

Global Health Training in U.S. Emergency Medicine Residency Programs

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ABSTRACT

Objectives: Formal education in global health (GH) and short-term experiences in GH (STEGH) are offered by many emergency medicine (EM) residency programs in the United States. In an increasingly connected world, training in GH and STEGH can provide essential knowledge and practical skills to trainees, particularly at the graduate medical education level. The current core programmatic components and the essential competencies and curricula that support ethical and effective STEGH, however, still vary widely. The authors conducted a survey of the 228 EM residency programs in the United States to describe the current state of GH training and STEGH.

Methods: An online survey was developed in REDCap by a team of GH faculty. In July 2018, programs were invited to participate via individual invitation of program directors from a directory. The programs received two reminders to participate until January 2019.

Results: Of the 84 programs that responded, 75% offer STEGH and 39% have longitudinal GH curricula. Within these programs, only 55% have dedicated GH faculty and only 70% have dedicated sites. Both faculty and residents encounter funding and insurance barriers; most notably, only 20% of programs that offer STEGH provide evacuation insurance for their residents. Most residents (95%) engage in clinical work along with teaching and other activities, but 24% of programs do not allow these activities to fulfill any residency requirements. Finally, only 80 and 85% of programs offer preparatory and debriefing activities for residents, respectively.

Conclusions: While the results of this survey show progress relative to prior surveys, there are still barriers to implementing GH curricula and supporting safe, ethical, and effective STEGH, particularly in the form of continued financial and logistic support for faculty and for residents, in U.S. EM training programs.

Global health (GH) as a concept or organizing framework for thinking and action has emerged over the past several decades.¹ While no one unifying definition exists, the most commonly cited definition is that by Koplan et al.²: “Global Health is an area of study, research, and practice that places a priority on improving health and achieving equity in health for all people worldwide. Global health emphasizes transnational health issues, determinants, and solutions; involves many disciplines within and beyond the health sciences and promotes interdisciplinary collaborations; and is a synthesis of population-based prevention with individual-level clinical care”. Many other definitions exist; however, most tend to have common characteristics such as equity; global conceptualization; causes, means, and solutions; a sense of obligation; a multidisciplinary approach; consideration of actors; and both reactive and as well as proactive approaches.³

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Received December 18, 2019; revision received March 24, 2020; accepted March 25, 2020.

The authors have no relevant financial information or potential conflicts to disclose.

Author contributions: AM, IK, JT, and GJ conceptualized the study and designed the survey; GJ administered the survey and collected the data; MR, AM, and IK analyzed and interpreted the data; MR drafted the manuscript; and all authors revised and approved the final manuscript.

Supervising Editor: Teresa Chan, MD, MHPE.

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AEM EDUCATION AND TRAINING 2020;00:1–9

Training in GH, therefore, generally involves interdisciplinary and multimodal learning to understand and to address health issues that cross borders and create disparities both locally and globally to, overall, improve health.⁴ This type of training is particularly useful because rare conditions that were once isolated in particular regions of the world are now potentially being seen everywhere, as more and more individuals travel across borders and, subsequently, as the risk of pandemics increases.³ Although GH encompasses much more than completing a rotation in another country, many residency programs offer “global health training” via this modality. In the specialty of emergency medicine (EM) in the United States; in particular, residents have been participating in short-term experiences in GH (STEGH)—rotations or other opportunities outside of the United States—to receive this training for many years.^{5,6} In 1999, 55% of residency programs reported resident participation in STEGH.⁷ Three studies between 2013 and 2016 showed that number to range between 74 and 91% of residency programs.^{8–10} Furthermore, the opportunity for STEGH during residency has been shown to positively affect residency ranking, especially in medical students already with prior experience as well as job choice following residency.^{11–13} According to Bazemore and colleagues,¹² participation in these experiences may even make residents more likely to practice in underserved areas in the future.

While these studies have shown increasing resident interest and participation in STEGH, very little is known about the structure, quality, and mentorship surrounding these experiences. As residents continue to participate in STEGH, efforts have been made to standardize practice and provide preparatory and safety and security training; however, still no common required curriculum or competencies exist.^{14–18} The lack of standardization and requirements for resident participation, including pre- and postexperience activities and longitudinal GH curricula, puts residents at risk of not maximizing their experience and training and exposes residents, institutions, and host communities to safety and ethical risks.

