REFERENCES


Commentary: The role of global surgery electives during residency training: Relevance, realities, and regulations

Jason Axt, MD, MPH,a Peter M. Nthumba, MBChB, MMed (Surgery),a,b Kamene Mwanzia, MBBS,b Erik Hansen, MD, MPH,a,b Margaret J. Tarpley, MLS,a Sanjay Krishnaswami, MD,c Benedict C. Nwomeh, MD, MPH,d Aixuan Holterman, MD,e Evan P. Nadler, MD,f Diane Simeone, MD,g Susan Orloff, MD,g John L. Tarpley, MD,a and Nipun B. Merchant, MD,a

From Vanderbilt University Medical Center,a Nashville, TN; AIC Kijabe Hospital,b Kijabe, Kenya; Oregon Health & Science University,Portland, OR; Nationwide Children’s Hospital,d Columbus, OH; University of Illinois;c Peoria, IL; Children’s National Medical Center;d Washington, DC; University of Michigan Health System,e Ann Arbor, MI

Technology has made the world smaller. Worldwide communication is instantaneous, and those with little or no access to safety, food, and health care realize the inequalities within which they live. Surgery residents recognize the inevitability of globalization and want to address health care access and disparities under which many people live and thereby many of our residents want...
training opportunities in developing countries. Many surgery trainees and practicing surgeons now have the desire to serve in and share appropriate technology with low- and middle-income countries. Applicants to surgery residencies are more aware of global issues and actively are requesting various types of opportunities to learn and serve in the developing world. Not only do residents want these experiences, surgical educators see the value of these experiences as well. Recent surveys show that general surgery program directors support global surgery rotations during training. Perceived barriers to developing these rotations include the difficulty in freeing residents from necessary clinical duties, finding funding, and the requirements of the residency review committee (RRC). Issues of time and funding represent the primary barriers that need to be addressed by individual training programs.

In the last year, guidelines for rotations in global surgery have been developed and supported by the RRC for surgery. These guidelines allow credit for surgical cases performed and clinical time served during approved international rotations. Credentialing both activities validates the value of these international surgical experiences and also assures that the experiences are both safe and educationally sound. The release of the RRC requirements for global surgical rotations in early 2011 allows for the development of global health experiences for the benefit not only of our surgery residents, but also for the host’s patients, and the host facility.

VALUE OF GLOBAL GENERAL SURGERY ROTATIONS

Benefits to American surgery residency programs. For general surgery training programs to compete effectively in the resident recruitment process, quality international experiences need to be offered because medical students are seeking these opportunities. Program directors not only understand the benefits of these rotations but recognize and support the increased motivation of residents to serve vulnerable communities.

The experiences gained from these international rotations cannot be duplicated during training in the United States. Many surgery residents may never perform a Billroth II procedure for peptic ulcer disease or see a laparotomy for typhoid perforation during their training. While so-called “imageless” laparotomies may be routine in less developed locations, it would be very unusual for American residents to perform a true exploratory laparotomy. Those residents who participate in international rotations often learn alternative, less-expensive ways to treat disease onsite, and they must rely more on the clinical and physical diagnosis and less on imaging and testing to guide clinical decision-making. When resources are limited, triage becomes a necessity. Few residents from Western cultures have been exposed to such limits. Learning to prioritize in this situation can be challenging ethically and valuable clinically.

An often-unanticipated benefit is to practice “general” general surgery, which includes obstetrics, gynecology, urology, and basic orthopedics. If there are local surgery trainees from the host country, the visiting resident may be guided through procedures such as C-sections by these peers. American residents also benefit from the hospitality of the host institution and the opportunity to experience and work in a new culture. Arrangements and accommodations provided by the host institutions represent a time and energy commitment to the partnership.

There are now more surgery trainees actively planning to pursue careers in global health. In order to make a focused and reasonable impact on the development of surgery training programs throughout the world, ideally, these trainees should be offered the opportunity to develop such a career by their training institutions.

