Global Health in the 21st Century: Equity in Surgical Training Partnerships

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INTRODUCTION: Safe and affordable surgical care has been recognized as an important component of global health. One of the challenges in providing safe and affordable surgical care is the shortage of trained surgical workforce. Partnerships have developed between institutions in high-income countries (HICs) and low- and middle-income countries (LMICs) to strengthen and expand surgical education in LMICs. As these relationships evolve, emphasis needs to focus on development of equitable, bilateral partnerships.

METHODS: We reviewed different global surgery education partnerships to describe key components and features of successful partnerships. We then provide a framework for equitable global surgical training partnerships.

RESULTS: Key features of equitable global surgical education partnerships included an alignment with local priorities, long term collaborations, and locally integrated, competency-based training. To develop a partnership, both parties must meet and perform a needs assessment of the LMIC institution and jointly agree how the partnership can best address these needs. Both the HIC and LMIC institutions must clearly define their goals and expectations. Ideally, a set of output measures will be defined to assess the success of the partnership.

CONCLUSIONS: Improving surgical education in LMIC countries is an integral part of health equity in global surgery. Key components of equitable education partnerships focus on local ownership and long-term relationships. Each party needs to clearly define goals and expectations for the partnership. Equity is essential and unequal relationships must be avoided. (J Surg Ed 76:9–13. © 2018 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: global health, health equity, postgraduate, medical education, curriculum

COMPETENCIES: Medical Knowledge, Interpersonal and Communication Skills, Practice-Based Learning and Improvement, Systems-Based Practice.

THE PROBLEM

There is a shortage of surgical specialists worldwide, especially in low- and middle-income countries (LMICs). Surgical education in LMICs may be limited in general but particularly for postgraduates (also called registrars or residents) due to lack of financial resources, teaching faculty, or clinical training opportunities (Table 1). In some settings, specialty training occurs informally in an apprenticeship style without clear guidelines of when postgraduates become fully qualified. As interest in global health skyrockets, students, trainees, and doctors in high-income countries (HICs) have expressed keen interest in working in resource-limited settings. Surgical education has been established in HICs for many decades and HIC institutions have educational and financial resources that could benefit LMIC training programs.

Some individual HIC doctors teach in LMIC training programs but this assistance can be ad hoc, disruptive, or unilateral. Many LMIC training programs have few trainers so when a visiting doctor offers to teach, they may not feel that they can refuse, even if the teacher is not appropriately qualified or educational material does

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TABLE 1. Challenges to Surgical Education in Low- and Middle-income Countries

Problem	LMIC challenges	Global training partnership solutions
Lack of trainers	• Limited number of LMIC faculty who are available as trainers in their own programs	• Visiting faculty from HICs to train-the-trainers and provide training to medical students and postgraduates directly
No defined curriculum	• Some LMIC have limited educational curriculum lacking didactics, clinical training, and/or competency-based assessments	• Develop or revise curricula based on local needs and national or regional accreditation bodies • Visiting faculty augment teaching through didactics, simulation exercises, and bedside clinical teaching
No competency-based evaluation	• Local examinations with validation through external examiners	• Development of competency-based evaluations • Visiting faculty to help administer exams or serve as external examiners
Lack of subspecialty training	• Visiting faculty in subspecialties • Subspecialty rotations	• Expanded repertoire of subspecialty training sites nationally, regionally and internationally with consistent availability for all trainees
Lack of funding	• LMIC institutions have limited funding for medical and postgraduate education	• Visiting partners can leverage international public or private funding for LMIC education

not fit into their curriculum. Some visiting surgical specialists offer courses over several days or weeks, which may be disruptive to local service delivery or training.

THE SOLUTION

As global health evolves, relationships between HIC and LMIC institutions must be re-defined to become more equitable and bilateral. Ideally, a formal long-term partnership between HIC and LMIC academic institutions with well-defined training objectives should be established. In this section, we provide a framework for equitable global surgical training partnerships (Table 2).

