

# Chapter 3

## Ethics in Global Surgery

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### Introduction

Interest in making contributions to medical practice and research in low and middle income countries (LMIC) has become increasingly prevalent. The greatest strides have been made in preventive and primary care health measures applied toward vaccination strategies for infectious diseases, maternal and child health, and the HIV/AIDS pandemic. However, for many reasons, addressing surgical disease in LMIC's has been a challenge. Although individual groups continue to deliver surgical care throughout the world, an organized agenda for surgical care has been lacking. Concentrated efforts by organizations such as the World Health Organization Global Initiative for Essential and Emergency Surgical Care (WHO-GIEESC) and more recently, the Lancet Commission on Global Surgery and the advocacy-based Global Alliance for Surgical, Obstetric, Trauma, and Anaesthesia Care (G4 Alliance) are finally yielding benefits by building political priority for surgical care as part of the global development agenda. In May 2015, the World Health Assembly (WHA) passed a landmark resolution on the importance of surgical care in the universal health care plan. The WHA mandate was a significant step towards mobilizing vital surgical initiatives, individuals, institutions, and health care teams. Given the significance of these initiatives, it is imperative and timely, that the ethical issues surrounding global surgery are delineated and better understood. Surgeons who function in this realm carry a significant burden of responsibility to provide safe,

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cost-effective, culturally-appropriate and good quality care in the most ethical manner possible.

The aim of this chapter is to highlight a few of the ethical issues associated with delivering surgical care and conducting surgical research in LMICs, including issues surrounding resource allocation, sustainability, non-maleficence and informed consent. Furthermore, we will identify potential pitfalls and provide examples of appropriate solutions to these ethical dilemmas. Although the list of ethical challenges is not exhaustive or comprehensive, we hope to begin a discussion that can serve as a basic platform for additional discourse.

## **Resource Allocation**

### ***Overall Resources for Surgery***

The issue of resource allocation is ever present in medical ethics as there are multiple areas of need in LMICs. Resource allocation toward surgical diseases has thus far lagged behind efforts focused on traditionally-recognized public health issues such as sanitation, malnutrition and infectious diseases. These conditions require less capacity and capability than what is needed to provide surgical care, such as operating room teams, equipment, supplies and postoperative care. The accessibility to clean water and vaccinations are easier to provide than what may be needed for an individual surgery. However, recent data show that provision of basic and emergency surgical care in LMICs is not only necessary from a population standpoint, but is also comparatively cost-effective and therefore an appropriate goal to aspire towards.

### ***Surgical Missions***

The site chosen for a clinical surgical mission is another potential ethical conflict of resource allocation. Aside from delivery of valuable medical care, surgical missions often provide donated resources, educational materials and an exposure to new technologies and skills that together can lead to regional inequity when not distributed appropriately. Furthermore, poor coordination of care and duplicated efforts by various medical teams can compound this problem. For a successful mission, the surgical teams must ensure that they go where they are wanted and/or needed and the resource-poor setting has expressed a desire for this engagement. Anecdotal evidence suggests that many mission locations are instead selected based upon ease of access, safety of travel, available infrastructure, lack of language barrier and networking between mutual acquaintances, friends and organizations. Obvious exceptions to this exist with well-established organizations such as *Doctors without*

*Borders (MSF)* and the *International Federation of Red Cross and Red Crescent Societies*, however, no specific data exists on the selection method for location of most elective surgical missions. While it is certain that political climates will dictate annual decisions about surgical missions, visiting surgeons and donor organizations should maintain a multi-year plan that enables selection based on regional stability, influx of new resources and increased need. This allows broad sharing of valuable material, and human resources without duplication of efforts.

Concerns over donated surgical supplies and equipment that is taken to resource-poor nations during surgical missions, can be controversial. Many surgical missions have used expired medications, hardware and/or equipment even though it is strongly discouraged by the United States Food and Drug Administration and the World Health Organization. Although certain expiration dates may be less significant than others, there is clearly an ethical dilemma when regulations set for patient safety in high-income countries are ignored. Furthermore, ethical dilemmas arise when high-tech equipment is donated without any means to ensure that repairs are possible, thus contributing to overload of equipment that has been abandoned. Progress is being made as institutions formalize the process of surplus equipment donations, implementation and education.

Expectations during international surgical missions can be unfair from many perspectives. Case selection and the availability of critical equipment are all concerns that can change the expectation of the outcomes of the mission or research. Avoiding situations where the foreign team falls into the *white knight syndrome* is important to promotion of viable healthcare in the region when the mission is completed.

The final and most important issue of resource allocation for global surgical missions is of team selection and surgeon allocation of their time and expertise between patients at home and patients in other regions. For instance, the number of attending surgeons versus the need for including more support personnel (anesthetists, nurses, or residents) should be considered. Mechanisms for continuity of care in the patients served by a visiting team or those involved in a research protocol need to be accounted. Selecting a contextually sensitive multidisciplinary team that can simultaneously promote cultural exchange and bilateral benefits for clinical, training, and research exchange ensures continuity through durable collaborations and knowledge exchange.

