

Global Health Education as a Translational Science in Graduate Medical Education

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The emergence of global health as a core component of medical education is a relatively recent phenomenon.¹ Over the last 20 years, graduate medical education (GME) has documented the growth, curriculum development, and trainee benefits of global health electives (GHEs).² Scholarship, predominantly focused on evidence-based benefits and clinical outcomes of GHEs at the community level, has not occurred at the same pace. Efforts to standardize and understand benefits of a GHE curriculum should occur in parallel with the need to monitor and evaluate the effects of GHEs on clinical and public health outcomes.

Viewed within the framework of a translational science, GHEs have the potential to (re)focus attention on improved clinical health outcomes in low-resource settings. The process of understanding (global) medical education as a translational science involves: rigorous study on clinical skill and knowledge (T1), the translation of said knowledge into the delivery of better health care (T2), and the study of improved patient or public health outcomes (T3).³ Current global health education and scholarship are primarily focused on academic understanding at the T1 and T2 levels but is most lacking at the T3 level.

Both high-quality clinical health studies from global health settings⁴ and studies linking educational activities and health outcomes in the United States⁵ do exist. There is far less literature linking GHEs and clinical outcomes. The presence of visiting health workers is assumed to yield health benefits to local populations, but little explicit data exist beyond small descriptive studies.^{6,7}

Background

In 2001, 20% of surveyed graduating medical students had experience in global health.⁸ Ten years later, more than 30% reported having participated in some kind of global health opportunity.⁹ In response to student demand, GME has expanded elective opportunities and global health partnerships.¹⁰ Internal medicine, emergency medicine, and

pediatrics now all offer formal fellowship opportunities in international health.¹¹

Academic medical centers have aimed to improve educational experiences by standardizing GHEs with emphasis on curricular development and formal competency requirements, including the development of electives, tracks, and didactic study in global health.¹² Additionally, authors have proposed distinct educational strategies¹³ and standardized medical school-based curriculum guides.¹⁴

Benefits of Global Health (Current T1 Data)

A growing literature purports the benefits of GHEs on US trainee education. Previously published benefits include introduction to a wider spectrum of disease states, improved physical examination skills and clinical acumen, improved cultural sensitivity, and exposure to alternative health delivery models with a broader emphasis on cost and resource allocation.¹⁵ Resident participation in GHEs also impacts future career choices and the likelihood that a graduate will volunteer abroad, work with underserved communities, and pursue a public health career.^{16,17}

Clinical and Public Health Outcomes (Building T2 and T3 Data)

Current published work monitoring and evaluating international electives has focused on US application of standards and trainee center metrics—including adherence to published guidelines, resident understanding of core competencies, quality of learning, educational opportunities and didactics, clinical exposure, and depth of faculty preceptorship.^{18,19}

It is less certain whether GHEs and methods to standardize curriculum have led to better health care (T2) and improved clinical and public health outcomes (T3). Even in the most sophisticated systems, demonstrating patient and community outcomes as a function of education and training is difficult.²⁰ The problem of linking elective activities and clinical outcomes is exacerbated even in well-thought-out GHEs.²¹

While these constraints are real, the study of clinical data as linked to educational practice will improve educational opportunities, health outcomes, and future research capacity. Data collection and surveillance use considerable resources, but both are arguably cost-efficient and beneficial in the long run.²²

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A research agenda informs priority setting, tailored guidelines specific to local needs, clinical care delivery, and (re)allocation of health care resources. By not commissioning data collection, academic medical centers risk repeating errors and may lack leverage to make real adjustments to treatment. The collection of data enhances accountability in such settings, engages local partners, and is of interest to possible future donors.

Developing a site-specific research agenda in tandem with clinical opportunities allows for critical input from partners and may incentivize local health care workers to stay, rather than seek employment outside their home countries. Collecting, maintaining, and analyzing data with limited resources is difficult; however, reliable data can be collected by in-country support and community health workers.²³ Providing training for health care workers leads to the capacity of future research.

The role of GME in global health is not without critique. For instance, GHEs have been shown to lead to distrust and nonreliance on local health care systems,²⁴ and to consumption of resources in an already resource-poor setting.²⁵ At the same time, GHE opportunities may do little to affect local capacity as trainees eventually come back to the United States to practice. There is some worry that the generation of informed data from translational research may exacerbate these concerns. What if data expose weaknesses in a local health care system that neither the local system nor the GME site has the resources to fix? Conversely, what if programs identify unforeseen public health benefits that were not previously identified?

While these are valid concerns, academic medical centers, in tandem with local partners, are well-positioned to shepherd outcomes data collection. Many local partners and international development agencies have existing structures for data collection and associated analysis capacity and thus are positioned to promote outcomes research.²⁶

At the same time, collaborations between partnering organizations in the United States and in developing countries²⁷ have led to efforts to both understand and strengthen research capacity in resource-limited settings.²⁸ When balanced with the local need for direct medical services, the daily collection of real-time data and meaningful analysis has the potential to lead to a translational science of global health education.

At the moment there does not appear to be an established dominant pedagogical environment related to GHEs and health outcomes. In 2008, Haan and colleagues²⁹ proposed a framework that sought to link relevant clinical outcomes specific to one's specialty training with individual trainee performance and education. Intended or not, there are several studies that have

attempted to utilize this model in evaluating specific outcomes as they relate to GME activities.³⁰ Haan et al²⁹ selected clinical indicators relevant to national and specialty-specific standards. These outcomes were then measured and matched to individual resident activities. One initial approach in applying this model to global health activities would be to modify the selection of clinical indicators specific to national, regional, and cultural standards, then match these to resident involvement and make necessary programmatic changes based on overall trends in resident performance and clinical outcomes.

Conclusion

Global health electives have the potential to provide educational opportunities for medical graduates, and can help to decrease morbidity and mortality caused by disease in resource-poor settings. However, whether or not GME global electives provide the latter has yet to be fully answered. The growth of GHEs ought to be thought of in relationship to a larger translational science of global health research with a renewed emphasis on the correlation between global health education and improved patient and public health outcomes.

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