Global surgery: importance, controversy and opportunity

Serving those in limited resource settings does not only enhance surgical training, it advances universal access to holistic and affordable care.

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An eight-year-old girl succumbs to 60% burns with inadequate dressings and analgesia (MD). A new father loses his wife to post-partum haemorrhage and must then bag-mask his dying baby (NA).

These experiences have lived long in the memory of the authors and have propelled us to play our part in global surgery. But what is 'global surgery'?

Global surgery is an 'area for study, research, practice, and advocacy that places priority on improving health outcomes and achieving health equity for all people worldwide who are affected by surgical conditions'.[1] In 2015, *The Lancet* Commission on Global Surgery found that nine in ten people living in low- and middle-income countries (LMICs) are unable to access basic surgical care.[2] Its report highlighted significant health and economic disparities for untreated surgical conditions, and recommended core indicators for monitoring universal access to safe, affordable surgical and anaesthesia care when needed.

Those indicators include access to timely essential surgical care, specialist surgical workforce density, surgical volume, perioperative mortality and protection against impoverishing or catastrophic expenditure. The statistics regarding the workforce density are especially concerning, illustrating a considerable shortage of healthcare providers. It is estimated that LMICs, which make up 48% of the global population, only have 20% of the specialist surgeons, anaesthetists and obstetricians in the world, with the poorest nations having only 0.7 specialist providers per 100,000 population.[3] Although these figures shed light on the scale of the problem, and reinforce the issues around inequality and access to surgical care, statistics mean little to the individual. We enter our profession not with a yearning to improve a number but to provide holistic care for our patients, locally or globally.

Box 1 Global surgery resources

Resource	Title	Authors/editors/providers
Advocacy groups	GASOC	www.gasocuk.co.uk
	InciSioN	www.incisionetwork.org
	G4 Alliance	www.theg4alliance.org
Books	*Global Surgery: The Essentials*	Adrian Park and Raymond Price
	Academic Global Surgery	Mamta Swaroop and Sanjay Krishnaswami
	Global Surgery and Anesthesia Manual: Providing Care in Resource-limited Settings	John Meara *et al*
	Primary Surgery	Maurice King and Peter Bewes
	Global Surgery and Public Health: A New Paradigm	Catherine R deVries and Raymond R Price
Courses	*Oxford Global Surgery Course* (5 days)	Oxford University Global Surgery Group
	Surgical Training for Austere Environments (5 days)	Royal College of Surgeons of England
	Paul Farmer Global Surgery Research Fellowship	Harvard University
	MSc in Global Health with Global Surgery	King's College London
	MSc in Global Surgery	McGill University
	MGSC (Master of Global Surgical Care), online	University of British Columbia

The ethical minefields of global surgery: a human rights-based approach

Essential surgical care is a component of the human right to health.[4] Global surgery needs to advocate for a human rights-based approach as per the World Health Organization,[5] by addressing inequalities, discriminatory practices and unjust power relations.

There is a growing interest among surgical trainees in the UK to become involved in global surgery and also a call for volunteer placements to count towards the Certificate of Completion of Training.[6] However, those looking to respond to *The Lancet* Commission's rallying cry will find an ethical minefield ahead. We have commitments to our surgical training in the National Health Service and responsibilities with loved ones at home, alongside a desire to help balance the health and social inequalities that we see in the rest of the world. More recently, the COVID-19 pandemic has exposed numerous disparities and challenges across the world but it has equally highlighted the need for better integration of global and public health conversations through innovations in global surgery.[7]

While there are understandable calls for trainees working abroad to do so safely and within their competences,[8] this can seem an unrealistic expectation in resource poor environments. Crucially, travelling to a LMIC to improve one's surgical skills and increase logbook numbers is not an appropriate objective. Every surgical trainee should recognise the importance of removing surgical colonialism[9,10] and of ensuring equitable engagement in research,[11] and should help amplify rather than mute the voices of LMIC stakeholders.[12] It is imperative to grasp the variations in the language, culture and history of the country before engaging in global

Box 2 Financial support for international volunteering

Name	Grant	Organisation
Global Surgery Small Grants Scheme	Up to £5,000	Royal College of Surgeons of England
Global Surgery Foundation Funding	Up to £12,000	Royal College of Surgeons of Edinburgh
ASiT Global Surgery Award	£500 x 3	Association of Surgeons in Training
Beit Bursaries for Junior Doctors	Unspecified	Beit Trust

surgery related work. The same principles of medical ethics (autonomy, beneficence, non-maleficence and justice) should be rooted in any global surgery initiative.[13]

By adopting these ethical responsibilities, trainees can be an immeasurable asset to the LMIC community they serve. Successful trainees will employ a collaborative rather than an instructive approach when working with LMIC colleagues,[14] acknowledge that their own innate technical ability is likely to be no better[15] and recognise that cultural differences are equally (if not more) significant in healthcare as the clinical differences.[16]

Opportunities in global surgery

Advocacy and education

There is an urgent need to communicate and educate about the global scale of surgical diseases. This can be accomplished by disseminating information about national surgical plans, and capitalising on events such as conferences, funding opportunities and publications to inform political decision making in prioritising global surgery.[10] Trainees have the opportunity to be involved in advocacy work by attending virtual journal clubs, writing blogs, creating podcasts and participating in the annual conference hosted by GASOC (Global Anaesthesia, Surgery and Obstetric Collaboration), a UK-based multispecialty trainee organisation (Figure 1).[17] Globally, InciSioN (International Student Surgical Network) has played a pivotal role in advocacy and engagement in global surgery.[18] These organisations are permanent council members of the G4 Alliance, an international collaboration that is involved in high level political advocacy for the neglected surgical patient.[19]

Books, courses, seminars and conferences are available for trainees to widen their knowledge around issues related to global surgery. Several institutions in the UK and Ireland provide formal education in global surgery. The King's Centre for Global Health and Health Partnerships runs an MSc in Global Health (with a specialist pathway in global surgery), and there is a global surgery course by the Oxford University Global Surgery Group as well as the *Surgical Training for Austere Environments* course by The Royal College of Surgeons of England. The Royal College of Surgeons in Ireland also offers a module on global surgery as part of its MCh degree. Internationally, the Paul Farmer Global Surgery Research Fellowship at Harvard University trains leaders to promote surgical care, education and research related to global surgery, anaesthesia, and obstetrics and gynaecology care. These resources are available to realign the focus and engage trainees in global surgery (Box 1).