Benefits to the host program. Visiting faculty and residents do have much to offer the host program. Visitors often bring new technology, including surgical equipment that has been upgraded and retired in their home institutions that may be unavailable or unaffordable at the host institution or country. Visitors can bring safe and fully functional “recycled” equipment to teach the current standard of care. For example, surgeons in Botswana have learned laparoscopy from visiting faculty and are now fine-tuning their skills through these collaborations with international training sessions via Skype. These teaching interchanges can often lead to valuable discussions of appropriate technology or to unique research questions for less developed settings. This “cross-pollination” can generate cost-saving ideas that may not occur in normal practice, but can result in modifications to standard of care that may be appropriate locally.

CHALLENGES

Unfortunately, but predictably, the formation of these global health surgery rotations presents multiple challenges. Elective time is usually available within the general surgery curriculum.
Currently, time on international electives can be used from the pool of elective time, generally 1 to 6 months, in years 1 to 4 of a surgery residency. In contrast, the chief resident year must be performed at the primary institution. Which year of the surgery residency is optimal may depend on the clinical experience and/or the interest of the resident.

The issue of proper supervision is paramount. Should standards less stringent than the ones adopted in our training programs apply to global health rotations? Although some argue that patient needs are much greater and that there is an inadequate supply of health care providers, thus justifying provision of care by unsupervised learners, we and the RRC in surgery do not support this statement. Adding an extra resident to the mix may improve patient access to care, but finding enough qualified staff to supervise residents can be challenging. Principles of beneficence and nonmaleficence still apply. Trainees must not be placed in positions in which they are unsupported or in which they feel pressured to do procedures that they are unfamiliar with or untrained to perform. Visiting residents must have fully credentialed surgeon(s) available to supervise and assist with all procedures. Currently, this requirement is defined as a surgeon who is certified as a Diplomate of the American Board of Surgery.

Many places in which global health rotations are occurring also serve as training sites for local practitioners. Any efforts at helping and improving surgery in places like sub-Saharan Africa by visiting residents and visiting faculty must not interfere with the surgical experience of the local trainees. Rotating residents should not “cherry pick” the “good cases” if a local resident is available. Preference must be maintained for the residents at the host location. Certainly if residents from a less-developed country came to the United States for a surgical experience, they would be required to comply with full credentialing procedures. Likewise, our visiting residents and staff should be required to meet local credentialing procedures.

The regulatory hurdles to establish short-term surgery rotations in the United States for residents from other countries are currently very difficult, perhaps impossible, to overcome. Instead, in an effort to move toward parity, short-term observerships could be arranged as a first step toward reciprocal educational experiences.

Most low- and middle-income countries have an increased incidence of HIV, AIDS, hepatitis C virus, malaria, and other infectious diseases in their patient population. It is essential that the safety of traveling learners be maintained. Personal protective equipment must be available. Appropriate vaccinations must be given, and prophylaxis against infectious diseases such as malaria must be available. Well thought-out protocols for inadvertent HIV exposure should be in place with appropriate medication availability. Attention also must be given to physical safety. Motor vehicle crashes are the primary cause of injury and death throughout much of the underdeveloped world. Reputable drivers and quality vehicles should be retained, and normal safety precautions apply.

**CURRENT SUPERVISION FORMAT**

Global surgery electives may take many different forms. Supervision is anything but uniform. Frequently, the teaching faculty from the home institution travels with residents and supervises them clinically during an organized trip. For example, at Vanderbilt University, an otolaryngology/head and neck surgeon travels yearly to the same location in Kenya with residents whom he supervises personally. Regular visits to the same location allow a support infrastructure to be developed gradually. In this way, relationships between institutions are fueled but not necessarily formalized.

