**Academic Medicine**

**DOI: 10.1097/ACM.0000000000002961**

# Leveraging Economies of Scale via Collaborative Interdisciplinary Global Health Tracks (CIGHTs): Lessons From Three Programs

Megan S. McHenry, MD, MS, Jennifer T. H. Baenziger, MD, Lori G. Zbar, MD, Joanne Mendoza, MD, Julia R. den Hartog, MD, Debra K. Litzelman, MA, MD, MACP, and Michael B. Pitt, MD

**M.S. McHenry** is assistant professor of pediatrics and director, Pediatric Resident Global Health Education, Indiana University School of Medicine, Indianapolis, Indiana; ORCID: https://orcid.org/0000-0001-6753-0928.

**J.T.H. Baenziger** is assistant professor of clinical medicine and pediatrics; assistant director of education, Indiana University Center for Global Health; and director, Interdisciplinary Global Health Track, Indiana University School of Medicine, Indianapolis, Indiana; ORCID: https://orcid.org/0000-0001-9221-5401.

**L.G. Zbar** is assistant professor of medical education and pediatrics and director, Student Health and Wellness, Icahn School of Medicine at Mount Sinai, New York, New York; ORCID: https://orcid.org/0000-0002-3643-341X.

**J. Mendoza** is assistant professor of pediatrics, University of Virginia, and she is a patient safety and quality improvement officer, University of Virginia's Children's Hospital, Charlottesville, Virginia; ORCID: https://orcid.org/0000-0002-2994-7594.

**J.R. den Hartog** is associate professor of medicine and program director, Global Health Leadership Track, University of Virginia, Charlottesville, Virginia; ORCID: https://orcid.org/0000-0001-9903-7089.



---

**D.K. Litzelman** is the D. Craig Brater Professor of Global Health Education, Indiana University School of Medicine; director of education, Indiana University Center for Global Health; and senior research scientist, Regenstrief Institute, Indianapolis, Indiana; ORCID: https://orcid.org/0000-0003-2162-8756.

**M.B. Pitt** is associate professor, director of Global Health Education, and associate residency program director, Department of Pediatrics, University of Minnesota, Minneapolis, Minnesota; ORCID: https://orcid.org/0000-0002-7123-2613.

**Correspondence should be addressed to** Megan S. McHenry, 1044 West Walnut Street, R4 402D, Indianapolis, Indiana 46202; telephone: (317) 274-8940; email: msuhl@iu.edu; Twitter: @**MeganS_Mchenry.**

*Acknowledgments:* The authors would like to acknowledge and thank educators—in both global and local health care settings—who are committed to meaningful global health training for the next generation of physicians and other health care professionals.

*Funding/Support:* None reported.

*Other disclosures:* None reported.

*Ethical approval:* Reported as not applicable.

*Disclaimer:* The views and opinions are those of the authors and do not necessarily represent the views of their universities.

**Abstract**

As interest in global health education continues to increase, residency programs seeking to accommodate learners' expectations for global health learning opportunities often face challenges providing high-quality global health training. To address these challenges, some residency programs collaborate across medical specialties to create interdepartmental global health residency tracks or collaborative interdepartmental global health tracks (CIGHTs). In this Perspective, the authors highlight the unique aspects of interdepartmental tracks that may benefit residency programs by describing three established U.S.-based programs as models: those at Indiana University, Mount Sinai Hospital, and the University of Virginia. Through collaboration and economies of scale, CIGHTs are able to address some of the primary challenges inherent to traditional global health tracks: lack of institutional faculty support and resources, the need to develop a global health curriculum, a paucity of safe and mentored international rotations, and inconsistent resident interest. Additionally, most published global health learning objectives and competencies (e.g., ethics of global health work, pre-departure training) are not discipline-specific and can therefore be addressed across departments—which, in turn, adds to the feasibility of CIGHTs. Beyond simply sharing the administrative burden, however, the interdepartmental learning central to CIGHTs provides opportunities for trainees to gain new perspectives in approaching global health not typically afforded in traditional global health track models. Residency program leaders looking to implement or modify their global health education offerings, particularly those with limited institutional support, might consider developing a CIGHT as an approach that leverages economies of scale and provides new opportunities for collaboration.

