




# Colonisation and its aftermath: reimagining global surgery

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## ABSTRACT

Coloniality in global health manifests as systemic inequalities, not based on merit, that benefit one group at the expense of another. Global surgery seeks to advance equity by inserting surgery into the global health agenda; however, it inherits the biases in global health. As a diverse group of global surgery practitioners, we aimed to examine inequities in global surgery. Using a structured, iterative, group Delphi consensus-building process drawing on the literature and our lived experiences, we identified five categories of non-merit inequalities in global surgery. These include Western epistemology, geographies of inequity, unequal participation, resource extraction, and asymmetric power and control. We observed that global surgery is dominated by Western biomedicine, characterised by the lack of interprofessional and interspecialty collaboration, incorporation of Indigenous medical systems, and social, cultural, and environmental contexts. Global surgery is Western-centric and exclusive, with a unidirectional flow of personnel from the Global North to the Global South. There is unequal participation by location (Global South), gender (female), specialty (obstetrics and anaesthesia) and profession ('non-specialists', non-clinicians, patients and communities). Benefits, such as funding, authorship and education, mostly flow towards the Global North. Institutions in the Global North have disproportionate control over priority setting, knowledge production, funding and standards creation. This naturalises inequities and masks upstream resource extraction. Guided by these five categories, we concluded that shifting global surgery towards equity entails building inclusive, pluralist, polycentric models of surgical care by providers who represent the community, with resource controlled and governance driven by communities in each setting.

## INTRODUCTION

Global surgery is an advocacy movement that arose in response to the neglect of surgical, obstetric and anaesthesia care on the global health agenda.<sup>1</sup> A common narrative cites Paul Farmer and Jim Kim's 2008 characterisation of surgery as 'the neglected stepchild of global public health'.<sup>2</sup> The concept of global surgery was formalised in 2015 with the World Health Assembly resolution 68.15,

## SUMMARY BOX

- ⇒ Systemic inequities in global surgery are increasingly recognised in focused reviews and opinion pieces.
- ⇒ As a diverse group of global surgery practitioners, we synthesised the patterns of inequities in global surgery and critically analysed them in relation to the larger political, economic, cultural, and epistemic hierarchies created and sustained by colonialism.
- ⇒ We propose a framework for shifting global surgery research, practice, education and policy towards equity in terms of its epistemology, geography, participation, resource flow, power and control with communities maintaining cultural, epistemological, economic and political sovereignty over their own care design and delivery.

the World Bank's Disease Control Priorities Third Edition and the Lancet Commission on Global Surgery.<sup>3-5</sup>

Global surgery has been defined as 'a multi-disciplinary enterprise seeking to provide improved and equitable surgical care to the world's population, based around the central pillars of need, access and quality'.<sup>6</sup> It distinguishes itself from its predecessors in the colonial era by focusing on horizontal health system strengthening, upstream determinants and integrated care pathways (box 1), rather than short-term, vertical mission trips.<sup>1 3 7</sup>

Global surgery seeks to advance equity as surgical care has been neglected from the global health agenda.<sup>1 3</sup> However, merely inserting surgical care into the global health agenda cannot advance equity when widespread and systematic biases exist in both global health and the hierarchical and exclusive Western model of surgery.<sup>8-10</sup> Recent literature has highlighted persistent inequities in global surgery. These include skewed distribution of benefits, such as authorship,<sup>11-13</sup> limited participation,<sup>14 15</sup> unidirectional flow<sup>16 17</sup> and Western dominance over knowledge production and funding.<sup>18 19</sup>

### Box 1 Definitions of global surgery

Bath *et al*: A multidisciplinary enterprise seeking to provide improved and equitable surgical care to the world's population, based around the central pillars of need, access and quality. This deliberately broad definition includes disadvantaged areas of otherwise wealthy countries as much as it does low-income to middle-income countries, and covers the spectrum of activities from primary research, through public health interventions and policy-making, to direct improvements in clinical care. It does not focus on the events that occur in the operating theatre alone, or attribute ownership of either patients or their pathologies to a single clinical provider, but instead frames surgical care as an integrated pathway within a wider health system that requires multiple elements working.<sup>6</sup>

Dare *et al*: 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 or have a need for surgical care. Global surgery incorporates all surgical specialties, including obstetric and gynaecological surgery, anaesthesia, perioperative care, aspects of emergency medicine, rehabilitation, and palliative care and nursing and the allied health professions involved in the care of the surgical patient. Global surgery emphasises supraterritorial and transnational issues, determinants and solutions, recognising that the determinants of inadequate or inequitable surgical care are often the result of common and interdependent global structures and processes, even though they are predominantly experienced within individual countries and communities.<sup>1</sup>

Advancing global surgery through existing channels and with prevailing norms will not advance equity—just elite professional and organisational interests. Indeed, many disparities exist between the idealistic definitions of global surgery and its real-world practice, as individuals and organisations interpret it in ways that advance their interests (box 1).

August *et al* presented a vision for global health equity as 'mutually beneficial and power-balanced partnerships and processes leading to equitable human and environmental health products on a global scale'.<sup>20</sup> Addressing the inequities in the outcomes of surgically treated conditions between the Global North and South alone is insufficient; attention must also be paid to partnerships and processes in global surgery.

As a diverse group of global surgery practitioners (box 2), we aimed to comprehensively examine the patterns of inequities in global surgery by drawing on the literature and our lived professional and personal experiences through a qualitative, group-based consensus-building process. We commenced with a shared understanding that equity meant actively centring global surgery to the interest of communities and service users in the Global South rather than institutions and professions in the Global North in all outcomes, processes and partnerships. Recognising that inequities in global surgery stem from historical, political and economic processes, the most important of which are colonialism

### Box 2 Positionality and definitions

#### Positionality and target audience

We are a diverse, gender-balanced group that represents both the colonised and colonisers. We are a conglomerate of cultures, languages and professional backgrounds, spanning policy, advocacy, education, research, history, nursing, midwifery, obstetrics and gynaecology, and surgery. Most of us have a strong locality focus in our work, with connections to Nigeria, Uganda, Ghana, Cameroon, New Zealand, the Pacific region, Rwanda and the USA.

While 7/9 of us were born in low-income and middle-income countries (LMICs), one is Indigenous in a settler-colonial country, and one is from a high-income country (HIC), many of us share the experience of moving between cultures, languages, socioeconomic strata, locations, working across both LMIC and HIC institutions. The co-first authors, BA, IDO and RQ, were brought together during a research fellowship at an elite HIC institution. We acknowledge our privilege in as mostly middle-class, university-educated and affiliated with HIC-based institutions. We also recognise the irony of needing a certain amount of privilege to access forums to discuss and call out the inequities in global health.