In other situations, traveling residents work with trained faculty at the rotation site. This situation occurs more often in the more developed countries and is usually under the tutelage of a recognized expert in a particular field. In the case when the supervisor is not an internationally recognized expert, training may not meet the standards of the sending institution, and concerns about the adequacy of supervision may arise. While trainees may be attracted to the autonomy that such an arrangement allows, care must be taken to protect patients from residents who are not yet prepared for independent practice. Every effort must be made to ensure that the traveling resident has appropriate training and adequate backup and support. This variety of risks for patients and trainees requires an ordered, well thought out approach to credential a safe, learning experience for both patient and learner.

**VANDERBILT INTERNATIONAL SURGERY**

During the last 5 years, the American College of Surgeons, the Accreditation Council for Graduate Medical Education, the Association of Program Directors in Surgery, and the RRC in surgery have studied the feasibility of an international rotation and discussed guidelines. In April of 2011, the RRC for surgery released guidelines consisting of 14 major requirements for such a rotation (Table I).
Following these guidelines, the Department of Surgery at Vanderbilt University designed and implemented an international surgery rotation for general surgery residents at a mission teaching hospital in Kijabe, Kenya. Africa Inland Church (AIC) Kijabe Hospital is a regional referral hospital in rural Kenya. The clinical scope of AIC Kijabe Hospital is broad, with specialists in medicine, pediatrics, general surgery, neurosurgery, plastic surgery, orthopedics, otolaryngology, and gynecology. It hosts a broad range of training programs from laboratory technology to pediatric neurosurgery.

Inspired by the success of an already-functioning rotation for anesthesia residents,7 we applied for and received approval from the RRC to be the first such general surgery rotation. To meet the requirements of the RRC, the experience has been structured as an elective. Competency-based goals and objectives were defined. After the rotation, electronic evaluations are recorded for each participant by supervising faculty. Each visiting resident applies for a medical license and work permit in Kenya. A Vanderbilt faculty pediatric surgeon lives at Kijabe full time and serves as the Associate Program Director for this experience. In addition, residents are supervised by surgeons credentialed from the United States, Kenya, and Australia who have appointments as clinical adjunct faculty.

Appropriate personal protective equipment must be available for each patient interaction despite the challenge in resource use. Vanderbilt University, at no cost to the residents, provides malaria prophylaxis and the recommended vaccinations. HIV rapid testing and prophylactic treatments are also available. The Department of Surgery pays for all travel expenses and assures that safe and comfortable housing is provided. Food and recreation are the only uncovered expenses incurred by the residents. The department loans each resident a global cellular phone and a travel-vetted laptop computer with a mobile broadband USB modem. Funding is always an issue. At Vanderbilt University, funding has been allocated from within the Department of Surgery and local donors have also contributed toward expenses. Hope Through Healing Hands, a not-for-profit organization dedicated “to expand the work of health diplomacy abroad,” has been one of the

Table I. RRC elective application guidelines

| PGY level of the resident for whom the rotation is requested |
| Dates of the rotation |
| Verification that the request has been entered in Webads |
| Verification that the rotation is an elective |
| Program’s accreditation status and cycle length (must be continued accreditation with at least a 4-year cycle) |
| A statement that ABMS-certified faculty (or qualifications deemed acceptable in advance by the Review Committee) will supervise the resident |
| A statement of the competency based goals and objectives of the assignment |
| Educational rationale: a statement describing what educational experience the international rotation provides for the resident that the primary institutions or affiliates do not. |
| Verification that there will be an evaluation of the resident’s performance on the basis of the stated goals and objectives |
| A description of the clinical experience: |
| Type of center (governmental, nongovernmental, private) |
| Scope of practice of the host center |
| A statement of the center's operative volume and type |
| A statement about the adequacy (or not) of the supportive anesthetic, radiologic, laboratory, and critical care infrastructure. |
| Verification that the experience will include an outpatient experience |
| Verification that the resident will enter operative experiences for credit |
| A description of the educational resources including access to a library with reasonably current resources and/or reliable access to web-based educational materials |
| A statement addressing physical environmental issues including housing, transportation, communication safety and language |
| A copy of the Program Letter of Agreement. |

ABMS, American Board of Medical Specialties.
donors, thus allowing each resident to become a “Frist Global Health Leader.”