**A**s the importance of training clinicians to care for a global population has grown, increasing numbers of residency programs have developed international rotations and dedicated global health (GH) tracks, which typically comprise both curricular and experiential content intended to prepare residents for meaningful GH work.[1-5] In pediatrics, nearly a quarter of residency programs report having a GH track, and over half offer international field experiences.[1,3] Meeting residents' expectations for GH training opportunities can be challenging, especially for academic institutions that lack faculty mentors with sufficient time and GH experience, adequate financial support for GH programs, capacity to offer safe and appropriately supervised international experiences, and consistent levels of interest among residency classes.[3,6-8] To address these challenges, some programs have collaborated across departments, pooling resources and looking for areas of curricular overlap through which residents from different disciplines can learn about core GH concepts together. Since many of the competencies and objectives of GH education, such as pre-departure preparation and GH ethics,[9-11] focus on aspects of GH work that are not necessarily specialty-specific, collaborative interdepartmental global health tracks (CIGHTs) may serve as a valuable model. CIGHTs offer an approach through which departments collaborate and share resources to address common goals and leverage economies of scale across residency programs.

In this Perspective, we consider the unique aspects of CIGHTs that may benefit residency programs. We highlight details from three programs—those at Indiana University (IU; Indianapolis, Indiana), Mount Sinai Hospital (MSH; New York City, New York), and the University of Virginia (UVA, Charlottesville, Virginia)—that have implemented the CIGHT approach across multiple disciplines. By highlighting the evolution, administration, and differences among these CIGHTs, our hope is that leaders of other programs facing similar

challenges might consider the approach described here as a collaborative solution to enhance their residents' GH experiences.

**Traditional Global Health Tracks**

Understanding key components of traditional GH tracks is critical for program directors and other leaders deciding if their program would benefit from a CIGHT model. The American Board of Pediatrics (ABP) Global Health Task Force recently published an implementation guide outlining the recommended characteristics of a GH track.[12] Characteristics include, among others, the following: having a GH track director and organized mentorship, having an established partnership in an international setting where residents may go on elective, and developing a core GH curriculum.

To address the need for a core GH curriculum, we have highlighted 5 "pillars" of GH tracks: (1) stateside curricula, (2) pre-departure preparation, (3) GH electives, (4) post-return debriefing, and (5) evaluation[12]—the last 4 of which are not specialty-specific. Careful consideration of each recommendation is critical, as the perils and harms of "parachute medicine"—sending learners for short-term trips with little support and without GH-related or context-specific education—are well known.[13-15] These short-term, one-time experiences can result in discontinuity of care for local patients and destruction of meaningful ties with the existing local health system. Additionally, these experiences may put learners at risk for working beyond their training level. To avoid these perils, the GH community has established guidelines[11] and a core curriculum[10,12] promoting ethical and sustainable models for GH training experiences. These resources include guidance on the following themes: providing safe and ethically responsible experiences for learners, managing the emotional reactions and moral dilemmas that come from working in resource-limited settings, and focusing on how to best serve and integrate within the local

community in a culturally appropriate and sustainable manner.[10-12] While the importance of developing GH tracks and educational material focused on maintaining these standards is clear, residency program leaders must also consider financial implications, such as supporting a faculty leader, maintaining international and institutional partnerships, and providing resident salary support.

**How CIGHT Models Address Challenges Inherent to Traditional Global Health Tracks**

The CIGHT model provides unique solutions to several challenges that may be inherent to traditional single-program GH tracks: lack of institutional faculty support and resources, the need to develop a global health curriculum, a paucity of safe and mentored international rotations, and inconsistent levels of interest among residency classes.