Our primary target audience is all global surgery practitioners. We recognise that there is a risk of universalisation as the issues and solutions are unique in each setting; however, the inequities in global surgery are widespread. We can only represent ourselves and do not seek to represent perspectives from every region and every language. We refrain from prescribing universal solutions but merely inspire contextual reflection and creativity.

#### Definitions of terms

The concept of Global North and Global South was developed during the Cold War era. The terms are not geographically defined but rather follow an imaginary Brandt Line.<sup>16</sup> This identifies the Global North as industrialised countries predominantly occupied by Western European people, with the exception of Japan, Korea and Israel. The Global South largely consists of lower-income, politically and culturally marginalised countries.<sup>17</sup> We acknowledge the flaws in many classification systems in global health.<sup>18</sup> We chose to use this categorisation over developing versus developed countries and HIC versus LMICs, as it does not confer hierarchy and incorporates more than one dimension of power asymmetry.

and neocolonialism, we drew on historical and critical social science perspectives to explore the patterns of inequities in global surgery. In doing so, we hope to inspire solutions to shift global surgery towards equity.

#### Colonialism and neocolonialism

For the purpose of this paper, we define colonisation as the state-sponsored, systematic construction of non-merit inequalities for exploitative purposes.<sup>21</sup> In many settings, it has involved systematic extraction of labour and resources from one group to benefit another, predicated on unfair, exploitative relationships.<sup>10</sup> It has created and sustained inequities, which are unfair, non-merit based inequalities across all domains, including economic, cultural, social, racial, geographical and intellectual.<sup>9</sup> Despite the political decolonisation of many countries, neocolonialism persists, even affecting countries that

have never been colonised.<sup>22 23</sup> Beyond the simple Global North vs South divide, colonialism, underpinned by extractive economic motives, led to mutually reinforcing forms of inequity in all parts of society, such as sexism, racism, tribalism, colourism and classism.<sup>24–27</sup>

### Predecessors of global surgery in the colonial and postcolonial eras

Understanding how colonial patterns persist in global surgery today necessitates examining the coloniality of global surgery's predecessors.<sup>28–30</sup> Colonialism provided reasons both to and not to provide surgery, determined how surgery was delivered, which diseases were prioritised, who could deliver it and how benefits were distributed.

Much of the attention has focused on the neglect of surgery on the global health agenda, which mirrors its historical neglect by the colonial state. Indeed, colonial health authorities focused on infectious diseases that could spread from the colonised to the colonisers and hamper economic productivity.<sup>31 32</sup> However, surgery played a central role in missionary medicine and helped justify colonialism.<sup>29 30</sup> As a curative therapy targeted towards individual bodies with visible immediate effects, surgery legitimised the 'civilising mission'.<sup>31</sup>

After political decolonisation in the post-War era, there continued to be a one-way flow of Global North organisations and individuals delivering surgical care in the Global South through various charitable 'international surgery' efforts. These included short-term missions, specialty hospitals (eg, fistula hospitals) and self-contained surgical platforms.<sup>33 34</sup> These initiatives have been criticised for their disease-specific approach, which may not reflect community needs as well as limited integration with local health systems, outcome monitoring, and acknowledgement of benefits to Global North visitors in experience accumulation and career progression.<sup>33 35 36</sup>

Despite the good intentions of individual practitioners and benefits to individual patients, widespread systemic inequities have been observed in missionary and international surgery. These included the dominance of Western epistemology, geographies of inequity, unequal participation, ongoing resource extraction and skewed accountability.<sup>29–31 35 37 38</sup>

### THE CONSENSUS BUILDING METHODOLOGY

We aimed to examine the patterns of non-merit inequalities in global surgery drawing on the academic and grey literature and our lived professional and personal experiences.

We followed a structured, iterative consensus building process commonly used in organising, planning and policy.<sup>39 40</sup> Discussions occurred through fortnightly virtual meetings rotating between three time zones (GMT –4, +1 to +3 and +12). In the initial meeting, group members established the ground rules, which included good faith, confidentiality and disagreeing without being

disagreeable. Agreements were reached through overwhelming consensus rather than majority rule. Overwhelming consensus meant that there is more than 90% agreement without any member vetoing.<sup>40</sup> Disagreements were highlighted for deliberative discussion, with group members reserving the right to block. RQ coordinated the group; IDO, BA and RQ facilitated the meetings and took minutes.

This process is similar to a group Delphi technique in which experts are invited to joint workshops, with a focus placed on qualitative contextual justifications for judgements.<sup>41–43</sup> There is free communication between non-anonymous experts as positionality and deliberation of ideas were deemed critical. We followed a qualitative Delphi process, where responses were generated by participants rather than set a priori by facilitators.<sup>44 45</sup>

The consensus building process consisted of multiple rounds.<sup>46</sup> In round 1, BA, IDO and RQ presented a comprehensive literature review to the group. Group members were asked to discuss inequities in global surgery in relation to their lived experience and the literature. Inductive codes were generated through close reading of participants' response and subthemes and themes were identified from the codes. In round 2, a qualitative synthesis of the group's response was presented, highlighting areas of consensus and divergence. In subsequent rounds, group members were invited to deliberate iterative version of the qualitative synthesis and discuss solutions to combat the identified inequities. Minutes were recorded and stored in a shared folder.

### CATEGORIES OF NON-MERIT INEQUALITIES IN GLOBAL SURGERY

Five categories of non-merit inequalities emerged through the iterative, qualitative, group-based consensus-building process. They include the dominance of Western epistemology, geographies of inequity, unequal participation, resource extraction and asymmetry in power and control (table 1). These five categories speak to who partakes in global surgery, where global surgery occurs, how it is done, how benefits are distributed and where power lies. They map onto and are continuous with the categories of inequities in the colonial era. They apply across multiple global surgery activities, including research, education, training, service delivery, policy and advocacy, and multiple issues, including authorship, conference attendance and funding. They are interlinked with bidirectional cause and effect. For example, we note that authorship, an often discussed issue in global surgery, is simultaneously a sign of unequal representation, a resource being extracted, a consequence of the geographies of inequity and a determinant of control over knowledge production.