Furthermore, the larger curriculum beyond STEGH that is necessary for more comprehensive training in GH is largely unknown. Preceding studies have addressed this to varying degrees, but none has more comprehensively explored the components of these curricula when illustrating GH training offered by EM residencies.^{8–10} The purpose of this survey was not

only to provide an updated overview of STEGH occurring in EM residency programs in the United States but also to explore key programmatic components necessary to create and maintain these experiences. Essential program components include support for residents and faculty engaged in this work, preparatory and debriefing procedures, and learning modalities as well as broader GH opportunities offered by programs and barriers that individuals encounter to facilitating these experiences.

METHODS

An online survey was developed by the authors, with examples of similar surveys used previously in EM and other specialties.^{8–10,19–21} The survey was piloted to 10 global emergency medicine faculty. The 228 current EM training programs were electronically invited individually via directory to participate in July 2018. Overall, 224 programs (98%) are fully accredited by the Accreditation Council for Graduate Medical Education (ACGME).²² Additionally, 75% are 3-year programs while 25% are 4-year programs. Electronic personal reminders were sent out in October and December 2018 to initial nonrespondents. The survey was closed in January 2019. Study data were collected and managed using REDCap electronic data capture tools hosted at Boston University (CTSI Number: 1ULITR001430).²³ Proportions were generated using Microsoft Excel and statistical analyses (two-sample test of proportions with a 95% confidence interval) were completed using Stata/IC v15.1. The study was approved by the institutional review board at University of Texas Health Science Center at San Antonio (Protocol Number: HSC20180034E).

RESULTS

At the time of the survey, there were 228 EM residency programs. Of these, 84 programs responded (37%) from 29 states (Figure 1). Two of the 84 respondents did not identify themselves. Of those that identified themselves, 28% were 4-year programs. Respondents included program directors (82%), directors of GH (6%), residency coordinators (4%), and assistant program directors (2%) along with one each program director/director of global health, assistant program director/director of global health, vice chair/medical director, vice chair of academic affairs, and vice chair of education. The percent nonresponse

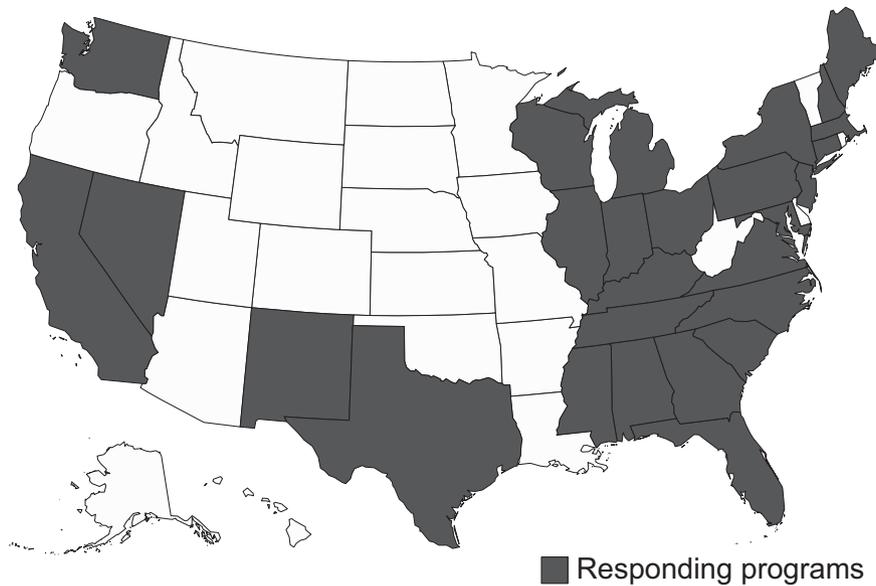


Figure 1. States represented by the 84 participating U.S. EM residency programs in the survey.

(NR) is listed only if it occurred for that question or section of the survey.

Overview

A total of 75% (2%) of programs report offering STEGH, and 39% of programs have formal GH training in the form of tracks or concentrations in which residents can participate throughout their time in residency. Of the programs that offer STEGH, 75% of programs offer STEGH of up to 1 month (1% NR). The other most common STEGH length is 2 weeks (22%). Most programs have up to four residents who participate annually (71%, 1% NR) in STEGH. Three programs (5%) report 10 or more residents participating in STEGH annually. Sixteen programs (25%) place a limit to the number of residents that can participate in STEGH. The most common countries where residents participate in STEGH include those primarily in Central and South America, Africa, and Southeast Asia (Figure 2). The programs have a mix of established sites and one-off opportunities (18 report having only established sites, 19 with one-off opportunities and 26 have both; in total, 70% have established sites). Most residents engage in mix of activities while out of the country. The majority of programs report that their residents engage in clinical work (95%), followed by teaching (77%), research (40%), quality improvement (35%), other service or “mission” work (21%), and administration (10%). Of the programs that have residents that engage in teaching, most engage in clinical teaching (45%), followed by ultrasound teaching (31%). The remaining 24% of

residents do a mix of teaching including didactics and simulation, among other activities. Key results from survey questions pertaining to resident involvement and faculty involvement are shown in Figures 3 and 4, respectively.