(1) Establish formal global training partnership

HIC partners should visit potential LMIC partner institutions to understand local clinical practices, existing teaching curriculum, and meet relevant stakeholders. Language and cultural differences make face-to-face meetings critical in building successful working relationships. A relationship among University of North Carolina, Kamuzu Central Hospital, and University of Malawi College of Medicine was established over several years before developing into a successful postgraduate surgical training program for Malawian trainees.[1] Permission to establish a bilateral partnership must be obtained from relevant academic and healthcare authorities, which could include the local institution department head and health department authorities. The Rwanda Human Resources for Health (HRH) Program was a 7-year endeavor to strengthen the Rwandan health education system, which was led by the Rwandan Ministry of Health, funded by the US government, involved several US universities,[2] has produced many well-needed specialists. The University of North Carolina–Malawi collaboration and the Rwanda HRH Program represent two different models of partnerships. While The University of North Carolina–Malawi partnership evolved over several years, the Rwanda HRH Program was a planned government-run initiative. Partnerships that evolve over time are more common and require less up-front investment. However, preplanned programs have the benefit of defining goals and expectations at the outset.

TABLE 2. How to Establish an Equitable Global Surgical Training Partnership

(1) Establish formal global training partnership
(2) Conduct a local needs assessment
(3) Define roles and expectations of all partners
(4) Ensure equity, especially for local partners
(5) Identify measurable program outputs

(2) Conduct local needs assessments

In order to identify how HIC partners can best assist, a needs assessment must be conducted by relevant stakeholders. The Alliance for Global Clinical Training is a consortium of U.S. surgical departments providing educational support at Muhimbili University of Health and Allied Sciences in Dar es Salaam, Tanzania.[3] A needs assessment identified the desire for formal didactics, increased clinical mentorship, longer rotations for visiting faculty, equitable distribution of teaching time amongst Muhimbili University of Health and Allied Sciences faculty, improved coordination and language skills, and rotations for Tanzanian postgraduates at U.S. hospitals.[3] In Rwanda, the shortage of specialists was very obvious. The 1994 genocide against Tutsi had decimated

a good number of healthcare personnel and many others had fled the country. Surgery and anesthesia suffered severe shortage of specialists. Except for Caesarean sections at the district hospital, most surgeries had to be referred to teaching hospitals and this resulted in long waiting lists. This was one reason for HRH program. There are no validated needs assessment tools developed for such programs and development of a standardized needs assessment tool is needed.

Importing a surgical training curriculum from a HIC may not be relevant to LMIC needs. For example, certain sub-specializations may not be appropriate given limitations in local technology and resources. For example, organ transplantation and robotic surgery may not be relevant. Some LMIC may have regional and national accreditation bodies and training partnerships should strive to meet their criteria. For example, the Rwanda HRH curriculum is based on University of Rwanda requirements. The Pan-African Academy of Christian Surgeons supports surgical training in multiple sub-Saharan African countries through visiting and host faculty and is approved by and follows the College of Surgery from East, Central, and Southern Africa curriculum.[4]

Program planning needs to be driven by local staff, complementing goals of the national healthcare system. In Rwanda, each district hospital should have at least one general surgeon; therefore, the HRH supported residency program ensures that postgraduates acquire the skills needed for working at the district hospital.[2] In addition, other programs like orthopedics, neurosurgery and urology, have been developed and implemented based on local priorities and needs. Pan-African Academy of Christian Surgeons surgical postgraduates are intended to increase the surgical workforce in rural Africa and therefore their curriculum focuses on this objective.[4]

(3) Define roles and expectations of all partners

HIC partners must define what resources they will provide, for how long, and with what limitations. The number, frequency, and duration of visiting faculty support should be clearly stated. HIC institutions can bring financial, teaching, and assessment resources. Faculty can train local trainers or teach postgraduates directly. Teaching styles vary between countries and differing training methods, at the bedside and in the operating room, can be taught by visiting partners. HIC partners can bring expertise in program organization and competency-based evaluations or contribute remotely, through telemedicine or development of protocols and manuals. Innovative resources such as open source e-learning material, access to electronic libraries, low-tech simulators, and teleconferences can be supported by visiting partners.[5,6]

Local partners must clearly define their teaching roles and responsibilities. Busy local clinicians could see visiting partners as teaching replacements and devoid themselves from training their own postgraduates. This is not ideal. The best partnership is one that up skills local faculty and makes the HIC partner eventually redundant. Using a twinning model, the Rwanda HRH program provides support for 7 years after which Rwandan faculty will sustain the training program independently.[2]

These roles and responsibilities may be defined in a memorandum of understanding. The memorandum of understanding is tailored to the precise needs and specifications of each partnership. While the enforceability and legality of such agreements varies depending on the institution and country, it provides a framework of understanding for the partnership.