#### Western epistemology

We noted a disparity between the ideal vision of global surgery as 'an integrated ecosystem' spanning prevention

**Table 1** Five categories of inequities in global surgery

Category	Description
Western epistemology	The dominance of Western biomedicine in global surgery, characterised by the lack of integration between specialties and disciplines, a focus on biomedical cause rather than social, cultural, and environmental context, and hospital-centric care removed from communities.
Geographies of inequity	Global surgery remains centred in the Global North, with a hierarchy of values that placed external intervention over local contextualisation, resulting in a unidirectional flow of personnel from the Global North to the Global South.
Unequal participation	Participants in the global surgery movement bear little resemblance to and representation of the community it serves. Participation is dominated by personnel from the Global North compared with the Global South, providers compared with patients, specialists compared with nurses, midwives and the wider multidisciplinary or intersectoral team.
Resource extraction	There is an uneven distribution of benefits with the accumulation of material, cultural and symbolic capital by the Global North personnel and institutions across multiple domains of global surgery: service delivery, research, and education and training.
Asymmetry in power and control	The Global North has disproportionate control over priority setting, knowledge production, funding and standards creation. This leads to naturalisation of inequities and the masking of upstream resource extraction that underly inequities in surgically treated conditions.

to cure and its current realisation as an individualised, specialised clinical skill confined the operating theatre in Western biomedicine. We observed the fragmentation between specialties, decontextualisation with social, cultural, and environmental determinants, and hospital-centric care in global surgery and traced this back to the dominance of Western epistemology.

We began with a shared understanding of the characteristics of Western biomedicine to examine its influence on global surgery. We understood, as others have observed, that medical systems are socio-cultural constructions.<sup>47</sup> Western biomedicine is a system of knowledge and practice rooted in Western epistemology, closely intertwined with colonisation and imperialism.<sup>47 48</sup> It is characterised by the ‘principle of separation’, the notion that ‘things are better understood in categories outside of their context, divorced from related objects and persons’.<sup>49</sup> This has led to the separation of patients into individual diseases, care from community to hospitals, biomedical causes from social, cultural, and environmental contexts, and medical practice into increasing specialities.<sup>49 50</sup>

We noted that surgery holds a special place within biomedicine. Since an early stage, surgeons have enjoyed higher income and status than physicians.<sup>51</sup> As ‘intensive somatic interventions’, surgical procedures are easily billable.<sup>50 52</sup> They treat visible external phenomena—pathologies that could be seen in the operating theatre without needing to trace back to social causes.<sup>53</sup>

We observed the pattern of dominance of Western biomedicine in global surgery today. First, global surgery remains siloed and decontextualised. The literature highlighted that many Global North clinicians often lack health system perspectives compared with their Global South counterparts. They may take many health system elements for granted, such as central sterilisation, supply chains and biomedical engineering.<sup>54</sup> A review found that global surgery education and

training programmes focus on specialists rather than the wider multidisciplinary team.<sup>55</sup> Shah *et al* called for moving from ‘curing by cutting dictum’ and addressing the social determinants of health in global surgery.<sup>56</sup> However, Jayaram *et al* found that only one out of 18 academic global surgery curricula included the social and environmental determinants of health.<sup>57</sup> Most global surgery studies focus on healthcare delivery and management rather than social, environmental and economic determinants.<sup>13 58</sup>

Second, there is fragmentation between specialties. Obstetrics and gynaecology is disproportionately under-represented, despite being one of its three core pillars.<sup>13</sup> We traced this back to the historical evolution of obstetrics and gynaecology, which has always been relegated to a lower status than other surgical specialties, as a specialty focusing on the treatment of women.<sup>59 60</sup> Third, care remains hospital-centric.<sup>16</sup> Clinicians, particularly those from the Global North, lack experience interfacing with primary health and community care.<sup>54</sup>

Inequities arise when practitioners and surgical systems in the Global North are automatically presumed to be superior. While solutions cannot be universalised, they may involve socially, culturally and environmentally contextualised care, situated in the community, close to patients, with integration and collaboration between multiple professions, specialties and sectors. Indigenous practitioners around the world have integrated Indigenous health principles into Western surgical practice.<sup>61</sup> For example, surgical education at the University of Global Health Equity in Rwanda incorporates inter-professional and interdisciplinary learning, social and environmental contexts, local cultural values and traditions, and prolonged community-based immersion (box 3).

We conclude that surgical systems in the Global South should not be made to copy those in the Global North. Surgical systems should be determined by the cultural

### Box 3 University of Global Health Equity (UGHE): on a journey towards equity in surgical education

The UGHE is a private, not-for-profit, innovative global health educational institution founded by Partners in Health in 2015.<sup>1</sup> Explicitly rejecting Western and urban centrality, the university was set up in Butaro village of rural Northern Rwanda. Surgical education is delivered through a tripartite ‘campus without walls’, comprising the university itself, the rural teaching district hospitals across the country and the community.

In addressing the dominance of Western epistemology, a pluralist model of surgical care incorporating the cultural values of communities is used in training. Prior to commencing clinical training, students undergo an 8-month foundation in humanities, social sciences and community-based care. Social, cultural and environmental determinants are incorporated into students’ learning prior to surgery. Some training and evaluation are conducted in the local language, Kinyarwanda.

In addressing professional silos, UGHE’s Centre for Nursing and Midwifery and the Centre for Equity in Global Surgery train multidisciplinary, cross-cultural learners through interprofessional fellowships, professional nursing leadership courses, continuous medical education for anaesthetic providers and a new Masters in Global Health Delivery with an option in global surgery.<sup>2</sup> Global surgical care learners learn alongside One Health, Gender, Sexual and Reproductive Health, and Health Management students from diverse disciplines. In addition, UGHE is developing a postgraduate programme in Global Surgical Nursing to further address surgical ecosystem inequities that often focus entirely on training medical practitioners at the exclusion of other health professionals.

As a mandatory part of their training, students spend time living off-campus within the village communities they serve. Surgery learners are encouraged to follow-up their patients beyond the hospital, with some participating in home visits. Informal social ward rounds are a regular occurrence. Monthly, in honour of a long-term Indigenous community tradition called ‘Umuganda’, all learners come together to fix roads, dig gutters and participate in community projects requiring manual labour. In contrast to unequal participation and hierarchy, Umuganda is a communitarian, shared activity for UGHE community members, regardless of status or class. Professors push wheelbarrows full of dirt alongside their students; administrators dig alongside junior staff. One learns not only with the scalpel and suture but also with the hoe and the rake. Umuganda plays a crucial role in Rwanda’s development across multiple areas, including social, economic, health, education, culture and reconciliation; learners are taught not to distance surgery, medicine or global health from such mindsets.