Funding

The majority of programs report that their residents self-fund their STEGH (70%). Other funding comes from the department (37%), the institution (22%), grants (19%), or a variety of other sources (i.e., CME allowance, scholarships).

Preparation and Debriefing

Only 80% of programs prepare their residents in some way for STEGH. Preparatory activities among those programs include meetings with a mentor (92%), didactics (29%), case discussion (18%), journal articles (16%), computer-based curricula (14%), and books (10%), among others. Eighty-five percent of programs offer debriefing activities, which include meeting with a faculty member (76%), reflective writings/reports (50%), didactics (22%), and case discussions (17%), among others.

Competencies

Only 22% of programs report that milestones are used to evaluate residents participating in STEGH.²⁴ Just over half (55%) of programs report that end-of-rotation evaluations contribute to data for the clinical competency committee, but only 35% of programs report that procedures completed during STEGH are logged

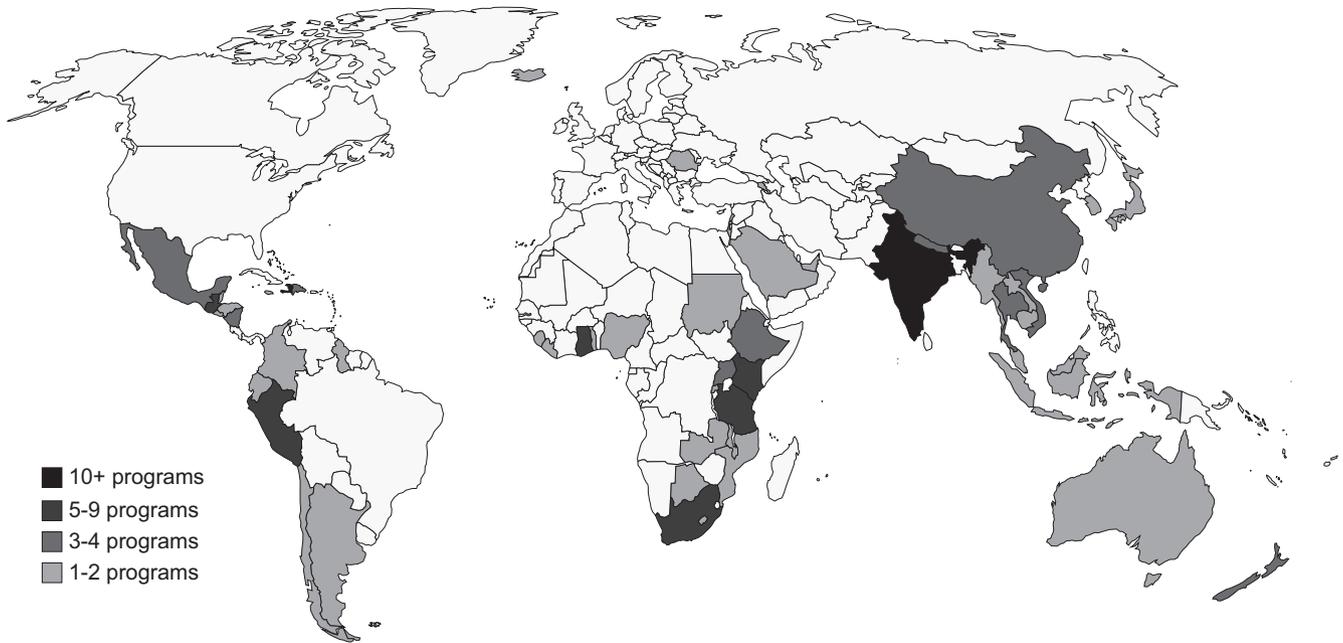


Figure 2. Frequency of countries traveled to by EM residents participating in STEGH. STEGH = short-term experiences in global health.

