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The collateral damage of the COVID-19 pandemic on surgical healthcare in sub-Saharan Africa

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The COVID-19 (C19) pandemic has swept across the globe at an unprecedented pace. The first C19 case arrived in Sub-Saharan Africa (SSA) on February 28, 2020, and there are over 600,000 cases spread across the continent [1]. The World Health Organization has predicted up to a quarter of a billion infections on the continent [2]. In preparation, SSA countries have sharply down-scaled non-C19 health services, including emergency and essential surgical healthcare (EESC). However, surgical conditions contribute up to a third of the global burden of disease [3]. Surgical healthcare services are therefore essential to address common conditions that affect mothers, children and adults throughout their lifespan; yet most people in the world (an estimated 5 billion) cannot access such essential care. Scaling down EESC in SSA is likely to have significant and enduring health consequences for the region. Surgery is a vital component of healthcare services needed to achieve the health priorities in SSA. Several of these priorities are articulated in the Sustainable Development Goals (SDGs) and regional intergovernmental entities [4], and include maternal and child health,

injuries and non-communicable diseases. With recent estimates suggesting that postoperative deaths are the third-highest cause of death, globally [5], quality is a significant consideration[6], in addition to expanding access in SSA. However, women are 50 times more likely to die from caesarian sections in SSA compared to their counterparts in high-income countries [7]. Expanding access, in addition to improving the quality of surgical care is, therefore, a requisite for SSA nations to attain health targets in maternal and child health, cancer, injuries and universal health coverage. Before C19, SSA nations were amongst the countries with the most limited access to surgical healthcare globally [3]; with hindsight, the current pandemic preparedness could very well be the “straw that broke the camel’s back”, requiring a much harder restart, more significant investment, time and commitment. Safe, timely, and affordable surgical healthcare is considered a core element of health service delivery, with significant benefits for broader economic growth and sustainable development in SSA [8]. In this paper, we discuss how health system changes due to C19, in particular the preparedness response, are increasing the barriers to EESC in SSA.

C19 preparedness is increasing the barriers to EESC

The C19 pandemic has disrupted surgical healthcare delivery in SSA by reducing surgical delivery, interrupting surgical training, and undermining the political and research priority of surgical healthcare amidst other global health challenges.

Access to EESC is a crucial component of universal health coverage (UHC). A recent modelling study concluded that 866, 449 procedures in SSA would be cancelled or postponed during the peak 12 weeks of disruption due to C19, including 737,967 benign, 82,037 cancer and 46,445 obstetric operations [9]. Heightened barriers will result in an increase in avoidable morbidity and mortality due to common EESC, including traumatic injuries, burns, advanced cancer, lower limb ischemia from poorly managed diabetes, and other consequences of untreated conditions in subsequent months.

The barriers to access EESC can be understood through the *Three Delays Framework*, which classifies barriers into seeking, reaching, and receiving care (**Figure 1**) [3]. The fear of contracting C19 from a health facility and the lack of public awareness of available non-C19 health services during lockdown could prevent persons from seeking surgical healthcare. Many have lost formal and

informal employment, and those with surgical health conditions may not have the financial resources to seek or receive care [10]. There are increased barriers to reaching surgical healthcare due to a lack of public transport services during lockdown periods. Patients depend on public transport to travel to hospitals since pre-hospital emergency medical services, including the availability of ambulances, are severely limited in SSA [11]. Barriers to receiving surgical healthcare (for instance, life-saving caesarian sections or cancer resections, limb-salvaging management of fractures, or neonates born with congenital anomalies) have increased due to health system changes in service delivery and the allocation of resources. To reduce hospital admissions, facilities have cancelled both outpatient consultations and elective operations. Operating theatres and inpatients wards—indispensable resources of the surgical ecosystem—have proven to be indispensable assets for C19 management, and have been consequently, repurposed [12].