As a part of Partners in Health, UGHE is strongly connected to and funded by institutional partners from the global north. We must acknowledge that the roots of UGHE run deep into historically colonial institutions, and the institution’s ties with the Global North remain strong. However, the global health and surgical space at UGHE demonstrates that academic global surgery institutions can begin a journey towards equity.

values of the communities in each setting without one dominant epistemology.

#### Geographies of inequity

We then asked if global surgery is truly global. We observed that global surgery remained Western-centric, exclusive and unidirectional.

Global surgery is dependent on the gaze of the beholder. We explored which definitions of global surgery and voices behind these definitions have more power. Global surgery is commonly viewed from a Global North gaze in the literature.<sup>62</sup> The term ‘global surgeon’ is widely used to denote a Global North surgeon.<sup>7</sup> A systematic review found that 94% of global surgery education programmes are geared towards Global North trainees.<sup>57</sup> We also noted that 80% of global surgery non-governmental organisations (NGOs) are situated in the Global North.<sup>63</sup> The concept of global surgery rose to prominence in the year 2015, uplifted by voices in Geneva, Boston and Washington DC. Kim *et al* noted that the Western-centric narrative of global surgery diminishes the effort of Indigenous surgeons in the Global South who have worked for decades to improve care in their own settings.<sup>64</sup>

Despite its claim to be global, global surgery is not truly global and only provides the illusion of being so. Reviews found highly uneven geographical representation in global surgery publications across continents.<sup>13 55</sup> Since the colonial era, the framing of activities as ‘global’ have advanced the agenda of the metropole and justified external control at the expense of local knowledge.<sup>22</sup> The framing of ‘global’ constructed a hierarchy of values that places the external over the local and universalisation over contextualisation.<sup>37 48</sup> This legitimises an ongoing unidirectional flow of personnel from the Global North to the Global South.<sup>30 37</sup> We noted that the literature widely frames global surgery as being delivered by the Global North in the Global South.<sup>7 16 65</sup> Global North researchers are recognised as ‘global’ experts, and Global South researchers are only recognised ‘local’ experts.<sup>66</sup> We challenge why global surgery could not be delivered by Global South practitioners in the Global South or even the Global North.

We concluded that a truly global form of global surgery should uphold diverse Indigenous efforts around the world rather than masking them. It should allow practitioners in the Global South to form bidirectional regional and global collaborations on their own terms rather than terms set by the Global North while celebrating the uniqueness of each context.

#### Unequal participation

The global surgery movement is dominated by professionals and organisations from the Global North, with limited participation from Global South providers, patients and communities at the grassroots.<sup>14 15 67</sup> Unequal participation manifests at several levels: Global North versus South, providers versus patients and communities, and within the providers themselves. Unequal participation is closely linked to the geographies of inequities and the dominance of Western epistemology.<sup>48 50</sup>

Global South participants are widely observed to be under-represented across many domains of global surgery, including authorship,<sup>11–13 68 69</sup> knowledge-sharing platforms, such as conferences and editorial boards.<sup>70</sup>

Beyond the Global North and South divide, many aspects of intersectional inequity exist in global surgery. There is limited participation of females,<sup>12 71</sup> non-specialist providers, such as nurses and midwives,<sup>55</sup> and broader disciplines, including policymakers, engineers, and even cleaners and orderlies.<sup>55</sup> We trace this to the hierarchical division of labour, unprecedented power of physicians over patients, and patriarchy introduced by Western biomedicine and worldview.<sup>50 72</sup>

Global surgery is increasingly framed as an academic field and a 'niche' to be carved out for career advancement.<sup>1 7 57</sup> Foreign academics who write for a distant audience are privileged over activists, community organisers and policy-makers who could affect local change.<sup>14 73</sup>

A review found that only 20% of global surgery partnerships involve low-income and middle-income country communities.<sup>74</sup> The term 'community' is ambiguously used in the global surgery literature to indicate not only service users but also providers, government agencies and academic institutions in the Global South.<sup>75</sup> Patients and ordinary citizens in the Global South are relegated to the periphery of global surgery.<sup>14</sup>

We concluded that a genuinely inclusive global surgery movement must reflect the community it serves rather than the elite, Global North, professional and academic interest. It should involve a broad base of Global South citizens with intersectionality representation in each context, similar to the treatment action coalition for the HIV/AIDS epidemic.<sup>14</sup> Female voices should be highlighted in making decisions around diseases and procedures affecting female patients, such as hysterectomy and mastectomy.

### Resource extraction

We observed an uneven distribution of benefits with pan-capital accumulation by the Global North personnel and institutions across multiple domains of global surgery: service delivery, research and education and training. Capital extraction includes both material benefits, such as funding, education and training,<sup>17 55 57 76</sup> and symbolic benefits, such as authorship, credit and prestige.<sup>11-13 68 70</sup>

Although there is a shift towards health system strengthening in global surgery, short-term unidirectional international placements continue to be popular despite their well-recognised negative impact.<sup>36 38 70 77</sup> Global surgery is framed as an opportunity for Global North residents. More and more global surgery programmes are developed by Global North institutions,<sup>78-80</sup> the majority of which only provide short-term clinical opportunities.<sup>81</sup> This opportunism reveals the benefits at stake. The benefits of surgical missions to Global North practitioners are not readily acknowledged but include clinical and surgical skill accumulation, exposure to new cultures, attraction of students, funding and promotion.<sup>16 19</sup>

With the expansion of global surgery, there is also a risk of advancing Global North commercial interest at the expense of local innovation.<sup>32</sup> The cost, accessibility and suitability of surgical equipment and devices have

been reported to be a widespread barrier to surgical care across the Global South.<sup>82</sup> Instead of relying on importing surgical equipment from the Global North, surgeons in the Global South have developed innovative surgical devices that are not only low-cost but also suitable and sustainable.<sup>83-85</sup> Shah *et al* warned that 'global surgery should not be a slave of technology for the promotion of 'gold standard' given by corporate-led commercialised services'.<sup>56</sup> We call for creative solutions to facilitate surgical device innovation and manufacture by the Global South, akin to the generic pharmaceutical industry in global health.

### Asymmetry in power and control

Institutions in the Global North have disproportionate control over priority setting, knowledge production, funding and standard creation.