### ***Public vs. Private Sector Funding***

Funding for any surgical care or research requires investment of financial capital from public, private or personal sources. University and international policy-maker engagement in global surgery is gaining momentum with pathways and policies being put forth that would allow for appropriate resource allocation and sustainability. However, although funds have started to flow via such institutional and governmental support, corporate donations and sponsors are frequently still needed. Numerous ethical issues of resource allocation arise when corporate business

policies mix with philanthropic goals. However, despite these issues, private sector assistance is increasing and is a critical source of funding for aspects of surgical care in resource-limited locations. In an era of social responsibility, the role of donations from businesses and wealthy donors, must undergo critical evaluation and debate to minimize disparagements. Although criticisms and potential conflicts of interest will persist, such discussion must ultimately promote and support the growth of both exceptional public *and* private sector efforts from those demonstrating lasting and positive global health commitments.

## Sustainability

A key ethical concept for any successful clinical, educational or research mission is that the enterprise can be sustained once the visiting team leaves the region. In the fall of 2015, the United Nations will adopt the post 2015 Sustainable Development Goals, SDGs. These 17 goals and 169 targets arose from their predecessor, the Millennium Development Goals, MDGs, and recognize the ethical responsibility of funding agencies, state governments and global health workers to create programs that are sustainable beyond the period of funding, build in-country capacity and are cost-effective and accessible. Evidence exists that programs which do not accomplish these goals are likely to be unsuccessful and may even reduce the quality of medical care in the region. In the most current edition of Disease Control Priorities, DCP3-Essential Surgery, the authors describe several surgical care platforms and conclude that short-term surgical undertakings seem beneficial only if no other option is available. Unless performed as a component of a broader existing program, these efforts are characterized by suboptimal outcomes, unfavorable cost-effectiveness and lack of sustainability. Self-contained mobile platforms such as mobile surgical units or hospital shipments offer improved outcomes but there are no data regarding their cost-effectiveness or ability to build local capacity. Specialized hospitals, including those providing surgery for cataract and obstetric fistula, seem to be among the most cost effective of the competing options for specialized platforms.

Based on current information it appears that the most sustainable programs develop strong links with local practitioners to promote training and ensure appropriate post-intervention care. By involving local health workers in the pre-surgical (patient selection) phase, there is buy-in and ownership by local professionals, leading to better quality postoperative surgical care. Similarly, the elective (non-urgent) nature of this approach allows flexibility in patient scheduling. This is important in order to achieve high volumes, contain costs, and improve technical quality. The resultant building of technical, and managerial capacity, strengthens the health system and provides a foundation for sustainability of global surgical programs.

Other aspects of the sustainability of a global surgical program, include cost-effectiveness and access. These components require a close and strong working relationship with the local health system including the Ministry of Health. At the

very minimum, the local Ministry of Health ought to be aware of any global surgical activity in the region. However, we strongly recommend telephone, email or electronic conversations that occur several times prior to arrival in the LMIC. This interaction is invaluable in understanding local needs, obtaining appropriate regulatory documents and obtaining local resources are available for the surgical activity. As such, we believe that partnering with the local Ministry of Health is a prerequisite for any global surgery program.

### *Cost-Effectiveness*

Although not a traditionally recognized ethical concept, in so far as it affects sustainability, global surgical programs also need to be cost-effective. As LMIC economies develop, allocation of resources to health has increased significantly. For example in April 2001, the heads of state of African Union countries, pledged to increase government funding for the health sector to at least 15 % of their annual budget. Although, only one African country has reached that target, 26 countries did increase their health expenditure during this period. Similarly, donor spending towards LMIC health has increased. In particular, programs, such as the President's Emergency Plan for AIDS Relief (PEPFAR), have significantly augmented the available funding resources in many developing countries. This translates into better resources for global surgery. However, justifying allocation of these resources to surgery will require convincing governments and funding agencies that global surgery programs are cost effective. Data is increasingly available demonstrating cost-effectiveness. Chief among these efforts are the Essential Surgery package proposed by the World Health Organization. In 2013, Jamison and colleagues estimated that it would cost just over \$3 billion annually to deliver the component of the essential surgery package that is applicable to first-level hospitals, universally. This development would have a benefit–cost ratio of 10:1. These findings while encouraging, need to be contextualized for each global surgery program. As such, data collection and analysis should be an integral aspect of every ethically-conducted global surgery program. In addition to patient outcome and quality data, addition of cost-effectiveness data analysis will encourage ownership by in-country decision makers and greatly increase the likelihood of success and sustainability for every long-term global surgery activity.

