SPECIAL COMMUNICATION

Global Surgery: Could systems thinking be the key to success?

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Abstract

Surgery and anaesthesia care is progressively making its way into the Global Public Health arena, which was dominated by maternal and child health and communicable diseases in low-and middle-income countries (LMICs). Global Surgery (GS) could potentially make an impact on survival and quality of life in all age groups for a variety of disease conditions. After success in highlighting knowledge, policy and advocacy gaps, Global Surgery is transitioning from problem identification to designing and implementing solutions. A shared vision will lay out priorities to achieve the common goal of providing safe and affordable surgical and anaesthesia care in under-developed and developing countries. A systematic thinking approach could amplify the impact of such efforts by highlighting the bigger picture, enabling Global Surgery leaders in such countries to build multidisciplinary coalitions and utilise cross-level interactions between Global Surgery and other initiatives.

Keywords: Global Surgery, Global health, Systems thinking, Health systems, Strategic planning, Multidisciplinary.

Introduction

Global health literature is abuzz with triple burden of diseases confronted by the low- and middle-income countries (LMICs) currently and in the coming decades.[1] While significant gains have been made in global health outcomes, especially towards vaccine-preventable diseases and maternal, neonatal and child health (MNCH), an emerging burden of chronic non-communicable diseases, injuries and healthcare delivery in conflicts and disasters have posed new challenges to the global health community.[2-4] Notwithstanding the complex interplay of geopolitical, socioeconomic and behavioural determinants of these challenges, there must be a functional, responsive and resilient healthcare system to tackle the needs of population requiring a broad range of health services.[5]

Healthcare systems around the world are facing increased demands and diminished resources. In this environment, there is a growing concern towards lack of safe, essential, lifesaving surgical and anaesthesia care for a variety of health issues, including cancer and cardiovascular diseases, congenital disorders, road traffic injuries, and complicated childbirth.[6] Until recently, surgical and anaesthesia care was not a part of global health discourse.[7] The World Health Organisation (WHO) launched its first Global Initiative for Emergency and Essential Surgical Care (GIEESC) in 2005.[8] While there has been some success in highlighting knowledge, policy and advocacy gaps, full attainment of Global Surgery (GS) goals demand a transition from problem identification to defining and implementing solutions. Thus, progress has been hampered by lack of consensus in the agenda-setting process, disengaged players, competing interests, and lack of unified voice.[9,10]

Framing surgical care as a global health priority agenda necessitates that a number of stipulations be addressed and the actors in LMICs appreciate the dynamics and network of the entire global health enterprise. Even the best-intentioned leaders might overlook the multi-sectoral nature of global health, of which GS is a part, especially if most of their experience was limited to providing patient care. This paper is aimed to advance the GS discourse by providing some insights about the commonalities between GS and other public health endeavours, and highlight the interactions of components, relationships and connections between GS and the larger health system.

Understanding the bigger picture

It is important to remember that disorders amenable to surgical care are cross-disciplinary, involve all age groups and genders, and deal with patients with a range of complexity and acuity. Emergency surgical and anaesthesia care requires a different system dynamic

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and agility in contrast to well-planned health services for a set of complex congenital disorders. While conditions needing surgical care have diverse causes, including injuries, cancer, infections and reproductive health, surgical workforce and subsystems are generally specialty driven and compartmentalised by organ systems, age groups and treatment modalities. GS requires thinking beyond individual disciplines and disease classifications; to focus on processes, interactions, points of convergence and causes of undesirable outcomes rather than isolated specialties and subspecialties or interim results.

Healthcare, and surgical care by extension, is a patient-processing system. This analogy does not dehumanise patients and care providers, but draws attention that every product is the sum total of infrastructure, technology, processes and quality assurance methods embedded in the system; not simply an accomplishment of capable human workforce. Therefore, the common misconception that surgical care starts at a facility and that the surgical team consists of a surgeon and an anaesthesiologist in a sterile environment may be a very simplistic approach to a complex, interconnected and interdependent network of individuals and institutions, playing an integral role in delivering safe, timely and affordable surgical care.

Most sustainable solutions require a steady stream of financial resources. However, healthcare financing in most LMICs (and even some high-income countries) is economically unstable in the sense that while medical payments (revenues) are fixed, the cost (demand) is variable. On top of it, inadequate government spending leads to a funding environment that is driven by large donors, philanthropy, and charitable sector ranging from short-term trips to specialised hospitals.[11] As a result, affordable surgical services might be ad hoc, unsustainable, short-term as well as inequitable in some cases. Lack of accountability and transparency in the public sector results in wastage of resources, loss of financial capital or even withdrawal of donor. As noted by other researchers, there is also micro-economic disconnection in organisational heatlh care delivery as the patients want care but the system rewards productivity.[12] Efficient surgeons spend little time with their patients. In other words, unintended consequences of approaches that are designed to achieve single and linear outcomes might work in the short term, but potentially threaten a fiduciary relationship turning into a transactional action with insufficient time to "care". Thus, strategies directed at incentivising efficiency must be coupled with mechanism to improve the quality of care, maximising the benefits to both parties.

GS would resonate with a larger audience by giving up on inopportune outcome measures - traditionally we track what we do not want (death, disability and cost) instead of what we desire (health, function and productivity).[12] Bringing desired outcome measures in the framework of surgical care delivery will be of benefit particularly in situations where surgical disorders affect quality of life more than life or limb threat. There is limited doubt that repairing an inguinal hernia so that the man can return to work, or treating vesico-vaginal fistula of a young woman to relieve her from lifelong misery of poor hygiene and infections, greatly reduces emotional suffering, economic losses and thus improves quality of life and makes a significant case for expanding safe, affordable surgical and anaesthesia care.