**Leveraging faculty support and institutional resources**

While many faculty members who have GH expertise and/or experience volunteer their time to educate and mentor residents, the time burden inherent to curriculum development, mentoring, and maintenance of international partnerships is greater, which can negatively affect the sustainability of program-level support. Accordingly, GH track leaders should have protected time for this work.[3,7,16] Beyond trying to stretch strained departmental finances, the challenges of coordinating schedules for formal learning activities, arranging for residents to serve in communities (either internationally or locally) that are underserved, finding appropriate mentors, and facilitating equitable partnerships with bilateral exchange of learners and faculty can all be insurmountable for small departments with limited faculty dedicated to GH education. CIGHTs ease the faculty burden, as they centralize and unify many administrative tasks that are necessary for offering GH residency tracks. Having a dedicated CIGHT lead allows the coordination of formal learning activities and an overarching GH curriculum across departments. A single leader

may develop the majority of the track programming while individual participating departments might support faculty liaisons who assist their specialty's residents. The faculty departmental liaisons may have protected time associated with their position, or they may be volunteers. Importantly, having a dedicated track director helps distribute responsibility and decreases the workload for each departmental liaison.

Additionally, if an academic institution has a center for global health (CGH) that is focused on a larger scope of learners (e.g., medical students), a CIGHT may reap benefits by associating with the center. Benefits include connecting medical residents to other learners from other disciplines, which facilitates even greater collaboration and further expands the definition of "global health." Additionally, these centers often have an infrastructure that can provide a meeting space for formal learning activities, centralize some administrative support, and facilitate research collaboration.

**Developing a global health curriculum**

While each residency program with a GH track may focus on different medical topics for their track residents, much of the core content that has been called for in GH education is not specialty specific. This content includes education focused on practical obstacles, ethical issues, emotional responses to working in resource-limited settings, health and safety while working abroad, and general health issues that are especially relevant in resource-limited settings.[10,12] Additionally, pre-departure training before, and debriefing after, international experiences may be very similar across specialties. Thus, CIGHTs provide the benefit of centralizing this education so that all track residents—regardless of their department—may learn this general GH information in a succinct, consistent manner, while sharing resources across departments.

Additionally, residents within CIGHTs may have the advantage of learning from their colleagues in different medical specialties. For example, in IU's and UVA's CIGHT programs (described below), emergency medicine residents have led training sessions for their colleagues from other specialties on using ultrasound in resource-limited settings. Likewise, residents from various specialties bring their own lenses to ethical topics and complex GH issues. Approaching these discussions collaboratively enhances the abilities, perspectives, and preparation that all residents receive as part of their GH training. Further, such cross-disciplinary work often mimics the diverse skill sets that their international counterparts develop to optimize patient care in resource-limited settings.

**Offering safe and mentored international rotations**

International clinical rotations are often a major feature of GH residency tracks.[1,3] Identifying, developing, and maintaining strong international partnerships that facilitate education for all partners and reduce the burden for the host country often requires a tremendous amount of resources. Residents must be prepared for working in international settings; ideally, such preparation includes pre-departure training, obtaining licensure to practice medicine in that country if required, close supervision and mentorship while in-country, and debriefing after returning to their home institutions.[2,10-12] Additionally, once they are abroad, residents should…

- be aware of the local health care system and how to best integrate within the local medical team;
- learn the most effective ways for caring for patients as a visiting physician;
- be connected to appropriate mentors;
- know whom to contact if a problem or emergency arises; and

- have access to trained medical faculty who are able to provide appropriate, specialty-specific supervision.

This last item is particularly important from a regulatory standpoint and refers to the requirement for most international rotations that trainees have on-site supervision from a U.S. board-certified physician or a local physician with board-certified equivalent qualifications in the field of medicine specific to the trainees' residency program, if they exist within that setting. This requirement varies by medical specialty, but when present, is overseen by the Resident Review Committees within the Accreditation Council for Graduate Medical Education.[17,18] The CIGHT model offers an opportunity to share the administrative burden required for supervision. CIGHTs can work to secure international partnerships with programs that are long-standing, have Resident Review Committee-appropriate supervision, and can host residents from multiple medical specialties.[19] This centralization and resource-sharing reduces the burden of coordinating and maintaining locations across multiple different medical residency programs.