There is skewed accountability where priorities reflect the interest of Global North institutions rather than Global South communities. For example, both research and service delivery have been found to disproportionately focus on cleft lip and palate surgery despite their lower incidence than burns or trauma.<sup>36 69</sup> Most NGOs and surgical missions focus on single specialties and single diseases and often lack long-term outcome monitoring to examine their impact on service users.<sup>36 63</sup> Chawla *et al* warned against replicating the Global North health model of prioritising 'accountability to money over accountability to society'.<sup>18</sup> With the increasing advocacy for private sector involvement and 'innovative' financing in global surgery, there is a risk that accountability is geared towards maximising shareholder value rather than service users.<sup>86</sup>

We note that the authorship inequities often highlighted in global surgery are symptoms of a deeper issue of Global North control over data and knowledge production.<sup>11 12 87</sup> A review of surgical facility assessments found that most have been designed, collected and analysed by researchers and institutions in the Global North.<sup>88</sup> A similar pattern can be observed for tools, frameworks and guidelines created in global surgery. Akin to the colonial period, data, as a raw material, was exported from the colonies to industries in the metropole, who then returned with the finished product for the colonised to use.

Control over knowledge production and agenda setting leads to control over narratives.<sup>37 47 89</sup> Downstream biomedical and technical solutions risks naturalising inequities and disguising ongoing resource extraction.<sup>37 47 89</sup> The resource extraction that occurred due to colonisation and neocolonial macroeconomic orders are rarely mentioned in the global surgery literature. However, more recent studies highlighted the importance of historical and economic determinants of global surgery inequities, including reparation indemnity, trade policies and structural adjustment programmes.<sup>90</sup> Without reckoning with these underlying economic determinants, global surgery risks perpetuating the 'civilising mission',

making us more at ease with the inequities created by colonisation and neocolonialism.<sup>29 37</sup>

We observe a paradox in surgery's simultaneous popularity in missionary and charitable medicine as one of the most efficacious biomedical treatments and its marginalisation in colonial medicine and global health.<sup>29 30 33</sup> This occurred as health institutions in the Global South were drawn to the priorities of the Global North rather than those of their own citizens.<sup>31</sup> Surgery continues to be seen as a luxury rather than a necessity, delegated to NGOs and private investors.<sup>33 63 91 92</sup> We conclude that resolving this paradox requires rebuilding health systems and institutions in the Global South that reflect the needs of and hold accountability to citizens through legitimate forms of representation.

A word must be said about agency. Shifting global surgery towards equity requires our collective decolonisation. Benefits from colonisation and neocolonialism are distributed down a hierarchical order that all of us partake in. Leaders in the Global South must take charge of designing, funding and delivering surgical services oriented towards the interest of their citizens and populations rather than elite, commercial or international interests.

## CONCLUSION: THE WAY FORWARD

This paper examined the categories of inequities in global surgery, drawing on the literature and our lived personal and professional experiences. We observed the dominance of Western epistemology, the limited participation of Global South providers, communities and patients, the accumulation of benefits by individuals and institutions in the Global North, and the centring of power and control in the Global North, which justifies universalisation over local contextualisation, with an ongoing unidirectional flow of personnel from the Global North to the Global South. These categories could guide the formulation of solutions to both dismantle power asymmetries and rebuild towards equity (table 2).

We noted the continuity of these categories of inequity since the colonial era. Despite its ideal definitions, global surgery demonstrated more continuity than change in its real-world practice compared with its predecessors in missionary medicine and international health. Global surgery is at risk of becoming a different name for the same thing, as institutions of power in the Global North interpret global surgery in ways to suit their own interests.

Decolonising global surgery challenges us to rethink what we understand as 'global' and 'surgery'. It requires dismantling both the hierarchical, exclusive and disease-focused model of surgery in the West and the coloniality of global health itself. First, instead of an individualised, specialised intervention inside the operating theatre, surgical care in the global setting should be an integrated ecosystem from prevention to cure. It should not be delivered by 'global surgeons' from the Global North

but by multidisciplinary, intersectoral teams in the Global South, including service users.

Second, instead of being 'global', surgical care should be locally contextualised and determined at the grass-roots level in each setting. Global health is conceptualised in the Global North for the Global North. The construction of the 'global' often masks external intervention and control by the Global North. Can the Global South reclaim global surgery? We concluded that Global South can and must reclaim global surgery by elevating the voices of local providers and communities in each setting and providing a platform for experience sharing and collaboration. A truly global form of global surgery must include bidirectional exchanges and South-South collaboration, with Global South practitioners recognised globally as having relevant and shareable expertise.

Many solutions already exist around the world that have not been defined in relation to decolonisation. If we start with the dominant frameworks, we can only see what is lacking. Decolonisation is defined in opposition to colonisation, Global South to North, equity to inequity, task-shifting to task and non-specialists to specialists. Indigenous providers in the Global South have improved health in their communities for decades. We must change our frames of reference to uplift solutions that already exist.

The goal of global surgery should not only entail dismantling inequity but ultimately advancing the political, economic, cultural and epistemic sovereignty of communities over their own care. Conversations have centred around equity because inequities exist. The achievement of equity requires two players, acknowledging that the Global North plays a role in creating and sustaining power asymmetries. It requires those in the Global North to be allies in dismantling power asymmetries and those in the Global South to assert agency and sovereignty.

The strength of this paper lies in its methodology and diverse authorship. Compared with personal opinions led by singular voices, we found the qualitative, group Delphi process empowering in drawing on the collective experience of diverse authors. Compared with literature reviews, our methodology enshrined knowledge generation from lived experience. Furthermore, we critically analysed the patterns of inequities in global surgery in relation to larger historical, political and economic structures in order to unveil unfair practices that must stop.

Our limitation is that we do not represent every profession, language or geographical region. However, we are explicit about our positionality and acknowledge that we can only represent ourselves. We have limited capacity to discuss solutions, which should be expanded on by future papers.

