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Ethical considerations in global surgery

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The four principles of healthcare ethics developed by Tom Beauchamp and James Childress are autonomy, beneficence, non-maleficence and justice[1]. Inadequate access to timely surgical care not only leads to unnecessary death, but inhibits the ability of survivors to lead productive lives[2].

The global health movement in low- and middle-income countries (LMICs) grew out of missionary campaigns and primary healthcare initiatives such as vaccination campaigns and human immunodeficiency virus (HIV) treatment. Although there are examples of fortuitous collegial networking and even diplomatic benefits, these programmes did not seek academically or technically to enrich the sending institution or individual team members. Surgical care was not the main focus, possibly because of a perception that it was expensive, and required infrastructure and skill. Growth of global surgery, however, flowed from the growing burden of non-communicable disease (such as cancer and road traffic-related injuries), which required surgical intervention to save lives and prevent disability. Now, access to surgery is recognized as one of the defining inequities of global health: the poorest one-third of the world's population have 3·5 per cent of the world's surgical procedures. Five billion people lack access to safe surgery[3].

The definition of global surgery is still debated. Paradoxically, 'global surgery' refers to surgical services and practices in LMICs. This includes many surgical activities that allow surgeons to offer their services to populations in need. An example is surgical missions, where externally funded projects address singular conditions such as cleft palate or vesicovaginal fistula. Over-border surgery includes a broad spectrum of activities, ranging from traditional humanitarian missions for disaster relief, to collaborative training programmes for disadvantaged surgeons, research projects, surgical tourism, and also the honing of surgical skills by surgeons from well resourced countries. Dare and colleagues[4] have provided a concise working definition: 'Global surgery is an area of study, research, practice and advocacy that seeks to improve health outcomes and achieve health equity for all people who require surgical care, with a special emphasis on underserved populations and populations in crisis. It uses collaborative, cross-sectoral and transnational approaches and is a synthesis of population-based strategies with individual surgical care'. This focus is on benefits for the populations in need, whereas the travelling academic researcher, student or surgical trainee harbours goals that are inevitably, but hopefully not solely, self-enriching.

Many US and European universities increasingly offer academic global health programmes. Generally, they seek to reduce disparities in global health through research, education and service. Global surgery has evolved rapidly as a popular field of academic surgery, providing trainees with short-term experiences and research opportunities in LMICs.

Discussing the ethics of all components included in the definition of global surgery is beyond the scope of this article. The following aspects are considered: surgical tourism (particularly in trauma), surgical education and research.

Short-term experiences in global health are popular[5]. Medical students and junior doctors gain experience by spending varying periods in their field of interest. Countries, such as South Africa, with a high trauma burden are attractive destinations for trauma surgeons to get experience of coping with mass casualties. Dedicated trauma centres in South Africa may see over 1500 severely injured patients per month. The advantages for the visitor are obvious, provided that the environment is appropriately managed and the overseas trainee is supervised. The host country also benefits. Much needed resources and extra personnel (overseas trainees) may bring new techniques and ideas. However, there are many ethical issues to be considered.

The first of these is the rights of the patient. Being treated by a foreign trainee, faced with language and cultural barriers, may cause diagnostic delays, treatment delays and inappropriate management owing to inexperience on the part of the trainee. In an environment where the vulnerable have little or no alternative options, emergency surgical interventions by inexperienced foreign trainees may be their only chance of survival. Limited informed consent and lack of supervision unfortunately set the scene for exploitation. Conversely, the patient

may have better management than if local resources alone were relied upon.

Second, the trainees are often placed in an unfamiliar environment without the resources they are used to. Many of the scenarios they are subjected to are harrowing and largely unfamiliar to them. Their physical health may also be compromised by exposure to diseases such as tuberculosis, HIV and hepatitis.

Third, local staff may not welcome the overseas visitors. In training hospitals, they compete with local trainees for experience and teaching. If they are useful and contribute to the workload, the lack of continuity may lead to gaps in service provision. If they are incompetent, they will be a burden to local staff.