**Varying levels of interest between residency classes**

While the interest in GH education continues to grow in general, smaller residency programs may not be able to maintain a consistent number of residents within a GH track from year to year. Lower numbers, especially after a year or two, may not only jeopardize the effectiveness and efficiency needed to implement a curriculum but also diminish the overall experience for all members of the GH track. By pooling residents across specialties, CIGHTs increase the likelihood of maintaining a stable number of residents to support all activities.

Some GH tracks have limited spots to which residents must apply prior to being accepted into the track. While the CIGHT model may make this process more competitive—a possibility that requires discussions among faculty liaisons from each of the residency programs—it ensures

stability in the functioning of the track as a whole. Additionally, residents who do not participate in the CIGHT may potentially benefit from the existence of a CIGHT at their institution. The faculty collaborations that are inherent to CIGHTs create opportunities for content development that can be integrated within each program's general curriculum, which, in turn, increases the GH education for all residents, not merely those with a dedicated interest.

**Implementing the CIGHT Model: Snapshots of Three CIGHT Programs**

We have provided a brief description of three CIGHT programs—based at IU, MSH, and UVA—below, as well as a detailed summary of each of these three program's characteristics in Table 1.

**IU**

IU established its CIGHT in 2011. Originally, the CIGHT included medicine, pediatrics, medicine-pediatrics, triple board (adult and child psychiatry and pediatrics), emergency medicine-pediatrics, general surgery, obstetrics and gynecology, and psychiatry, and it has since expanded to include additional residency programs. A CIGHT director coordinates formal learning activities, ensures residents meet track requirements, and serves as liaison with department-specific GH faculty and contacts. Learning sessions are held for a half-day every three months. Participating residents must attend 80% of sessions as part of the track's requirements, and online modules available as make-up sessions, if needed. All residents must also complete a scholarly project and participate in a GH elective. IU encourages residents taking this elective to work in a community (international and/or local) that is underserved. IU's CGH provides administrative support, an office, and meeting space for the CIGHT and coordinates pre-departure training and post-return debriefing for medical students and residents participating

in one of the most popular international electives IU offers: the Academic Model Providing Access to Healthcare (AMPATH)-Kenya program.[20]

**MSH**

To the best of our knowledge, MSH established the first CIGHT in 2006. Mount Sinai's program originally involved participants from four residencies: emergency medicine, pediatrics, internal medicine, and psychiatry.[21] It was structured as a two-year program, comprising a didactic or classroom-based curriculum and a local or international field experience. The didactics included required monthly sessions, as well as selected classes from the Master of Public Health program, including Preparation for Global Health Fieldwork. The field experience required implementing a public health scholarly project within a two-month elective during their second year in the program. Participating residents were expected, at a minimum, to present the results of their scholarly projects orally at Grand Rounds, and if applicable, to submit their work for publication. In 2014, the funding for this CIGHT transitioned from the institution to, instead, each individual department. Specialty-specific GH programs then continued within the departments of emergency medicine, psychiatry, and pediatrics under their own individual leadership, and these departments continue to combine their residents for specific GH educational activities. Residents from pediatrics and psychiatry jointly participate in a graduate-level GH fieldwork course. Residents from pediatrics and emergency medicine jointly meet for quarterly didactic sessions. Each department is responsible for organizing other GH educational activities (e.g., pre-departure training and post-return debriefing) and for arranging, scheduling, and funding residents' international rotations. Faculty provide mentorship and track the CIGHT residents' progress within their respective departments.

