

Cultivating Global Surgery Initiatives Abroad and at Home

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Pursuing a career in global surgery has come to resemble the annual tradition of a New Year's resolution—both processes are infused with enthusiasm, yet difficult to sustain. With increasing clinical demands, reductions in funding, and difficulty maintaining effective collaborations across time zones, establishing a career in global surgery requires dogged perseverance. For many years, surgery was considered the “neglected stepchild of global health,” and global surgery the “neglected stepchild of academic surgery.”^{1,2} Due to the rising burden of noncommunicable diseases and international initiatives, such as the Lancet Commission on Global Surgery, the number of institutions offering international clinical electives for surgical residents has grown from 3 in 2000 to 86 in 2015.^{3,4}

Traditionally, these brief, 1- to 4-week clinical rotations allow residents to explore operating in resource-rich and -poor environments, understand cultural expectations pertinent to local populations, and initiate collaborations for potential future international work. Due to growing interest, organizations such as the Accreditation Council for Graduate Medical Education and the American Board of Surgery have begun to address some of the barriers to international rotations, including allowing operative cases performed on approved international rotations to be counted toward case log requirements.^{5–8}

Unfortunately, logistical obstacles have prevented international experiences from becoming more widely accepted. These include a lack of funding for opportunities abroad and challenges with scheduling and case coverage with residents away outside of their vacation time. In this perspective, we offer recommendations to interested surgical trainees and programs and institutions on how to incorporate global surgery into residency training (BOX), to transform exploratory international experiences into productive, long-term initiatives on which individuals can build academic careers.

Defining a Research Focus in Global Surgery

The foundation of a successful academic career is often the balance of research and clinical activities. Physicians who want to go beyond an international rotation and hope to build a career in global surgery benefit from engaging in research to demonstrate commitment to an academic path. Unfortunately, less than 30% of international electives include research opportunities.⁹

Given limited access to data and a paucity of funding, individuals who have not established a niche in global surgery during residency may find it increasingly difficult to continue this as faculty. To address this challenge, programs need to develop targeted research questions to accompany clinical exchanges. This requires strong international relationships that facilitate collaboration beyond brief rotations. Surgical departments should identify and cultivate mentors with funding in global surgery, as well as corresponding foreign mentors. At the University of Michigan, a recent collaboration with the All India Institute of Medical Sciences has resulted in multiple grants, publications, and clinical exchanges.^{10,11} Such international collaborations require time, patience, personal friendships, and mutual trust.¹⁰ They are imperative for a program to sustain global surgery research and prepare residents for an academic career in this field.

International Electives as Routine Components of Residency Curricula

In many training environments, students, residents, and faculty who choose to pursue global health initiatives are expected to do so during their personal time off. While this seems necessary to maintain compliance with work hours and case log expectations, it detracts from the goal of enhancing exposure to global surgery. This may be a reason why many surgeons are only able to pursue global surgery once they have achieved tenure and are at midcareer or beyond. While all residents in our program stated that they would be excited by international opportunities,

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few have managed to successfully integrate international electives into their surgical training. To address this problem, the Section of Plastic and Reconstructive Surgery at the University of Michigan has embedded international elective rotations into the residency curriculum. Global surgery is a multidisciplinary field requiring participation by surgeons, anesthesiologists, and economists. Increasing the number of residency programs that offer international rotations increases the likelihood that residents will be able to contribute to global surgery as young faculty. The needs within this field are immense, and without increasing the number of physicians who can realistically contribute, progress will be limited.

Focus on Issues With International and Local Relevance

One of the challenges to integrating global surgery is the belief that it is largely a philanthropic effort, potentially deterring local sources of funding, including departments funding residents internally, and national agencies, such as the National Institutes of Health (NIH), from supporting this work. One strategy is to show that these efforts benefit not only international collaborators, but also the success of US physicians and health care systems. Despite the lack of resources in many low- and middle-income countries, there are health care centers within them that deliver high-quality care with comparable outcomes to developed nations, at much lower costs. While cataract surgeries in the United States cost, on average, \$3,500, the Aravind Eye Hospital in India (12 locations) has reduced the cost of the operation to \$54, with lower complication rates, and provides free care to over two-thirds of its patient population.¹² Similarly, cleft lip repair in India costs one-tenth of the more than \$30,000 bill for the same procedure in the United States.¹³ International rotations can add value through learning and applying these cost-effective practices to developed nations.

At the University of Michigan, international relationships started as personal connections between faculty and their international counterparts, such as the All India Institute of Medical Sciences. This progressed to identifying convergent ideas for clinical and research collaborations that are appealing to both institutions, primarily regarding trauma and burn care delivery and neurosurgical interventions for head injuries. The universities have secured funding from the NIH for these projects, which is an important metric of success for both institutions.

For these collaborations, motives should be driven by promoting sustainability on 2 important levels. First, addressing the lack of access to surgical care should occur with the goal of developing

BOX Measures to Facilitate the Growth of Global Surgery Training

- Define a research focus in global surgery.
- Adopt international electives as routine components of residency curricula.
- Focus on issues relevant to international and local institutions.
- Secure a global surgery team with local and international mentors.
- Secure funding to grow a global surgery program.

infrastructure that will promote ongoing care by local providers without creating dependence. Second, sustainability implies a relationship that continues to be fruitful for US institutions and residents. This can be achieved by research collaborations with international institutions through agreements to host US residents for their education. From this perspective, global surgery represents a sustainable field that has much to offer all parties involved.

Global Surgery Teams and Mentors

Many grant applications and funding opportunities are designed specifically to benefit faculty within the first 5 years of their career. Securing this funding is an even greater challenge in global surgery, where teams and collaborations take many years to develop. For residents, it is advantageous to identify a mentor who has already established a sound international team. This can help the resident establish himself or herself in the field and reduce some of the time needed to invest in relationships across time zones. Given the relatively recent acceptance of global surgery into academia, established faculty who are invested in its growth and progress should keep in mind the overall goal of the field and be open to supporting residents from other institutions.

Funding for Global Surgery Programs

While it might be difficult for some departments to fund international rotations, there are external funding opportunities that can be tapped with the support of institutional mentors. Most universities are interested in extramural support, and it may be worthwhile to apply for a grant from the Fogarty International Center at the NIH or other external sources of funding. Successful attempts at securing such funding may encourage universities to match or provide additional funding. At the University of Michigan, the global surgery initiative was fortunate to secure early NIH awards, which resulted in the availability of matching intramural sources for

funding. The institution is also part of a consortium of universities (Northern Pacific Global Health Research Fellows Training Consortium) that provides funding for global health fellowships. Residents with mentors at 1 of these institutions can apply for a year-long grant to work at participating programs available in 7 low- and middle-income countries. This can also include residents from nonparticipating programs who have a mentor at a participating institution.

Conclusions

It is important to advance beyond perceptions that global health efforts are primarily philanthropic and recognize that global surgery provides benefits to US surgical residents and faculty and has the potential to increase efficiency and reduce costs in the US health care system. Despite an increasing need, a career in global surgery seems exceedingly difficult for residents to achieve and sustain. The surgical community must act now to formally introduce academic global surgery and pave the way for future academicians. By incorporating research into global surgery curricula, forming solid mentor-mentee teams, emphasizing the bidirectional nature of learning in such settings, routinely including international electives in residency training, and exploring ways to fund residents in these endeavors, the community can mold previously transient experiences into sustainable career achievements in global surgery.

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