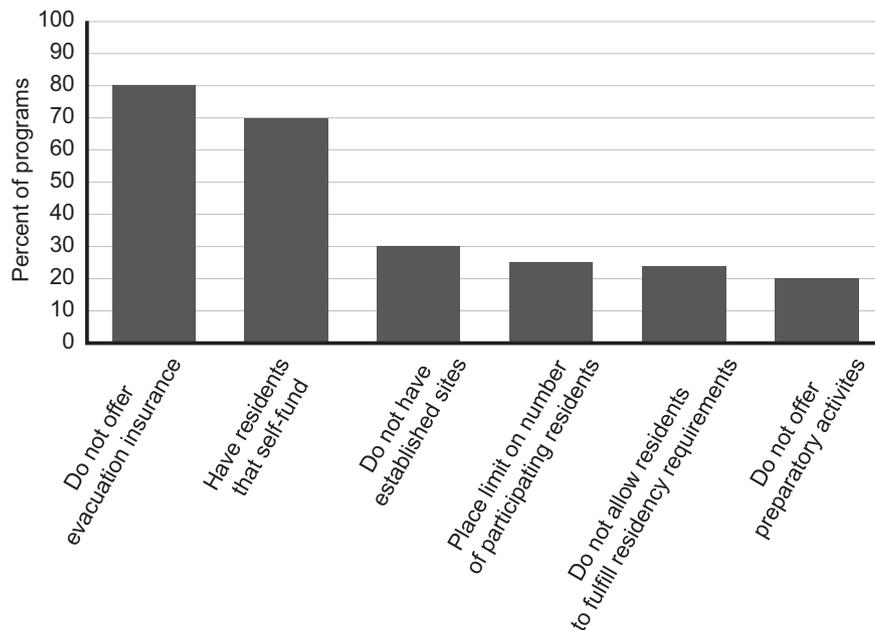


Figure 3. Key results of survey questions pertaining to resident involvement in STEGH from programs that offer STEGH by percent of program respondents. STEGH = short-term experiences in global health.

for the residency review committee.^{25,26} Some programs allow STEGH to contribute to or to fulfill scholarly project requirements (29% of programs). For almost a quarter of programs (24%), STEGH do not satisfy any residency requirements (i.e., the residents receive no credit for the experience).

Resident Support

Most programs allow their residents to still receive their salary (98%) while on a GH rotation. However, only 87% continue to receive their benefits while out

of the country. Programs often must support their residents in other ways, including grants (28%), departmental funding (25%), and institutional funding (14%). Very few programs (20%) provide evacuation insurance to residents.

Faculty Support

The majority (55%) of programs report having dedicated GH faculty; however, only 36% of programs with dedicated faculty have three or more faculty. Regarding potential support for faculty doing GH field

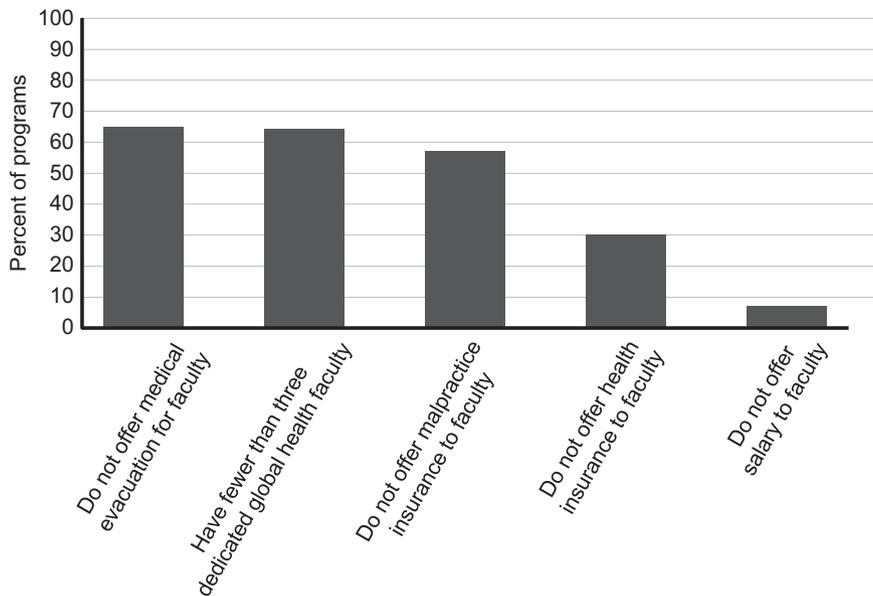


Figure 4. Key results of survey questions pertaining to faculty involvement in GH training from programs with dedicated faculty by percentage of program respondents. GH = global health.

work, 93% of programs continue to provide faculty salary, but only 70% offer international health insurance, 43% malpractice insurance, 41% disability insurance, and 35% medical evacuation.

Barriers

The most commonly reported barriers to enabling residents to engage in STEGH include lack of funding (74%), lack of established relationships with an adequate number of sites (48%), lack of faculty (34%), and lack of elective time (29%), among others (Figure 5).