Surgery can be a powerful equalising force. Everyone, rich or poor, might need surgical care during their life course. Surgery was neglected on the global health agenda because the West set the agenda. If communities have sovereignty over their care, global health would look

**Table 2** Potential solutions for dismantling power asymmetries in global surgery and rebuilding towards equity

Category of inequity	Dismantling	Rebuilding
Western epistemology	Dismantling the presumed superiority of the dominant Western epistemology	Pluralist model of surgical care incorporating the cultural values of communities. Bringing care closer to the community. Incorporating social, cultural, and environmental determinants and contexts. Multidisciplinary, interprofessional and cross-sectoral collaboration. Community-focused rather than disease-focused care.
Geographies of inequity	Decentralising global surgery Terminating unidirectional short-term placements	Polycentric global surgery Valuing local contextualisation Bidirectional exchange Uplifting the voices of 'local', 'rural' and Indigenous surgeons in each setting around the World
Unequal participation	Majority Global South representation across all global surgery activities. Dismantling the hierarchical order and patriarchy within biomedicine and Western surgery, which places specialists above nurses and midwives, males above females, and providers above patients.	Broad-based, gender-balanced, inclusive participation with the involvement of nurses, midwives, policy-makers, advocates, engineers, cleaners, orderlies and patients themselves. Shifting global surgery to the grassroots. Local pose for a local audience. Bottom-up as opposed to top down participation. Promoting non-academic activities, including practice, policy and advocacy.
Resource extraction	Establishing matrices to track benefit distribution in global surgery.	Facilitating surgical equipment and device innovation and manufacture in the Global South.
Asymmetry in power/control	Internal decolonisation. Examining the accountability of global surgery institutions and initiatives to the communities they serve. Dismantling control over knowledge production by the Global North. Addressing the underlying economic inequities between Global North and South that have created inequities in surgically treated conditions through reparation and fair economic policies.	Ensuring that priority-setting and decision making rests with the Global South. Strengthening institutions in the Global South. Agency and ownership by Global South governments to invest financial resources in surgical care Uplifting alternative ways of knowing and knowledge sharing, such as story-telling, podcasts.

very different from now. However, adding surgery alone is insufficient; it requires an examination of the epistemology of surgical care, who is driving it, how resources flow and where power lies. True community sovereignty over surgical care would entail delivering culturally appropriate, locally contextualised care by providers who represent the community, with resource controlled and governance driven by institutions accountable to communities in each setting. It involves dismantling the power asymmetries inherent in both global health and Western surgery towards building inclusive, pluralistic, polycentric and community-self-determined models of surgical care. Leaders in the Global South must take charge of designing, funding and delivering surgical services oriented towards the interest of their citizens and populations rather than elite, commercial or international interests.

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## REFERENCES

- Dare AJ, Grimes CE, Gillies R, *et al*. Global surgery: defining an emerging global health field. *Lancet* 2014;384:2245–7.
- Farmer PE, Kim JY. Surgery and global health: a view from beyond the OR. *World J Surg* 2008;32:533–6.
- Meara JG, Leather AJM, Hagander L, *et al*. Global surgery 2030: evidence and solutions for achieving health, welfare, and economic development. *The Lancet* 2015;386:569–624.
- Debas HT, Donkor P, Gawande A, eds. *Essential Surgery: Disease Control Priorities*. Third Edition (Volume 1). Washington (DC): World Bank, 2015.
- WHO. *Wha 68.15: Strengthening Emergency and Essential Surgical Care and Anaesthesia as a Component of Universal Health Coverage*. Geneva, Switzerland: World Health Organization, 2015.
- Bath M, Bashford T, Fitzgerald JE. What is ‘global surgery’? Defining the multidisciplinary interface between surgery, anaesthesia and public health. *BMJ Glob Health* 2019;4:e001808.
- Krishnaswami S, Stephens CQ, Yang GP, *et al*. An academic career in global surgery: a position paper from the society of University Surgeons Committee on academic global surgery. *Surgery* 2018;163:954–60.
- Abimbola S, Asthana S, Montenegro C, *et al*. Addressing power asymmetries in global health: Imperatives in the wake of the COVID-19 pandemic. *PLoS Med* 2021;18:e1003604.
- Bhakuni H, Abimbola S. Epistemic injustice in academic global health. *Lancet Glob Health* 2021;9:e1465–70.
- Khan M, Abimbola S, Aloudat T, *et al*. Decolonising global health in 2021: a roadmap to move from rhetoric to reform. *BMJ Glob Health* 2021;6:e005604.
- Hedt-Gauthier BL, Jeufack HM, Neufeld NH, *et al*. Stuck in the middle: a systematic review of authorship in collaborative health research in Africa, 2014–2016. *BMJ Glob Health* 2019;4:e001853.
- Ravi K, Bentounsi Z, Tariq A, *et al*. Systematic analysis of authorship demographics in global surgery. *BMJ Glob Health* 2021;6:e006672.
- Fowler Z, Dutta R, Kilgallon JL, *et al*. Academic output in global surgery after the lancet commission on global surgery: a scoping review. *World J Surg* 2022;46:2317–25.
- Jumbam DT, Kanmounye US, Alayande B, *et al*. Voices beyond the operating room: centring global surgery advocacy at the grassroots. *BMJ Glob Health* 2022;7:e008969.
- Veerappan VR, Jindal RM. Community participation in global surgery. *BMJ Glob Health* 2021;6:e005044.
- Bua E, Sahi SL. Decolonizing the decolonization movement in global health: a perspective from global surgery. *Front Educ* 2022;7.
- Scheiner A, Rickard JL, Nwomeh B, *et al*. Global surgery pro-con debate: a pathway to bilateral academic success or the bold new face of colonialism. *J Surg Res* 2020;252:272–80.
- Chawla B, Lindert J, Sharma D. Post-decolonisation: global health and global surgery’s coming of age. *Indian J Surg* 2022;84:259–61.
- Foretia DA. To decolonize global surgery and global health we must be radically intentional. *Am J Surg* 2023;225:595–6.
- August E, Tadesse L, O’Neill MS, *et al*. What is global health equity? A proposed definition. *Ann Glob Health* 2022;88:50.
- Bump JB, Aniebo I. Colonialism, malaria, and the decolonization of global health. *PLoS Glob Public Health* 2022;2:e0000936.
- Slobodian Q. *Globalists: The End of Empire and the Birth of Neoliberalism*. Harvard University Press, 2018.
- Jansen JC, Osterhammel J, Riemer J. Decolonization as moment and process. In: *Decolonization a Short History*. Princeton University Press. Princeton University Press, 2017: 1–34.
- OHCHR. Dimensions of racism. Geneva, Switzerland. United Nations Educational, Scientific and Cultural Organization; 2003. Available: <https://www.ohchr.org/en/publications/special-issue-publications/dimensions-racism> [Accessed 15 Jan 2023].
- Gabriel SP. The meaning of race in Malaysia: colonial, post-colonial and possible new conjunctures. *Ethnicities* 2015;15:782–809.
- Quijano A. Coloniality of power and Eurocentrism in Latin America. *International Sociology* 2000;15:215–32.
- Dharmoon R. A feminist approach to decolonizing anti-racism: rethinking transnationalism, intersectionality, and settler colonialism. *Feral Feminisms* 2015;4:20–37.
- Surgery FK. Imperial rule and colonial societies (1800–1930): technical, institutional and social histories. In: *The Palgrave Handbook of the History of Surgery*. London (UK): Palgrave Macmillan, 2017. Available: <http://www.ncbi.nlm.nih.gov/books/NBK481551/> [accessed 15 Jan 2023].
- Landau PS. Explaining surgical evangelism in colonial Southern Africa: teeth, pain and faith. *J Afr Hist* 1996;37:261–81.
- Jennings M. Healing of bodies, salvation of souls’: missionary medicine in colonial Tanganyika, 1870S-1939. *J Religion Afr* 2008;38:27–56.
- Cooter R, Pickstone J, eds. Colonial medicine. In: *Companion to Medicine in the Twentieth Century*. Routledge, 2002.
- Packard RM. *A History of Global Health: Interventions into the Lives of Other Peoples*. 1st edition. Baltimore: Johns Hopkins University Press, 2016.
- Shrime MG, Sleemi A, Ravilla TD. Charitable platforms in global surgery: a systematic review of their effectiveness, cost-effectiveness, Sustainability, and role training. *World J Surg* 2015;39:10–20.
- Shrime MG, Sleemi A, Ravilla TD. Specialized surgical platforms. In: Debas HT, Donkor P, Gawande A, eds. *Essential Surgery: Disease Control Priorities, Third Edition (Volume 1)*. Washington (DC): The International Bank for Reconstruction and Development / The World Bank 2015,
- Hendriks TCC, Botman M, Rahmee CNS, *et al*. Impact of short-term reconstructive surgical missions: a systematic review. *BMJ Glob Health* 2019;4:e001176.
- Botman M, Hendriks TCC, Keetelaar AJ, *et al*. From short-term surgical missions towards sustainable partnerships. A survey among members of foreign teams. *Int J Surg Open* 2021;28:63–9.
- Packard RM. Post-colonial medicine. In: *A History of Global Health*. Baltimore: Johns Hopkins University Press Books, 2016: 97–112.
- Schoenbrunner AR, McIntyre JK, Nthumba P, *et al*. Ethical dilemmas in global plastic surgery: divergent perspectives of local and visiting Surgeons. *Plast Reconstr Surg* 2022;149:789e–99e.
- Susskind. *Breaking The Impasse*. New York: Basic Books, 1989.