Finally, "unmet surgical needs"[13] exist in the backdrop of a wide array of missed public health opportunities. From prevention of medical conditions that cause diabetic foot and triple-vessel coronary artery disease, to control of drink-driving and speeding that lead to road traffic injuries, to curbing environmental agents that are linked to congenital malformations and cancers, to improving access to antenatal care and thereby preventing obstetric complications, the scope of the problem is much larger than just providing surgical services. If GS was meant to achieve the desired health outcomes, it requires other parts of the healthcare sphere to perform well too. These unmet needs will continue to grow if public health problems are viewed as mere healthcare governance and financing deficiencies. Using "my-problem-is-bigger-than-yours" argument is bound to create more silos, vertical programmatic solutions, fragmented services and splintered funding.

The way forward

When only the superficial symptoms of complex problems are attended, the underlying problem usually remains unresolved or may become exacerbated. For instance, scaling up liver transplant services while ignoring the prospects of hepatitis C control and treatment, or investing in highly skilled surgical workforce without meeting the expectations of job opportunities

or creating infrastructure to facilitate their practice would be counterproductive. So what could be the possible ways to take a gigantic task to provide universal access to safe, affordable surgical and anaesthesia care when needed, with dignity? At the moment this question is best left for the experts already working to find innovative solutions, especially bridging the gap between the unmet surgical needs, workforce deficiencies, and economic analyses of procedures, platforms and packages to improve surgical care.[13,14] The following points would be helpful in grasping the macro picture by recognising the inter-sectionality of different sectors, actors and components of health system.

The most important paradigm shift is to use systems thinking,[15] which is grounded upon the ability to analyse health systems and their problems from multiple perspectives. The central idea is that the effects or outputs of any system are dependent on the interactions of its components, and fixing the parts in isolation will not produce the full impact of interventions. In contrast to a reductionist form of analysis, systems thinking enables us to see the bigger picture, recognise that there are multiple cross-level interactions as well as essential interrelationships within the system and between subsystems, and to realize that cause and effects are not often linear and that outputs can loop back to affect the process. Systems thinking steers the emphasis away from individuals and individual causes by building capacity of the institutions, and better integrate science, technology and social innovations to improve health of the populations.

Another crucial step is to develop a shared vision and common goal, generate internal consensus, and clearly articulate priorities. It will take more than solemn messages and numbers to bring about the changes required to help those who are in need of surgery. Sometimes power dynamics in global health puts external framing ahead of principled action or evidence in order to inspire other stakeholders to act and offer their resources.[16] Traditionally, policy-makers in LMICs have looked towards global organisations such as the United Nations (UN), WHO etc., for setting health agenda, even though the Millennium or Sustainable Development Goals (MDGs/SDGs) do not mention GS. New yet influential non-governmental players are capable of shifting normative structural power;[17] hence the Global Alliance for Surgical, Obstetric, Trauma, and Anaesthesia Care, also known as the G4 Alliance, has been successful in lifting the issue off the ground with subsequent engagement of national representatives, multi-lateral organisations, public and private sector and other crucial influencers.[7] It is, therefore, important to be aware of, and engage with the key global and country-level champions, gauge the policy environment and direction, throw weight of influential actors, and build synergies to put policies into action.

Owing to its relatively recent appearance on global health priorities, GS is faced with narrow coalition building and a glaring lack of large donors and partners. Unlike MNCH or vaccine initiatives, no major global health donor provides more than minimal resources for surgery.[16] Harnessing the corporate social responsibility (CSR) of large donors might demand more concerted efforts than our previous successful global public health initiatives due to donor fatigue.[18] Carefully fostered partnerships, alignment with well-established enterprises, cross-cutting multi-sectoral interventions, and prudent advocacy are likely to attract and mobilise international funding opportunities as well as leverage national financial resources.

Before pushing a GS agenda, some public health lessons are worth re-visiting. Rigid, top-down, blanket strategies have not done well in the past and the outcomes could be variable in different countries and different places within a country. Acknowledging the diversity of settings will enable the planners to remain flexible in implementing innovative, adaptable and contextualised solutions even within the umbrella of a common goal. The fact that surgical care is affected by a wide variety of external factors, (e.g., "three delays", finances, availability of blood products etc.), makes it even more relevant for healthcare planners and strategists of LMICs to invest in strengthening health systems and to give up short-term, silo and linear approaches.

Lastly, a moment of self-reflection for the anaesthesia and surgical community in LMICs. GS is the new-kid-on-the-block of century-old public health endeavours directed at saving lives and improving the health of the population. Most people carry multiple identities as activists, educationists and researchers, yet our most credible claim to population welfare is clinical expertise.[17] This prospect could yield benefits or cause drawbacks, depending upon how we position ourselves and use our

collective bargaining power.[10] Tendency to solve urgent problems, or to implement quick solutions, often creates long-term complex issues. Complexity of the task also requires essential understanding that people change over time, not overnight. This means that the GS leaders ought to focus on a process for change, not just a detailed strategic plan that ends with a fiscal year or within the span of a project.

Conclusion

Transforming surgical care at a global scale is an exercise in patience, strategic thinking and continuous relation-building. To achieve GS goals, it is imperative that the community moves out of operating rooms, clinics and broaden their perspectives. The key to success lies in systems thinking and changing mental models at all levels of surgical workforce and leadership.

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