DISCUSSION

The United National World Tourism Organization estimates that in 2018, there were 1.4 billion global tourist arrivals.²⁷ Travelers from any origin now have the potential to encounter and transmit diseases such as ebolaviruses (responsible for Ebola virus disease), MERS-CoV (responsible for Middle East respiratory syndrome, or MERS), SARS-CoV-2 (responsible for COVID-19), and nairoviruses (responsible for diseases such as Crimean-Congo hemorrhagic fever)—diseases that were once thought to be isolated to certain parts

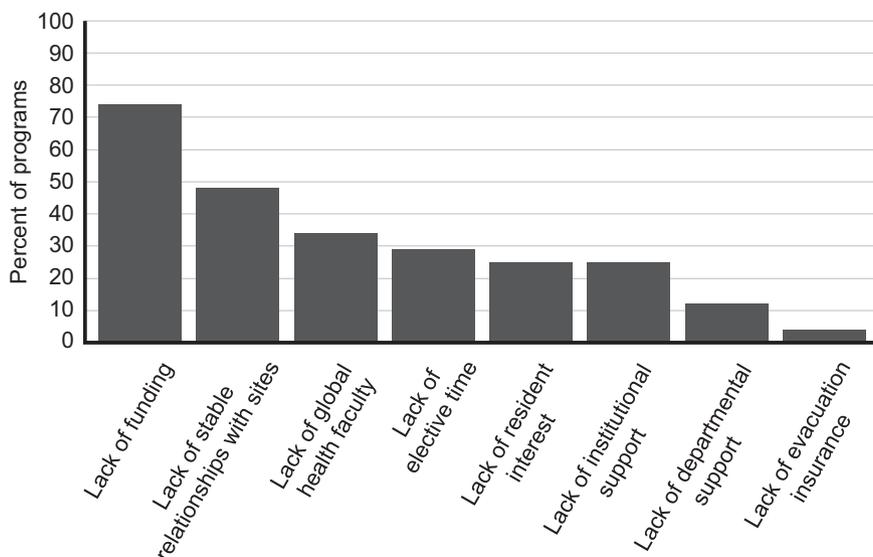


Figure 5. Key barriers to developing and conducting GH training and STEGH among EM residency programs by percentage of program respondents. GH = global health; STEGH = short-term experiences in global health.

of the world—to areas less familiar with their identification and treatment. As the risk of epidemics, and even pandemics, increases, it is imperative that physicians learn to recognize and manage these rare, but potentially serious, conditions.³ Physicians and other health care providers who have had experience in a variety of medical settings and who can synthesize population-based prevention with individual-level clinical care can better approach and manage these patients as well as be instrumental in addressing disease outbreaks and population-level health issues.^{28,29} Additionally, physicians who engage specifically in GH training are more likely to care for underserved populations in the United States.¹² Furthermore, training in GH/STEGH have been shown to have positive influences on knowledge, skills, and attitudes and to affect future job choice.^{12,13,28,29} As a result, STEGH have become an increasingly important part of Graduate Medical Education (GME). The Association of American Medical Colleges (AAMC) found that 65% of resident applicants desire STEGH during their training.³⁰ A literature review from multiple residency programs (including EM, pediatrics, internal medicine, general surgery, orthopedics, and neurology), all demonstrate that as many as 50% to 60% of resident applicants use opportunities in GH in their decision on whether to choose a given residency program, and as many as 50% to 60% of residency training programs offer STEGH.^{11,19–21,31–33}

As a result, it is essential that GH training be incorporated into medical education at all levels, particularly at the resident level, when trainees more fully understand and participate in the care of patients.³⁴ As we work to determine unifying competencies and a standardized required curriculum, we should also work to highlight programmatic components that are essential to make GH training and STEGH possible within residency programs.^{14–18}

First, programs need established and supported faculty. Our study shows that only 55% of programs have dedicated GH faculty; while this is improved from the 18% that Morris and Schroeder found in 2016,¹⁰ our survey shows that more than one-third of programs still identify a lack of GH faculty as a barrier. More faculty are essential to be able to provide enough mentorship and direction for residents and to create an environment that is supportive and conducive to this work. Unfortunately, department and institutional recognition and support in the form of faculty recruitment, funding, and insurance—which

are currently at alarmingly low numbers as this survey shows—is often only possible with more dedicated GH faculty. As a result, support of GH training often requires foresight and investment by departmental and institutional leadership through the understanding that benefits and resources that appear to be directed externally do, in fact, attract potential funders and provide invaluable training and experience to faculty and residents as well as contribute to the recruitment of high-quality candidates.

