

A Case for Global Surgery in Pakistan: Implementation Through Multi-Disciplinary Engagement

Rafeh Ahmed,¹ Asad Iqbal Mian²

Abstract

The increasing disparity in healthcare access in Pakistan requires immediate intervention in the form of informed policy and appropriate implementation of such a policy. The implementation of a global surgery framework in Pakistan has the potential to improve healthcare access and parity in rural areas. Benefitting from the lessons learned through previous attempts at implementing centrally planned health programmes, This paper makes the case for a decentralised approach in facilitating the implementation of a Global Surgery framework in Pakistan. The Critical Creative Innovative Thinking (CCIT) forum, established at the Aga Khan University (AKU), Karachi, has an important role to play in this regard. The CCIT forum has demonstrated ability in developing and facilitating multi – disciplinary engagement around topics of biomedicine and healthcare, and in growing such engagements to their commercial value. Hence, the CCIT forum has immense potential in creating a high-functioning ecosystem around Global Surgery, thereby formulating a dynamic implementation plan - outside of conventional, centrally implemented public policy frameworks.

Keywords: Disparity, Implementation, Networks, Maternal mortality, Rural, Urban, Surgical access, Surgical systems, Policy, Global Surgery, Hackathon, Multi-disciplinary, Scalable, Sustainable.

Introduction

Global Surgery (GS) is a framework designed to improve the health and health equity of underserved populations affected by surgical conditions.¹ It advocates immediate access to three core surgical procedures, also known as Bellwether Procedures -- Caesarean Section (CS) delivery, laparotomy, and management of open fractures.²

There is a strong case for GS implementation in Pakistan

¹Innovation & Incubation Space, ²Department of Emergency Medicine, CCIT forum, Aga Khan University, Karachi, Pakistan.

Correspondence: Asad Iqbal Mian. e-mail: asad.mian@aku.edu

to rectify the disparity of surgical access and increasing mortality rates - moving from urban to rural Pakistan. Evidence of this disparity can be seen in the unequal utilisation of CS procedures - only 11.5% of rural women are reported to have had CS compared to 25.6% of urban women.³ Given Pakistan's historic difficulty in successful health policy implementation,⁴ there is reason to advocate for an organically formed, multi-disciplinary focussed approach for the implementation and development of a localised GS framework for the country. This paper observes the disparity in healthcare access as a result of lacking surgical systems in Pakistan, and highlight need for a sustainable and scalable implementation of the GS framework to effectively increase healthcare access and parity.

A cost-effective strategy

GS has long been considered the neglected stepchild of global health,⁵ and at the core of this neglect is the perception that developing surgical systems is expensive and not cost-effective.⁶ It is being increasingly realised, however, that surgical intervention is cost-effective and positively influences health parity.⁷ In Pakistan, the total cost for CS for 90% of the population requiring such intervention is US\$22.3 million. The economic benefit of providing such surgical intervention would be \$221.8 million; nearly 10 times the cost.⁷ As Pakistan's population continues to rapidly grow, it is important to be mindful of the potentially catastrophic consequences of disability as a result of non-accessibility to basic surgical care. Another noteworthy statistic is that Pakistanis in urban areas are twice as likely to have access to abdominal surgery as their rural counterparts.⁸ This ratio is likely to worsen in the absence of any intervention aimed at increasing access and parity.

Disparity in access is clearly apparent by observing maternal health and mortality rates as well. Maternal mortality rates are higher by 150% in rural areas

compared to urban populations, and in Balochistan province, maternal mortality is 500% higher than in urban cities across Pakistan.⁹ A closer view of maternal mortality shows that obstructed labour leading to haemorrhage or infection, hypertensive disorders, and unsafe abortion is among the leading causes of maternal death in Pakistan and other lower and middle-income countries (LMICs).⁷

As a framework, GS seeks to address the aforementioned disparities in health and access through the measurement and active improvements of metrics developed around the capacity of a surgical system to provide volume and quality of care, as well as financial impact on its care recipients.² While GS provides a template for greater surgical access and rural-urban health parity, real outcomes and benefit will be tied to the success of its implementation.

Limitations of centrally implemented health policy

Effective implementation of healthcare programmes in Pakistan has been an uphill struggle for successive governments. Expenditure on healthcare as a proportion of Pakistan's total gross domestic product (GDP) has declined over the years,¹⁰ and this has been matched with increasing organisational inefficiency. At present, each health programme in Pakistan has an independent organisational structure from the federal to the district and first-level care facilities.¹¹ The lack of integration and coordination amongst different health programmes points towards inefficient implementation of previous healthcare policies. Furthermore, due to the highly bureaucratic nature of health governance in Pakistan, there is no participation of independent stakeholder groups in the formulation of policy.⁴

Having regard for present challenges and the limited success of previous attempts to implement a centralised health policy, it is highly probable that future attempts to follow the same centralised strategy will prove likewise and will be difficult to sustain. The successful implementation of GS will depend on the participation of organically formed multidisciplinary, economically incentivized stakeholders.¹² This is where the experience of the Critical Creative Innovative Thinking (CCIT) forum at the Aga Khan University (AKU), Karachi, may prove useful in ensuring long-lasting success.

Multi-disciplinary engagement

Established in 2013, the CCIT forum aims at adopting a

creative and innovative multi-disciplinary approach towards health and disease in Pakistan.¹³ The CCIT forum has facilitated inter-disciplinary engagements through three major Hackathons to solve problems faced within LMICs in emergency medicine, children's hospitals, and medical education.¹⁴ Through these healthcare or biomedical Hackathons, the richness and diversity of perspective arising from multi-disciplinary teams coming together to troubleshoot issues in healthcare has directly facilitated the development of high-impact and affordable innovations.

Breath Hacks, an effective and affordable replacement for manualambu-bagging for a patient intubated in the emergency department, is one such example.^{14,15} The core of such innovations and promise for future innovation is CCIT's use of the hack framework of organically forming multi-disciplinary teams around healthcare problems.

Globally, Hackathons are becoming credible and popular sources for creativity and innovation across several industries. Hackathons are popularly used by companies in India to buy ideas and products, to commercialise ideas and teams through investment support, and to recruit talent.¹⁶ The idea for PillPack, an innovative patient medication management service, was conceived at Massachusetts Institute of Technology (MIT) Hacking Medicine competition in 2012. Amazon went on to buy PillPack for just under \$1 billion in 2018.¹⁷

In the context of GS, the CCIT forum has the ability to extend the discussion beyond the obvious medical and government stakeholders, thereby creating opportunity for greater inclusion, and the systematic formation of multi-disciplinary teams geared towards creating opportunity around surgery in Pakistan. Subject to the availability of appropriate financial and policy support and incentives, including biomedical incubation, these teams could represent the future surgical networks that would drive access and equity within the GS framework. The CCIT forum has taken its first step in providing this support with the formation of a specialised mentorship-driven healthcare incubator at AKU called the Innovation and Incubation Space (i2s).

The way forward

Moving forward, the CCIT forum is excited to co-host a GS Hackathon, alongside the Department of Surgery at AKU, in February 2019, this will be the first of its kind

in Asia. It is expected that this event will yield high-functioning multi-disciplinary teams that provide effective solutions for Pakistan's lacking surgical systems. We hope that both the public and private sector provide opportunities for these teams - whether through strengthening networks or providing investment - while also incorporating similar multidisciplinary frameworks in devising and implementing policies at the national level..

Disclaimer: None declared.

Conflict of Interest: None declared.

Funding Source: None declared.

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