Out-of-programme experience

Volunteering in low resource settings is an increasingly popular approach to improving access to surgery worldwide (Figure 2). While some surgical residencies in the US offer global health experience as part of their programme,[20] this is not yet the case in the UK and the main barrier to trainees is considered to be a lack of time during training.[21] The Joint Committee on Surgical Training recognises international volunteering in developing countries in the form of out-of-programme experience (OOPE) placements.[22] However, the onus for organising these is on the trainee. Health Education England actively supports OOPE work, and has released detailed guidelines for trainees considering opportunities and leadership development programmes in global health.[23]

Finding a suitable placement is not easy and the majority of established aid organisations have set personal specifications for frontline roles. As trainees are left to find their hosting hospital themselves, we recommend engaging early with good role models, supervisors and trainees who have had similar experiences and will possess useful contacts. Identifying a larger teaching

Figure 1 The GASOC 2019 conference on #GlobalMedTech was held in Leeds with a two-way interactive live link with a group of doctors from the University Teaching Hospital of Kigali in Rwanda

Box 3 Financial support for international volunteering

International (LMIC) focused research and training organisations	Program in Global Surgery and Social Change (Harvard University)	www.pgssc.org
	College of Surgeons of East, Central and Southern Africa	www.cosecsa.org
	West African College of Surgeons	www.wacscoac.org
	Pan-African Academy of Christian Surgeons	www.paacs.net
	Global Surgery Foundation	www.rcsed.ac.uk/professional-support-development-resources/global-surgery-foundation
	RCSI Institute of Global Surgery	www.rcsi.com/surgery/global-surgery
	Royal Australasian College of Surgeons	www.surgeons.org/about-racs/global-health
NIHR Global Health Research Groups and Units	Surgical Technologies	University of Leeds
	Global Surgery	University of Birmingham
	Health System Strengthening in Sub-Saharan Africa	King's College London
	Neurotrauma	University of Cambridge
	Post Conflict Trauma	Imperial College London
	Burn Trauma	Swansea University
	Nepal Injury Research	University of West England, Bristol

Figure 2 Medical students watching an emergency laparotomy. Photo taken during an OOPE year (MD) in Mbale, Uganda.

hospital with a supervisor who already has a history of hosting international trainees is a good start. Meeting a personnel shortage (rather than treading on the toes of local trainees) will be a more rewarding and collaborative approach to volunteering. Several medical indemnity bodies in the UK support overseas work for trainees with prior permission. Initiatives by the American College of Surgeons (Operation Giving Back) and Royal Australasian College of Surgeons (Global Health programmes) actively encourage participation of their members in humanitarian and educational outreach work in limited resource settings.

Financial support for international volunteering is available through a handful of organisations via grants (Box 2). Research and educational institutions need to increase funding and prioritise trainee engagement in global surgery work.

Out-of-programme research

High quality research in global surgery is essential to increase access and quality of care for surgical patients in LMICs.[24] Trainees can play a significant role by formally being involved in clinical research with institutions in the UK and elsewhere. Research agendas should focus on collaboration, communication and coordination with partners in LMICs.[2]

Following the 2015 UK aid strategy to spend 0.7% of gross national income on official development assistance,[25] the National Institute for Health Research has released funding to form groups and units focused on global health research.[26] Seven groups and units have received funding to focus research on surgery (Box 3), creating several opportunities for research fellow jobs and pursuing PhD degrees. The Royal College of Surgeons of England and the Royal College of Surgeons of Edinburgh are also offering several smaller grants to support global surgery work.[27,28]

Research opportunities in global surgery are ubiquitous, especially with the growing interest in this new emerging subspecialty of surgery in high income countries. Researchers and educational institutions must encourage early bidirectional and equitable engagement of LMIC partners in collaboration and outputs.[11] Academic trainees need to consciously remind themselves of the 'bigger picture' while pursuing a career in global surgery. Supervisors and leaders should continue to encourage and nurture a generation of enthusiasts who will shape the future of global surgery.

Box 4 The five key messages of global surgery for trainees

1. Advocacy	Taking the initiative to communicate the global burden of surgical diseases
2. Universal health coverage as a human right	Recognising that everyone should have access to surgery
3. Decolonising global surgery	Redefining global surgery, leveraging a structural and systemic change, and bringing about reform in academia
4. Ethical responsibility	Keeping the LMIC agenda at the forefront of any international placement
5. Action	Responsible involvement in research collaboration, training and innovation

Conclusions

Global surgery is a human right and trainees in high income countries have a responsibility to help improve access to surgery in LMICs. This can be achieved in an ethical, collaborative and equitable manner in research, education and international experience (Box 4). Education and research organisations should continue prioritising global surgery by mobilising grants and encouraging time out of programme as required. Exposure to global surgery will play an integral part in advancing surgical training in the National Health Service by breaking down the silos, and recognising the power of collaboration, equality and innovation. Commitment to global surgery is a vocation, and must be driven by a genuine passion for serving and caring for those in limited resource settings.

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