**UVA**

UVA established its CIGHT in 2009 as a joint program including family medicine and internal medicine. Over time, additional residency programs have joined. Including pathology, which recently joined, 10 departments now participate. The bulk of the track's organization and formal learning activities are coordinated by the director of the CIGHT, and each residency department has a GH director who creates educational opportunities and collaborations specific to his/her residency program. UVA's Office of Graduate Medical Education (GME) provides oversight by reviewing all planned away rotations for evidence of educational benefit and adequate supervision. The GME office also monitors completion of pre-departure requirements to ensure the safety of trainees. UVA's CGH provides meeting space, administrative and financial support, and hosts university-wide GH events. The CIGHT program has a two-year curriculum that involves formal, UVA-based learning programs or didactics, plus international rotations for clinical work and research. Didactic sessions, which focus on GH policy and practice, are concentrated within a two-week period of protected time for all CIGHT residents. Additional monthly evening journal clubs and GH dinners supplement the didactic sessions throughout the year. Many residency programs have additional requirements for their participating trainees. For example, the internal medicine, pediatrics, and family medicine residency programs require their residents to attend an additional two-week course titled, Diseases of Burden in Low- and Middle-Income Countries, and a number of departments require an additional international rotation. Scholarly projects are generally incorporated into the departments' GH tracks but each department dictates the rigor and depth of their residents' projects. Each department has its own approach for providing funding for resident travel and accommodations for international field experiences. Finally, the pre-departure training and post-return debriefing for international

rotations has been directed by individual departments but is being centralized in the formal CIGHT curriculum.

**Lessons Learned and Challenges That Remain**

While the CIGHT model provides clear benefits and offers solutions to difficulties inherent in traditional GH tracks, challenges still exist. Scheduling didactic sessions to accommodate residents from all programs is a unique challenge to the CIGHT model. This particular challenge can be overcome with close communication among individual residency programs and is often mitigated by each program's enthusiasm for the CIGHT. Additionally, having sufficient faculty support and enough financial resources to support residents may remain a challenge for some CIGHTs—even though they benefit from sharing resources and dispersing financial and other burdens across multiple departments. Because the length of residency programs and the time available for GH activities varies from department to department, CIGHTs may struggle to maintain minimum GH track participation and successful completion requirements. Standard setting requires communication between the residency directors and the CIGHT director to decide what expectations are feasible and reasonable across all specialties. Finally, we recognize that CIGHTs may benefit from an institutional CGH, which can provide a centralized meeting space, additional educational resources, and support for coordinating educational and/or research activities. Additionally, these CGHs often help foster relationships between residency-level GH tracks and, where available, medical school GH curricula by sponsoring and promoting relevant GH events. These GME and medical school student events help bridge the gap in knowledge and skills across trainees, foster interdisciplinary learning, and supplement the resources available to each set of learners.

We recommend early consideration of a few factors before implementing a CIGHT. We advocate beginning with a limited number of programs, and then collaborating with others over time. Coordinating resident schedules across specialties is challenging, and starting with a small number of programs prevents scheduling conflicts that might delay or halt progression of CIGHT development. Additionally, in our experience, in the early days of developing a CIGHT, a small number of strong advocates working together with leaders is necessary to get the program off the ground. Importantly, unless the CIGHT faculty members are supported with protected time, then sharing CIGHT-related responsibilities broadly is necessary to ensure sustainability of the overall track. Also, if an institution has a CGH, we believe aligning the CIGHT with this office may be beneficial; the CGH may supplement the educational opportunities and/or provide the infrastructure required for consistency and sustainability.

Figure 1 provides general stepwise recommendations for institution leaders to consider during the creation of a CIGHT. First, it is critical both to identify the existing challenges within a program that hinders GH training for residents and to determine if a CIGHT might be able to address those challenges. Additionally, it is important to determine the existing level of GH interest within an institution and whether other departments have GH-specific tracks. Determining interest across departments will create networks and help identify GH champions and available resources. When two or more departments express interest, the planning process may begin. Each of the three CIGHTs discussed here have evolved due to changes in institutional support and/or evolving interest from other departments. Continued evaluation is critical for any program to ensure that it is benefitting trainees and fulfilling the mission of advancing the field of GH.

Recommended characteristics of an ongoing CIGHT mirror those identified by the ABP Global Health Task Force (Figure 2).[12] Due to the collaborative nature of these tracks, clear communication across departments is necessary to ensure appropriate coordination of schedules and activities. Because didactic discussions and workshops on certain curricular topics (e.g., GH ethics or emotional responses to GH rotations) benefit from the participation and perspectives of residents from multiple specialties, coordinating schedules and centralizing meeting locations is essential to optimize access for CIGHT residents. Additionally, because of the pooled resources potentially available for a CIGHT, bidirectional exchange of residents is recommended to improve the experiences of both the local and host institutions and their trainees.