Additionally, residents need financial and logistic support. Nearly 75% of programs identify funding as a barrier to developing and conducting STEGH. Additionally, despite being beneficial to their training, their fellow residents, and their department/institution, 70% of residents must fund themselves, and there are still programs that do not continue to pay the salary of their residents and/or faculty when they are abroad. Furthermore, in 24% of programs, this time spent on their STEGH does not fulfill any training requirements. Additionally, as is the case with faculty, the lack of health insurance, medical and security evacuation, and disability insurance continue to remain barriers—and a liability—to those participating in STEGH.

Second, established sites are essential. In our survey, nearly 50% of programs identified the lack of established sites as a barrier to STEGH. In 2013, King et al.⁸ found that programs with predesignated sites had 29% of residents complete a GH rotation versus 19% in programs without. In 2016, Morris and Schroeder¹⁰ found that 39% of programs had established sites. Our survey shows that number has continued to increase (70%), but many programs continue to have one-off sites. Occasionally, a single opportunity is all that is requested by a particular site, but more often, a one-off opportunity creates more of a burden in many aspects—logistically, financially, ethically, etc.—to both the resident and the site.³⁵ By creating relationships and even formal agreements (i.e., memorandums of understanding or MoUs), the impact on the local population can be longer lasting, and logistics become more streamlined, costs often decrease, standardized supervision and evaluation and feedback can occur, and trust develops, moving toward the ultimate goal of equal benefits for all stakeholders.³⁶

Third, residents need time. Our survey shows that nearly 30% of programs identify lack of elective time as a barrier to participation in STEGH. One previous study showed that, 4-year programs had twice as many

participants (32%) compared to 3-year programs (17%) ($p < 0.001$).⁸ In our study, 15% of 3-year programs reported five or more residents participating in STEGH, while 35% of 4-year programs reported five or more residents (difference = 0.20, standard error = 0.11, $p < 0.05$). Acclimation to a new location as well as health care system takes time, and while 2 weeks may be sufficient for certain select STEGH, most STEGH should be at least 4 weeks.^{36,37} In our survey, 75% of programs offer rotations up to 1 month, most commonly 2 or 4 weeks.

Finally, one aspect that may also ensure that high-quality and successful GH training is a larger GH curriculum within the residency program. Not all trainees want to participate in STEGH; however, many of these trainees do want more education in the field of GH.^{34,38} As a result, programs should consider offering other modalities for this transfer or knowledge and skills through GH tracks or periodic didactic/skills sessions. In our study, only 39% of programs report having longitudinal GH curricula.

Furthermore, it is imperative that programs have preparatory and debriefing sessions with those going on STEGH. Despite our survey showing an improvement from previous studies regarding preparation of residents prior to travel (75% have preparatory meetings in addition to other modalities), residents are still unprepared, leading to ethical concerns as well as health or safety concerns, even requiring evacuation.^{10,35,39} Additionally, debriefing may be just as, if not more, important given additional concerns, such as reverse culture shock, on returning.⁴⁰ Furthermore, while many programs report that they offer preparatory and/or debriefing sessions, it is unclear how many programs mandate these activities. It is likely that if programs do not provide financial support or salary, these activities are unlikely to be mandatory and/or trainees are less likely to spend the necessary time on them.

LIMITATIONS

Limitations of this study include a low response rate and the low rate of GH faculty respondents compared to other respondents, although this only further supports the need for additional GH faculty. Despite a lower response rate, our survey did have a comparable number of respondents to previous similar surveys. Additionally, this type of survey is susceptible to selection bias in the form of voluntary response bias, as those programs that

offer GH training and STEGH are more likely to respond. Additionally, as noted in Figure 1, the geographic distribution of representative program appears quite skewed to represent programs to the east of the Mississippi River; however, this is reflective of the current distribution of EM residency programs in the United States.²² Furthermore, the composition of our sample was not significantly different from the overall group regarding program duration (3-year vs. 4-year program; difference = 0.02, standard error = 0.11, $p > 0.05$). Finally, our survey is also potentially susceptible to reporting bias, as respondents may feel that underreporting faculty, departmental, and institutional resources may lead to increased support in the future; however, our survey does show an improvement, overall, in financial support from previous surveys, making this less likely.