Fourth, the sending institutions need to know where they are sending their trainees and have a duty to equip them for the work they are going to undertake.

Fifth, the causes of the high volumes of trauma are multifactorial. Undoubtedly poverty and social disparity play a major role. Vulnerability arising out of these disparities should not be exploited for training purposes. It is assumed that visiting trainees get the experience they expect and need. A survey of surgical trainees visiting South Africa was conducted in 2018. Sixty-four trainees visiting various cities in South Africa were asked about their experience: what they appreciated most and their frustrations. The time spent in the operating theatre was the factor that was most appreciated (75 per cent). Owing to the nature of the trauma and resource limitations, many trauma procedures are still performed open. However, 18 per cent found the resource limitations problematic and 12 per cent felt the caseload on call was difficult to cope with (G. Mantica, unpublished data).

Finally, surgeons worldwide welcome new technology. LMICs often lack the capacity, budget and infrastructure to procure spare parts and perform preventative maintenance. Many countries have received expensive, new and virtually unused donated equipment, which they are unable to use; this occupies space in their hospitals, while basic supplies and equipment needs are unmet.

An estimated 1.27 million surgeons, anaesthetists and obstetricians have to be trained by 2030 to achieve the basic number of 20 per 100 000 population[6]. The problem is not only training specialists but retaining them. In 2005, an estimated US $500 million (€430 million; exchange rate 29 September 2018) was spent by African countries training healthcare workers who relocated to high-income countries (HICs). A review showed that the reasons were multifactorial, but included financial incentives, career development, educational opportunities, lack of infrastructure, resource availability, poor hospital management, and lack of recognition of their skills in their home country. HICs should be encouraged not to use healthcare workers trained in LMICs, but efforts must be made to retain them locally. Training a specialist in a HIC with access to a well resourced infrastructure often leads to discontent on returning to a resource-constrained environment[7]. The College of Surgeons of East, Central and Southern Africa (COSECSA) has shown that a successful and appropriate training partnership with a HIC (Royal College of Surgeons in Ireland) can be successful. Some 93 per cent of surgeons trained in accredited sites in Africa stayed in Africa[8].

Research from LMICs contributes to about 4 per cent of the body of surgical literature. There are many reasons for this. Good research is time-consuming and requires a basic understanding of methodology and access to local biostatisticians. Overseas visitors may collect data and publish their findings without including local teams. Journals must be encouraged to prioritize research from LMICs and assist with improving manuscripts. Access to edited scientific knowledge is expensive. If research from a LMIC is published in a high-impact journal, local healthcare workers may not be able to afford to access it[8].

GLOBOCAN predicts that by 2030 there will be 21.6 million new cancer diagnoses[9]. Over 17 million people will need surgery and ten million of these will be in LMICs. The provision of comprehensive cancer management requires a multidisciplinary approach from radiologists, pathologists, oncologists and surgeons. In reality, in many LMICs, surgeons have to substitute for the lack of many other specialists and are integral in the diagnostic process as well as all aspects of treatment[9].

Although surgery has been considered to be expensive, the lack of safe surgery results in many expenses in terms of sickness and loss to the workforce. Chao and co-workers[10] reported that many essential surgical interventions are very cost-effective. The Lancet Commission on Global Surgery has identified the unmet need of safe affordable surgery and anaesthesia in LMICs as 143 million additional surgical procedures required per year to prevent death and disability. To reach the goal of 5000 operations per 100 000 population by 2030, without this surgical scale-up, LMICs will continue to have losses in economic productivity estimated cumulatively at US $12.3 trillion (€10.6 trillion)[3,11].

In 2010, Schein[12] described the seven sins of humanitarian medicine as: leaving a mess behind; failing to match technology to local needs; failures of non-governmental organizations to cooperate with each other;

no follow-up plan; allowing politics to trump service; going to areas where help is not wanted/needed; and doing the right thing for the wrong reason. If global surgery is to be ethically sound, it needs to heed Schein's advice.

Disclosure

The authors declare no conflict of interest.

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