**In Sum**

The demand and need for GH education among residents of all specialties continues to increase. While stand-alone international rotations or GH electives are well-studied, they cannot, independently, meet all the requirements necessary for a quality GH education. GH tracks may more easily provide key aspects of GH training, but not all residency programs have the resources available within their departments to create sustainable, high-quality tracks. CIGHTs are a compelling model that can harness the power of collaboration and shared resources while reducing or eliminating the challenges of variable faculty support, fluctuating resident interest, and minimal departmental funds and administrative support. Establishing a sustainable model for the education of future GH clinicians and educators is critical. CIGHTs provide this sustainability while promoting cross-disciplinary solutions and perspectives to complex GH issues, making them a valuable model for GME.

## References


**1.** Butteris SM, Schubert CJ, Batra M, et al. Global health education in US pediatric residency programs. Pediatrics. 2015;136:458-465.

**2.** Pitt MB, Gladding SP, Suchdev PS, Howard CR. Pediatric global health education: Past, present, and future. JAMA Pediatrics. 2016;170:78-84.

**3.** Watts J, Russ C, St Clair NE, Uwemedimo OT. Landscape analysis of global health tracks in United States pediatric residencies: Moving toward standards. Academic Pediatrics. 2018;18:705-713.

**4.** Bills CB, Ahn J. Global health and graduate medical education: A systematic review of the literature. Journal of Graduate Medical Education. 2016;8:685-691.

**5.** Stagg AR, Blanchard MH, Carson SA, Peterson HB, Flynn EB, Ogburn T. Obstetrics and gynecology resident interest and participation in global health. Obstetrics & Gynecology. 2017;129:911-917.

**6.** Arora G, Ripp J, Evert J, Rabin T, Tupesis JP, Hudspeth J. Taking it global: Structuring global health education in residency training. Journal of General Internal Medicine. 2017;32:559-562.

**7.** Pitt MB, Moore MA, John CC, et al. Supporting global health at the pediatric department level: Why and how. Pediatrics. 2017;139:e20163939.

**8.** Drain PK, Primack A, Hunt DD, Fawzi WW, Holmes KK, Gardner P. Global health in medical education: A call for more training and opportunities. Academic Medicine. 2007;82:226-230.

**9.** Consortium of Universities for Global Health. CUGH Global Health Education Competencies Tool Kit. Copyright 2019. https://www.cugh.org/resources/2063. Accessed July 24, 2019.

**10.** St. Clair NE, Pitt MB, Bakeera-Kitaka S, et al. Global health: Preparation for working in resource-limited settings. Pediatrics. 2017;140. e20163783.

**11.** Crump JA, Sugarman J. Ethics and best practice guidelines for training experiences in global health. The American Journal of Tropical Medicine and Hygiene. 2010;83:1178-1182.

**12.** St. Clair N ed. Global Health in Pediatric Education: An Implementation Guide for Program Directors. September 2018. https://www.abp.org/sites/abp/files/pdf/globalhealthinpediatriceducationimplementationguideforprogramdirectors.pdf. Accessed August 9, 2019.

**13.** Cole D. The risks (and unexpected benefits) of sending health students abroad. NPR. Goats and Soda: Health. February 11, 2016. https://www.npr.org/sections/goatsandsoda/2016/02/11/465428990/the-risks-and-unexpected-benefits-of-sending-health-students-abroad. Accessed August 9, 2019.

**14.** Ackerman LK. The ethics of short-term international health electives in developing countries. Ann Beh Sci Med Ed. 2010;16:40-43.

**15.** Silver M. Advice to parachuting docs: Think before you jump into poor countries. NPR. Goats and Soda: Health. April 4, 2018. https://www.npr.org/sections/goatsandsoda/2018/04/04/599419888/advice-to-parachuting-docs-think-before-you-jump-into-poor-countries. Accessed August 9, 2019.