This study offers a more comprehensive overview of STEGH and GH training in EM residencies; however, we must still work to move forward to ensure that the general programmatic components to support GH faculty and GH training and STEGH highlighted here become common to all programs and so the effectiveness of their currently varied implementation can be studied and common materials, such as milestones, and best practices can be developed and shared.⁴¹ This movement toward universal competencies and curricula will ensure accountability to host communities; maintain high ethical standards; improve preparation, outcomes, and follow-up from STEGH; and overall, to provide safe, ethical, and effective GH training and STEGH for EM residents.

CONCLUSIONS

Many emergency medicine programs now offer global health training and short-term experiences in global health; unfortunately, our survey shows that many still lack adequate numbers of supported faculty, established sites, and mitigation of liability in the form of medical and/or evacuation insurance as well as time, logistic support, and credit for residents. To ensure safe, ethical, and effective global health training and short-term experiences in global health, residency programs, departments, and institutions must provide adequate preparation, debriefing, and logistic and financial support to both their faculty and their trainees.

The authors acknowledge Julianne Dugas, Research Data Analyst, in the Department of Emergency Medicine at Boston Medical Center for her assistance with data collection and management.

References

- Taylor S. 'Global health': meaning what? *BMJ Global Health* 2018;3:e000843.
- Koplan JP, Bond T, Merson M, et al. Towards a common definition of global health. *Lancet* 2009;373:1993–5.
- Campbell RM, Pleic M, Connolly H. The importance of a common global health definition: how Canada's definition influences its strategic direction in global health. *J Glob Health* 2012;2:010301.
- Drain PK, Holmes KK, Skeff KM, Hall TL, Gardner P. Global health training and international clinical rotations during residency: current status, needs, and opportunities. *Acad Med* 2009;84:320–5.
- Loh LC, Cherniak W, Dreifuss BA, Dasco MM, Lin HC, Evert J. Short term global health experiences and local partnership models: a framework. *Global Health* 2015;11:50.
- Melby MK, Loh LC, Evert J, Prater C, Lin H, Khan OA. Beyond medical "missions" to impact-driven Short-Term Experiences in Global Health (STEGH): ethical principles to optimize community benefit and learner experience. *Acad Med* 2016;91:633–8.
- Alagappan K, Somoza C, Kahoun J, Rennie W. Participation in international EM by U.S. EM residencies. *Acad Emerg Med* 1999;6:411.
- King RA, Liu KY, Talley BE, Ginde AA. Availability and potential impact of international rotations in emergency medicine residency programs. *J Emerg Med* 2013;44:499–504.
- Havryliuk T, Bentley S, Hahn S. Global health education in emergency medicine residency programs. *J Emerg Med* 2014;46:847–52.
- Morris SC, Schroeder ED. Emergency medicine resident rotations abroad: current status and next steps. *West J Emerg Med* 2016;17:63–5.
- Dey CC, Grabowski JG, Gebreyes K, Hsu E, VanRooyen MJ. Influence of international emergency medicine opportunities on residency program selection. *Acad Emerg Med* 2002;9:679–83.
- Bazemore A, Goldenhar LM, Lindsell CJ, Diller PM, Huntington MK. An international health track is associated with care for the underserved US populations in subsequent clinical practice. *J Grad Med Educ* 2011;3:130–7.
- Flatow V, Trinidad SM, Zhang LP, Marin ML, Divino CM. The effect of a global surgery resident rotation on physician practices following residency: the Mount Sinai experience. *J Surg Educ* 2019;76:480–6.
- Astle B, Guzmán CAF, Landry A, Romock LS, Evert J, editors. *Global Health Education Competencies Tool-Kit: Second Edition*. Washington DC: Consortium of Universities for Global Health, 2018.
- Battat R, Seidman G, Chadi N, et al. Global health competencies and approaches in medical education: a literature review. *BMC Med Educ* 2010;10:94.
- Jacquet GA, Umoren RA, Hayward AS, et al. The Practitioner's Guide to Global Health: an interactive, online, open-access curriculum preparing medical learners for global health experiences. *Med Educ Online* 2018;23:1503914.
- BuX: GlobalHealthX. The Practitioner's Guide to Global Health. Available at: <https://www.edx.org/course/the-practitioners-guide-to-global-health>. Accessed Sep 1, 2019.
- Jogerst K, Callender B, Adams V, et al. Identifying inter-professional global health competencies for 21st-century health professionals. *Ann Glob Health* 2015;81:239–47.
- Clement RC, Ha YP, Clagett B, Holt GE, Dormans JP. What is the current status of global health activities and opportunities in US orthopaedic residency programs? *Clin Orthop Relat Res* 2013;471:3689–98.
- Lyons JL, Coleman ME, Engstrom JW, Mateen FJ. International electives in neurology training: a survey of US and Canadian program directors. *Neurology* 2014;82:119–25.
- Nelson BD, Lee AC, Newby PK, Chamberlin MR, Huang CC. Global health training in pediatric residency programs. *Pediatrics* 2008;122:28–33.
- Accreditation Council for Graduate Medical Education - Public. Available at: <https://apps.acgme.org/ads/Public/Programs/Search?stateId=&specialtyId=10&specialtyCategoryTypeId=&numCode=&city=>. Accessed Oct 17, 2019.
- Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, Conde JG. Research electronic data capture (REDCap)—a metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform* 2009;42:377–81.
- Accreditation Council for Graduate Medical Education, American Board of Emergency Medicine. The Emergency Medicine Milestone Project. 2015. Available at: <https://www.acgme.org/Portals/0/PDFs/Milestones/EmergencyMedicineMilestones.pdf?ver=2015-11-06-120531-877>. Accessed Oct 17, 2019.
- Andolsek K, Padmore J, Hauer KE, Edgar L, Holmboe E. Accreditation Council for Graduate Medical Education Clinical Competency Committees: A Guidebook for Programs, Second Edition. 2017. Available at: <https://www.acgme.org/Portals/0/ACGMEClinicalCompetencyCommitteeGuidebook.pdf>. Accessed Oct 17, 2019.
- Arnold AC. Review Process: What Do We Really Do? Available at: http://www.acgme.org/Portals/0/PFAssets/Presentations/240_Ophthalmology_AUPO_Presentation_RRC_Review_Process.pdf. Accessed Oct 17, 2019.
- International Tourist Arrivals Reach Ahead of Forecasts. 21 January 2019. PR 19003. Available at: <http://www2.unwto.org/press-release/2019-01-21/international-tourist-arrivals-reach-14-billion-two-years-ahead-forecasts>. Accessed Sep 1, 2019.
- Thompson MJ, Huntington MK, Hunt DD, Pinsky LE, Brodie JJ. Educational effects of international health