- 40 Susskind L, McKernan S, Thomas-Larmer J. The consensus building Handbook: A comprehensive guide to reaching agreement. In: *The Consensus Building Handbook: A Comprehensive Guide to Reaching Agreement*. 1st edition. 2455 Teller Road, Thousand Oaks California 91320 United States : SAGE Publications, Inc, 1999.
- 41 Remi C, Weingärtner K, Hagemann V, et al. Off-label drugs in palliative care: a group Delphi treatment recommendation process. *BMJ Support Palliat Care* 2021;11:180–7.
- 42 Schäfer AGM, Joos LJ, Roggemann K, et al. Pain experiences of patients with musculoskeletal pain + central sensitization: A comparative group Delphi study. *PLoS One* 2017;12:e0182207.
- 43 Niederberger M, Renn O. In: *Das Gruppendelphi-Verfahren*. Wiesbaden: Springer Fachmedien, 2018. <https://doi.org/10.1007/978-3-658-18755-2>
- 44 Facile R, Muhlbradt EE, Gong M, et al. Use of clinical data interchange standards consortium (CDISC) standards for real-world data: expert perspectives from a qualitative Delphi survey. *JMIR Med Inform* 2022;10:e30363.
- 45 Sekayi D, Kennedy A. Qualitative Delphi method: a four round process with a worked example. *TQR* 2017;22:2755–63.
- 46 Linstone HA, Turoff M. *The Delphi Method: Techniques and Applications*. First Edition. Reading, Mass: Addison Wesley Publishing Company, 1975.
- 47 Keller RC. Geographies of power, legacies of mistrust: colonial medicine in the global present. *Hist Geogr* 2006;34:26–48.
- 48 Manton J, Gorsky M. Health planning in 1960s Africa: International health organisations and the post-colonial state. *Med Hist* 2018;62:425–48.
- 49 Davis-Floyd R, StG. *From Doctor to Healer: The Transformative Journey*. New Brunswick, NJ: Rutgers University Press, 1998.
- 50 Gaines AD, Davis-Floyd R. On Biomedicine. In: *Encyclopedia of medical anthropology*. New Haven: Yale: Human Relations Area Files, 2003.
- 51 Gelfand T. Gestation of the clinic. *Med Hist* 1981;25:169–80.
- 52 Johnson T. Consultation-liaison psychiatry: medicine as patient, marginality as practice. In: Hahn RA, Gaines AD, eds. *Physicians of Western Medicine: Anthropological Approaches to Theory and Practice*. New Brunswick, NJ: Springer Dordrecht, 1985: 269–92.
- 53 Schlich T. Introduction: what is special about the history of surgery. In: Schlich T, ed. *The Palgrave Handbook of the History of Surgery*. London: Palgrave Macmillan UK, 2018: 1–24.
- 54 deVries CR, Rosenberg JS. Global surgical ecosystems: a need for systems strengthening. *Ann Glob Health* 2016;82:605–13.
- 55 O'Flynn E, Danial A, Gajewski J. Global surgery education and training programmes—a scoping review and taxonomy. *Indian J Surg* 2022;84:193–206.
- 56 Shah JN, Shah J, Shah J, et al. Global surgery and global health: one size does not fit all. *J Patan Acad Health Sci* 2022;9:1–7.
- 57 Jayaram A, Pawlak N, Kahanu A, et al. Academic global surgery curricula: current status and a call for a more equitable approach. *J Surg Res* 2021;267:732–44.
- 58 Qin RX, Velin L, Yates EF, et al. Building sustainable and resilient surgical systems: a narrative review of opportunities to integrate climate change into national surgical planning in the Western Pacific region. *Lancet Reg Health West Pac* 2022;22:100407.
- 59 Goff BA, Muntz HG, Cain JM. Is Adam worth more than Eve? The financial impact of gender bias in the Federal reimbursement of gynecological procedures. *Gynecol Oncol* 1997;64:372–7.
- 60 Brock C. Women in surgery: patients and practitioners. In: Schlich T, ed. *The Palgrave Handbook of the History of Surgery*. London: Palgrave Macmillan UK, 2018: 133–52. [https://doi.org/10.1057/978-1-349-95260-1\\_7](https://doi.org/10.1057/978-1-349-95260-1_7)
- 61 Koea J, Ronald M. What do indigenous communities want from their surgeons and surgical services: a systematic review. *Surgery* 2020;167:661–7.
- 62 Abraham MN, Abraham PJ, Chen H, et al. What is global surgery? Identifying misconceptions among health professionals. *Am J Surg* 2020;220:271–3.
- 63 Ng-Kamstra JS, Riesel JN, Arya S, et al. Surgical non-governmental organizations: global surgery's unknown nonprofit sector. *World J Surg* 2016;40:1823–41.
- 64 Kim EK, Dutta R, Roy N, et al. Rural surgery as global surgery before global surgery. *BMJ Glob Health* 2022;7:e008222.
- 65 Cheung M, Healy JM, Hall MR, et al. Assessing interest and barriers for resident and faculty involvement in global surgery. *J Surg Educ* 2018;75:49–57.