**16.** Campagna AM, St. Clair NE, Gladding SP, Wagner SM, John CC. Essential factors for the development of a residency global health track. Clinical Pediatrics. 2012;51:862-871.

**17.** Accreditation Counceil for Graduate Medical Education. International Rotation Application Process: Review Committee for Surgery. October 2018. https://www.acgme.org/Portals/0/PFAssets/ProgramResources/440_Surgery_International_Rotation_Application_Process.pdf?ver=2018-04-12-104330-840. Accessed August 9, 2019.

**18.** Accreditation Council for Graduate Medical Education. International Rotation: Review Committee for Obstetrics and Gynecology. September 2017. https://www.acgme.org/Portals/0/PFAssets/ProgramResources/220_International_Rotations.pdf?ver=2017-10-05-144717-587. Accessed August 9, 2019.

**19.** Steenhoff AP, Crouse HL, Lukolyo H, et al. Partnerships for global child health. Pediatrics. 2017;140:e20163823.

**20.** Einterz RM, Kimaiyo S, Mengech HN, et al. Responding to the HIV pandemic: The power of an academic medical partnership. Academic Medicine. 2007;82:812-818.

**21.** Anandaraja N, Hahn S, Hennig N, Murphy R, Ripp J. The design and implementation of a multidisciplinary global health residency track at the Mount Sinai School of Medicine. Academic Medicine. 2008;83:924-928.

**Figure Legends**

**Figure 1**

Approach for the development of a collaborative interdepartmental global health track program.

**Figure 2**

Recommended characteristics of collaborative interdepartmental global health track programs.

Table 1

**Characteristics of Interdisciplinary Global Health Tracks (CIGHTS) at Mount Sinai Hospital (MSH), University of Virginia (UVA), and Indiana University (IU)**

| Characteristics | MSH | UVA | IU |
|---|---|---|---|
| Initiation year of CIGHT | 2006 | 2009 | 2011 |
| Programs participating in the 2017-2018 year (no. of residents in program) | EM (4), Pediatrics (4), Psychiatry (9) | Anesthesiology (4), EM (3), FM (2), IM (4),Pediatrics (6), Plastic Surgery (1), Psychiatry (3), Radiology (3), Surgery (4) | EM (4), EM-Pediatrics (1), Fellow (1), FM (5), IM (3), IM-Pediatrics (9), OB-GYN (6), Pediatrics (8), Psychiatry (2), Surgery (1), Triple Board (3) |
| Number and type of administration/faculty involved | **EM:** GH track director, volunteer faculty<br>**Pediatrics:** GH track director with administrative support and volunteer faculty<br>**Psychiatry**: 1 GH track director and 1 co-director, 1 GH coordinator, volunteer faculty | • CIGHT program director,<br>• 9 GH department directors,<br>• Center for GH director,<br>• Site director at UVA for any ongoing collaborations,<br>• On-site administrator in Guatemala,<br>• Volunteer faculty | • CIGHT program director with administrative support,<br>• Faculty from pediatrics, FM, and OB-GYN with various levels of GH support;<br>• Multiple on-site faculty members in Kenya who are not hired by the CGH or CIGHT program;<br>• Volunteer faculty |
| Locations of active international rotations | **EM:** Tanzania, Mozambique, Laos, Myanmar, Dominican Republic<br>**Pediatrics:** Dominican Republic, Uganda, Kenya<br>**Psychiatry:** Belize, Liberia, India, Grenada, Haiti, Dominican Republic | **Most common:** Uganda, Rwanda, Guatemala, Costa Rica<br>**Other sites:** South Africa, Zambia, Tanzania, Cambodia, Bangladesh | **Most common:** Kenya<br>**Other sites:** China (Pediatrics only), Nepal (EM only), El Salvador, Honduras, Peru, Ecuador, India |
| Total number of residents who have graduated from the CIGHT (as of July 2018) | 68 | 52 | 57 |