As of June 2012, 6 PGY 4 residents had completed the 1-month rotation. The overall feedback about the learning experience has been quite positive. Residents participated in grand rounds, assisted with numerous surgical patients, worked in the casualty department, and participated in clinics. They return with a renewed appreciation for the multitude of resources available to them at home, an increased awareness of providing care in resource-challenged environments, a realization that diagnosis and treatment can occur without the use of magnetic resonance imaging, computed tomography, and other hi-tech procedures, and great respect for the breadth of knowledge of local surgery trainees, including ob-gyn and urology. This experience is not about the operations performed (even though they “count”); rather, the goal is to provide an exposure to the delivery of surgical care in a resource- and technology-challenged environment according to the 6 principles of competency defined by the Accreditation Council for Graduate Medical Education: patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice.

The new RRC guidelines have provided the template with which to initiate this training initiative for the surgery resident who either is interested in a career in global health care delivery or for the resident who desires an experience in international medicine. These types of rotations are apt to grow in number and scope. It remains to be seen what the long-term benefits will be for the sending and receiving institutions and as well as for the learners.

**AIC KIJABE EXPERIENCE: FROM THE EYES OF THE AIC KIJABE SURGERY STAFF**

As part of its goal to provide excellent health care to the poor and vulnerable, the AIC Kijabe Hospital has long realized the importance of training and education of Kenyan physicians to ensure long-term sustainability of its clinical services. The success of this strategy led to the need for the formal transfer of specialist skills to both Kenyan trainees, as well as trainees from other parts of sub-Saharan Africa. This mission has allowed the AIC Kijabe Hospital to evolve into a strategic training resource for this region. Kijabe Hospital desires further to merge high quality clinical care with training and research to realize its goal of excellent but affordable health care. Relationships and partnerships have, therefore, been developed with local hospitals and universities to advance medical training, especially in the surgical specialties; indeed, Kijabe hospital has active training programs in general surgery, orthopedic surgery, pediatric surgery, pediatric neurosurgery, and soon plastic surgery. An international partnership, such as the one currently held with Vanderbilt University, was a natural outgrowth of the desires and goals of AIC Kijabe Hospital.

The benefits of this partnership to the AIC Kijabe Hospital during this early experience may be less immediately evident than the benefits gained by the Vanderbilt residents. The added resource of having a visiting resident is helpful, but added residents also mean added supervisory and orientation work. We have seen that the realities of the vastly different health care system of a resource-limited setting like Kenya can present difficulties to the visiting resident. For example, decisions made in the clinic on interventions are sometimes made on the basis of the financial implication to the patient rather than the strictly “textbook” or “ideal” approach. These decisions, although difficult for the residents, provide a practical, realistic view of health care for a majority of the world’s population and are exactly the type of experiences that this kind of rotation provides, as access to health care resources in most of the world are nothing like medical care in the United States.

In addition, there has been great benefit in the exchange of ideas between the Kenyan residents and the visiting trainees especially in areas of new technology and advances in medical management. Further interactions will not only foster growth, but also promote 2-way education and help in areas such as clinical research.

Ultimately, AIC Kijabe Hospital is very interested in promoting these types of resident rotations as a part of a broader, multitudered relationship with appropriate institutions in the developed world. These relationships/partnerships will allow sharing of resources to build the capacity for education, training, and research in the AIC Kijabe Hospital to address the burden of disease, in particular operative disease, that exists in Kenya and East Africa.

The leadership of AIC Kijabe Hospital desires opportunities for true exchange visits by faculty who will provide the framework within which both AIC Kijabe Hospital and Vanderbilt University faculty can develop mutually beneficial relationships and foster joint research projects, while at the same time providing an appreciation for the hardships and benefits of the environments in which each practices. This type of cross-pollination is vital to sustaining and advancing such a relationship.
REFERENCES