### *Accessibility*

Access to essential surgical care is increasingly thought of as a critical public health concept and therein should be thought of as a basic right of LMIC populations. Although accessibility may seem to be the realm of local health officials and workers, the global surgeon shares this moral responsibility because of his or her role in

delivering surgical care to the most disadvantaged populations. Geographical accessibility is perhaps the most obvious concept related to access to surgical care in LMICs. However, other barriers to access include cost (described above), language and culture. This is a great opportunity for the global surgeon to provide leadership in suggesting programmatic solutions to such barriers. Examples of successful interventions to improve access include providing patient education with high-quality information, nurse help lines, translated patient educational material to local languages and dialects, or other culturally-appropriate methods of patient education and creation of disease discussion groups. Other issues of accessibility include shortages of appropriate health facilities or health providers, or excessive regulatory or approval processes. The global surgeon has another opportunity to advise local health sector leaders in this area, based on their experience in a more established healthcare delivery system. Examples include promotion of community health workers, aiding in development of mobile technology-based healthcare adjuncts, providing advice on possible location of new health facilities, aiding in recruitment of staff, and staff training and resource allocation. By better understanding and working within the framework of existing Ministry of Health programs, the global surgeon becomes a much more effective catalyst for sustainability of global surgery programs.

## Non-maleficence

Nowhere is the medical aphorism *Primum non nocere* more appropriate than in the field of global health and global surgery. Global surgeons are by default routinely asked to deliver high level surgical care in challenging and under-resourced environments. As such the risk of surgical mishaps is extremely high. Many examples already exist for the causation of harm within non-sustainable (medical) global health programs. For instance, delivering locally unavailable expensive anti-hypertensive drugs, during short-term missions is likely to cause complications when the patient exhausts their drug supply. Surgery is particularly prone to such harm because of its invasive nature. According to the World Health Organization, crude mortality after surgery is about 5 % and mortality from general anesthesia may be as high as 1 in 150 in parts of sub-Saharan Africa. Surgical complications occur in 25 % of all patients and many are preventable. Furthermore such complications typically require additional care which may not be present or available in the local environment where many short term missions occur. Hence surgeons who participate in clinical missions ought to consider the effect of their surgical activities on the community in general. Suggestions for such consideration include the answers to such questions such as:

1. Are the available facilities safe for the proposed procedures?
2. What are the minimum preoperative evaluation requirements to accomplish a safe procedure for the surgical patient in that environment?

3. Is there adequate postoperative follow up (knowledge, skill and people) for the surgical patient?
4. Has the local staff been trained to recognize common complications?
5. What is the chain of information/command in the event of a complication?
6. Is there an accessible safety net system to provide care for the patient with complications?
7. What mechanisms are in place to ensure continuing communication with the global surgeon after they leave the resource-poor location?

At its best, failure to plan accordingly is likely to harm individual patients. At its worst, the fallout can quickly terminate the entire global surgical program, destroy long-standing relationships between stakeholders, and deny the local population of any future benefit of continuing a proper program. As is typical with such issues, a small number of poor outcomes have a much stronger effect than large numbers of excellent outcomes. Therefore the ethical responsibility resides with the global surgeon to create an environment that greatly reduces the risk of harm to the surgical patient.

The global surgeon often finds themselves caught in the tension between delivering surgical care to patients who may never have the opportunity to have life or limb saving procedures, and the desire to cause no harm. While this may cause a great deal of anxiety, we believe that the only way to deliver surgical care in global surgery is to deliver it safely. In this regard, the work of groups such as the Alliance for Surgery and Anesthesia Presence, ASAP ([www.asaptoday.org](http://www.asaptoday.org)) has provided skills and knowledge to global surgeons to improve patient outcomes in developing countries. One such example is the use of Perioperative Mortality Rate (POMR). This is defined as all-cause mortality within 24 hours of a surgical procedure and is an indicator that allows patient outcome comparison among different global surgery programs. This should be included as part of benchmarking for all global surgery activities and can reveal surgical outcome disparities and encourage safe surgery and anesthesia practice throughout. Similarly, the World Health Organization Safe Surgery group continues to provide tools to make surgery and anesthesia safe in developing countries by providing the WHO Safe Surgery checklist and working with partners to provide low-cost pulse oximeters for use in surgical patients. These tools should be incorporated in global surgery programs.

## **Informed Consent**

Prior to performing surgery or research on any patient, informed consent must be obtained with honesty and no misrepresentation. The process of obtaining consent is based on an informed decision process. Patients should be told the benefits and risks of the surgery or research involvement as well as those associated with no intervention. Additionally, language and cultural barriers such as medical paternalism or family hierarchies can affect the process of informed consent and should be

considered. Insight from local colleagues is important in this regard and is critical towards protection of patient autonomy while still allowing the visiting surgeons to appropriately perform the planned operation or protocol. Open communication between the visiting and local surgeons should outline expectations for the duration of the mission or project, facilitate short-term achievement of goals and assure long-term patient monitoring.

## Conclusion

The combination of an increasing global burden of surgical disease and a still low rate of surgical procedures in LMICs, presents an opportunity for global surgeons to develop innovative solutions to deliver more, high-quality, surgical care in LMICs despite scarce resources. In order to ensure ethical practice, these solutions will require collection and analysis of good quality data, and testing of customized interventions for each global surgery program. Academic global surgeons are ideally suited for this work and need embrace its inherent ethical dilemmas while studying and testing potential solutions for each of their programs.

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