- electives on U.S. and Canadian medical students and residents: a literature review. *Acad Med* 2003;78:342–7.
29. Bissonette R, Route C. The education effect of clinical rotations in non-industrialized countries. *Fam Med* 1994;26:226–31.
 30. Krisberg K. Global Community: Medical Schools Meet Student Desire for International Learning Experiences. 2015. AAMC Reporter. Available at: <https://web.archive.org/web/20151009225219/https://www.aamc.org/newsroom/reporter/september2015/442220/global-community.html>. Accessed Dec 10, 2019.
 31. Kolars JC, Halvorsen AJ, McDonald F. Internal medicine residency directors' perspectives on global health experiences. *Am J Med* 2011;124:881–5.
 32. Morton MJ, Vu A. International emergency medicine and global health: training and career paths for emergency medicine residents. *Ann Emerg Med* 2011;57:520–5.
 33. Tarpley M, Hansen E, Tarpley JL. Early experience in establishing and evaluating an ACGME-approved international general surgery rotation. *J Surg Educ* 2013;70:709–14.
 34. Drain PK, Primack A, Hunt DD, Fawzi WW, Holmes KK, Gardner P. Global health in medical education: a call for more training and opportunities. *Acad Med* 2007;82:226–30.
 35. Crump JA, Sugarman J; Working Group on Ethics Guidelines for Global Health Training (WEIGHT). Ethics and best practice guidelines for training experiences in global health. *Am J Trop Med Hyg* 2010;83:1178–82.
 36. Kumwenda B, Dowell J, Daniels K, Merrylees N. Medical electives in sub-Saharan Africa: a host perspective. *Med Educ* 2015;49:623–33.
 37. Keating EM, Lukolyo H, Rees CA, et al. Beyond the learning curve: length of global health electives. *Int J Med Educ* 2016;7:295–6.
 38. Göpfert A, Mohamedbhai H, Mise J, et al. Do medical students want to learn about global health? *Glob Health Action* 2014;7:23943.
 39. Steiner B, Carlough M, Dent G, Peña R, Morgan DR. International crises and global health electives: lessons for faculty and institutions. *Acad Med* 2010;85:1560–3.
 40. Tomlin CR, Miller ML, Schellhase E, New G, Karwa R, Ouma MN. Assessing reverse culture shock following an international pharmacy practice experience. *Curr Pharm Teach Learn* 2014;6:106–13.
 41. Douglass KA, Jacquet GA, Hayward AS, et al. Development of a global health milestones tool for learners in emergency medicine: a pilot project. *AEM Educ Train* 2017;1:269–79.