, there are limited U.S.-based academic programs accepting physicians from LMICs based on a literature search and applicant requirements published online. This work identifies an important gap in training that is meant to focus on health equity and decolonization, particularly in the realm of knowledge sharing, and supports the idea of allotting funding towards these efforts in the future.

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