- 66 Jumbam DT. Local and international experts in global health; who's to say? Global Health Unfiltered, Available: <https://www.globalhealthunfiltered.com/blog/local-and-international-experts-in-global-health-whos-to-say> [Accessed 22 Jul 2023].
- 67 Mohan M, Gadgil A, Roy N. Unpacking 'global surgery': voices from the grassroots. *Am J Surg* 2020;220:270.
- 68 Pauyo T, Debas HT, Kyamanywa P, et al. Systematic review of surgical literature from resource-limited countries: developing strategies for success. *World J Surg* 2015;39:2173–81.
- 69 Čebrov U, Zuo KJ, Kasrai L. A Bibliometric analysis of the most cited articles in global Reconstructive surgery. *Ann Plast Surg* 2019;83:334–9.
- 70 Elobu AE, Kintu A, Galukande M, et al. Evaluating International global health collaborations: perspectives from surgery and anesthesia Trainees in Uganda. *Surgery* 2014;155:585–92.
- 71 Campos LN, Naus A, Rangel AG, et al. Women representation on editorial boards in Latin America journals: promoting gender equity in academic surgery, anesthesia, and obstetrics. *World J Surg* 2023;47:845–53.
- 72 Dogo SA. The Nigerian patriarchy: when and how. *JCRS* 2014;2.
- 73 Abimbola S. The foreign gaze: authorship in academic global health. *BMJ Glob Health* 2019;4:e002068.
- 74 Jedrzejski N, Margolick J, Nguyen JH, et al. A systematic review of global surgery partnerships and a proposed framework for sustainability. *Can J Surg* 2021;64:E280–8.
- 75 Bust L, D'Ambruoso L, Gajewski J, et al. We asked the experts: community participation in global surgery research. *World J Surg* 2023;47:578–80.
- 76 Lavery RB, Jindal RM. Could global surgery overcome a decline in surgical cases *Ann Med Surg (Lond)* 2022;78:103704.
- 77 Fast OM, Gebremedhin Teka H, Alemayehu/Gebreselassie M, et al. The impact of a short-term training program on workers' sterile processing knowledge and practices in 12 Ethiopian hospitals: a mixed methods study. *PLoS One* 2019;14:e0215643.
- 78 Office of Global Surgery | Sustainable Care | Columbia Surgery, Available: <https://columbiasurgery.org/global-surgery> [Accessed 5 Jan 2023].
- 79 Why Global Surgery? » Department of Surgery » College of Medicine » University of Florida, Available: <https://surgery.med.ufl.edu/education/global-surgery/why-global-surgery/> [Accessed 5 Jan 2023].
- 80 UCSD. Global Surgery, Department of Surgery, University of California San Diego, Available: <https://medschool.ucsd.edu/som/surgery/education/Pages/Global-Surgery.aspx> [Accessed 5 Jan 2023].
- 81 Abraham PJ, Abraham MN, Corey BL, et al. Cross-sectional analysis of global surgery opportunities among general surgery residency programs. *J Surg Educ* 2020;77:1179–85.
- 82 Oosting RM, Wauben LSG, Groen RS, et al. Equipment for essential surgical care in 9 countries across Africa: availability, barriers and need for novel design. *Health Technol* 2019;9:269–75.
- 83 Venkatesh R, van Landingham SW, Khodifad AM, et al. Carbon footprint and cost-effectiveness of cataract surgery. *Curr Opin Ophthalmol* 2016;27:82–8.
- 84 Sharma D, Agarwal P, Agrawal V. Surgical innovation in Lmics—the perspective from India. *Surgeon* 2022;20:16–40.
- 85 Adejumo A, Adeosun O, Omeregbe P, et al. Improvisation of surgical equipment in the surgical services of a developing country. *Niger J Surg Res* 2016;17:48.
- 86 Negrette JC. Global surgery financing, challenges and possibilities. In: Kpodonu J, ed. *Global Cardiac Surgery Capacity Development in Low and Middle Income Countries* Cham: Springer International Publishing, 2022: 39–53. [https://doi.org/10.1007/978-3-030-83864-5\\_4](https://doi.org/10.1007/978-3-030-83864-5_4)
- 87 Abimbola S. The uses of knowledge in global health. *BMJ Glob Health* 2021;6:e005802.
- 88 Blair KJ, Paladino L, Shaw PL, et al. Surgical and trauma care in Low- and middle-income countries: a review of capacity assessments. *J Surg Res* 2017;210:139–51.
- 89 Richardson ET. *Epidemic Illusions: On the Coloniality of Global Public Health*. Boston, MA: MIT Press, 2020.
- 90 Barthélemy EJ, Diouf SA, Silva ACV, et al. Historical determinants of neurosurgical inequities in Africa and the African diaspora: a review and analysis of Coloniality. *PLOS Glob Public Health* 2023;3:e0001550.
- 91 Peters AW, Pyda J, Menon G, et al. The World Bank group: innovative financing for health and opportunities for global surgery. *Surgery* 2019;165:263–72.
- 92 Hamza M, Barton M, Afshar S. We asked the experts: innovative venture investing as a model for strengthening global surgery. *World J Surg* 2023;47:445–7.