| | | | |
|---|---|---|---|
| Didactics/curriculum | • 1 to 2 Master of Public Health courses<br>• Quarterly didactics, including journal clubs, simulated cases, and topic discussions<br>• Supplemental modules are available online | • 2-week didactic course on GH policy and practice<br>• Monthly journal clubs and GH dinners<br>• Additional 2-week didactic course titled "Diseases of Burden in Low- and Middle-income Countries," which is required by some departments | • Quarterly half-day didactic sessions, covering various GH topics such as tropical medicine, practical hands-on skills, chronic conditions in GH settings, research and clinical ethics, GH partnerships, and health systems development<br>• Online modules are available for residents that are unable to attend didactic sessions |
| Mentoring | • GH mentor within each residency program<br>• On-site faculty at some international sites | • Residency GH directors<br>• International UVA site directors also serve as mentors for residents | • Scholarly project mentor<br>• Career mentor<br>• On-site faculty at international sites |
| Scholarly project requirement | • Manuscript-quality submission and/or presentation (mandatory for pediatrics and EM; optional for psychiatry) | • Required for most residents<br>• Various levels of structure and rigor depending on department | • Required for all residents<br>• Various project types are allowable, including the following: primary research, essays, Grand Rounds presentations |
| International experience requirement | • Yes, required: an elective in either an international or a local community that is underserved | • Yes, required: an elective in either an international or a local community that is underserved | • Yes, required: an elective in either an international or a local community that is underserved |
| Opportunities for bidirectional exchanges | • 2 medical students from Kenya train on hospital wards for 6 weeks every year<br>**EM:** Sponsors medical students from Gambia for a 4-week observational rotation each year<br>**Psychiatry:** Has invited collaborators to do externships but without success to date | • A limited number of residents from collaborating institutions attend the two-week didactic course at UVA<br>• Telemedicine teaching sessions occur bilaterally with residents at UVA and in Uganda, Rwanda, and Ethiopia | • 4 to 6 medical students from Kenya train on the hospital wards for 6 weeks every year<br>• Kenyan residents come for 4 months each year depending on department and center for global health support |

| | | | |
|---|---|---|---|
| International experiences in domestic settings | Local GH scholarly projects are available…<br>• in East Harlem at a U.S. immigrant detention center<br>• at Native American reservations in Arizona and South Dakota and<br>• at Mount Sinai's Human Rights Program | • FM and Psy require participation in the Refugee Continuity Clinic<br>• Residents may complete an elective with the Travel Medicine clinic | • Pediatrics residents have two rotations that focus on community resources, including those specific to refugee and immigrant populations<br>• IM residents have access to a Homeless Medicine Rotation |
| Resident evaluations/ feedback of program | • Evaluations are completed after international electives only | • Evaluations are completed after each didactic course, after international rotations, and at the end of residency | • Evaluations are completed at the end of residency for all CIGHT residents<br>• Residency programs obtain resident feedback after international rotations |
| Financial support of residents | • All resident salaries are covered during international rotations<br>**EM:** provides funds for their track residents' scholarly projects and field experiences<br>**Pediatrics:** raises funds to support residents<br>**Psychiatry:** raises funds privately and in partnership with medical education | • All resident salaries are covered during international rotations<br>• Each department has different approaches for providing funding for resident travel and accommodations for international field experiences | • All resident salaries are covered during international rotations<br>• Nearly all programs allow use of resident continuing medical education funds to travel to their rotations<br>• Surgery and FM pay for residents' travel costs to international sites<br>• No money given for scholarly projects |
| Duration of the program | • Two years for all three programs<br>• Begins during second to last year of residency, with GH project and travel in final year of residency | • For duration of residency after intern year | • 2.5 years or longer, depending on the length of the person's residency |
| Certificate offered upon completion of CIGHT requirements | Yes | Yes | Yes |

Abbreviations: EM indicates emergency medicine; FM, family medicine; IM, internal medicine; OB-GYN, obstetrics and gynecology; Triple Board, adult and child psychiatry and pediatrics combined program; GH, global health.


**Figure 1**


**Figure 2**