(4) Ensure equity, especially for local partners

Local stakeholders must feel that they are equal partners to visiting counterparts for the relationship to be bilateral and equitable. When visiting partners provide financial and human resources, local institutions may feel uncomfortable guiding the assistance, especially when the visiting ideas do not align with their own. Learning to be assertive whilst diplomatic may be a new but necessary skill for local stakeholders to learn. The local institution should map all international actors and their roles. Often times, there are multiple visiting institutions collaborating with a single host site and efforts should be synergistic and not duplicative. Global Partners in Anesthesia and Surgery is a collaboration between North American and Ugandan teaching institutions.[7,8] Working together, partners developed an online database mapping the various groups and organizations addressing surgical disease in Uganda.[9]

Defining the role of HIC trainees in local clinical and research training can also become a delicate negotiation, especially if they compete for opportunities with local trainees. HIC partners must ensure their objectives are aligned with LMIC counterparts; pitfalls to avoid include focusing on service delivery rather than training, providing disruptive rather than integrated teaching, and the inability to provide a consistent presence.

(5) Identify measurable program outputs

Measurable program outputs such as the increase in trainees, better quality of clinical care, improved examination scores, or implementation of a competency-based assessment program should be identified to evaluate the success of the partnership. The Global Partners in

Anesthesia and Surgery collaborative increased the number of postgraduates from 20 to 40 (surgery) and 2 to 19 (anesthesia) over a 4-year period.[7] During the Rwanda HRH program, the number of surgical postgraduates more than doubled.[10] In addition to the quantity of trainees, additional metrics should address the quality of trainees. Many programs incorporate external examiners to ensure graduate trainee quality. Another option for assessing quality is through regional accreditation boards such as College of Surgeons of East, Central and Southern Africa fellowship. Other potential output measures include the number of LMIC educators trained or number of lectures or modules administered by host faculty. Jointly produced research publications can be another measure of success. Patient care outcomes, such as trends in mortality, can be useful indicators although they might be subjected to confounding variables.

THE WAY FORWARD

National surgical societies, such as the American College of Surgeons,[11] have started providing formal and informal networks for institutions supporting global surgical training partnerships. This can lead to additional multiinstitutional consortiums, which can provide a wider range of training and evaluation competencies and faculty[2,3] to LMIC partners. Currently, many global partnerships are small collaborations led by individual HIC doctors. Engaging support from academic institutions is needed to legitimize these partnerships and not keep them as extracurricular activities for kind hearted HIC surgeons. These partnerships need to be taken seriously by HIC organizations that can leverage funding and protected time for their faculty to participate. Whilst individual HIC doctors are well meaning, there needs to be a push to make these partnerships institution-wide.

Ethical guidelines to ensure equity with LMIC counterparts should be established. Moving forward, the role of HIC students and postgraduates participating in rotations at the LMIC partner institution must be evaluated. If their global surgical experience limits the clinical training of local trainees, local training priorities should take precedent. Global surgical partnerships can lead to research collaborations and build local research infrastructure. If equitable, this can lead to capacity building for both partners. In Uganda, a local research agenda, research coordinator and annual research conference were created as part of the training partnership.[7] However, despite conducting research alongside HIC partners, no Ugandan trainee had published as a co-author.[12] Other programs have demonstrated that operational research training programs can build local capacity and increase local first-authorship.[13] Ultimately, research collaborations need to be equitable and bilateral.[14]

Once partnerships have been developed, they will need to be continually reassessed. This should include an assessment of how well the program works and whether goals have been reached. As collaborations grow and evolve, the needs of each partner may change, requiring an update to the arrangement and ensuring that the partnership is mutually beneficial.

CONCLUSION

Improving medical education in LMIC countries is an integral part of health equity. More HIC−LMIC training partnerships are being formed to improve surgical education worldwide. HIC partners can provide valuable assistance, but their role needs to be defined. Equity is essential and unequal relationships must be avoided.

Key components of equitable surgical education partnerships focus on local ownership and long-term relationships with each stakeholder clearly defining goals and expectations.

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