Challenges to ensure access to EESC during C19 in Sub-Saharan Africa

Timelines to re-escalate surgical healthcare and address backlogs are unclear, as the C19 surge in SSA is behind that of Asia, North America, and Europe. The American College of Surgeons (ACS) outlined criteria for the re-escalation of surgical operations which include decreasing new C19 cases daily for two weeks, availability of pre- and postoperative testing, and procurement of a surplus of personal protection equipment (PPE) to prepare for a second C19 wave [13]. However, these guidelines may not be appropriate for surgical healthcare services in SSA. Early data from C19 infected surgical patients have demonstrated higher morbidity and mortality compared to non-C19 patients which makes resuming high-quality surgical healthcare challenging during the pandemic[14]. C19 testing in SSA remains limited and current capacity would not allow for responsive increases in preoperative and postoperative testing. Results for current C19 tests in some SSA countries take over a week making preoperative testing ineffective for assessing risk [15]. PPE is in meager supply and prioritised for health care workers treating C19 patients.

Surgeons, obstetricians, and anaesthesiologists (SOA) are scarce resources in SSA, and their training has been undermined. Due to the shortage of training programs in their home countries, many SSA physicians pursue surgical training in other African countries (South Africa, for instance, is a common training ground [16]), Europe, North America, or Australia. However, training has been

adversely affected in terms of operative exposure, teaching, research, examinations, and funding [17]—all of which are essential aspects to their specialisation and which will curtail the quality and duration of their training. With many SOAs redeployed to the frontline and make personal sacrifices, ensuring their safety and wellbeing is essential to their protection and continued enthusiasm to pursue their demanding surgical training programmes.

Recent political efforts in 16 southern African countries through the Southern African Development Community, an inter-governmental platform and regional economic zone of the African Union, have established the importance of EESC as regional health and economic priorities, and as significant components of attaining UHC and the Sustainable Development Goals (SDGs)[18]. The C19 pandemic threatens to disrupt their commitment due to changes in funding flows and government national health priorities.

Finally, research conducted in SSA is needed to inform and translate political support into evidenced-based surgical healthcare programs that will strengthen health systems based on local specificities. The C19 pandemic has halted surgical research, routine data collection, and quality assessment and improvement. Academic global surgery, a nascent field in global health, is a crucial component of strengthening surgical healthcare in SSA. Global surgery partnerships are a gateway to additional funding for academic and policy stakeholder meetings, and research to support national health ministries in their efforts to improve surgical delivery. Much of these collaborative efforts have been curtailed [19].

Mitigating the damage

The maintenance of surgical healthcare services for EESC during the C19 pandemic should be prioritised. First, we stand behind the call for economical and accurate rapid C19 tests for SSA in order to conduct pre- and postoperative patient and staff testing as needed. Second, we support strengthening and expansion of anaesthesia and critical care, crucial components of surgical health services, as part of comprehensive C19 emergency preparedness and response for the evolving C19 surge in SSA. This expanded capacity can be used post-pandemic to improve the quality of surgical healthcare as a component of UHC and to SDG attainment. Third, we call upon the professional associations, together with academic heads of surgical departments to rapidly develop, implement and

scale-up measures that both protect surgical trainees and create an enabling environment for their continued learning and retention within the public sector training programs. Finally, we encourage global surgery academic collaborative partnerships to continue through online platforms to share challenges and solutions throughout SSA on how to deliver surgical healthcare for emergency and essential surgical conditions during the C19 pandemic.

CONCLUSION

Despite a huge and evolving unmet surgical need in SSA—and the indispensable role of surgery to attain SSA health targets—surgical healthcare services in SSA are amongst the most inadequate globally in terms of both access and quality. The collateral damage of the C19 pandemic preparedness on surgical healthcare in SSA will compound an already dire state and are likely to produce enduring consequences for population health, the economy and broader sustainable development; these consequences will be difficult to reverse. The additional barriers to access to care for EESC could result in a tsunami of operative needs in the coming months and increases in avoidable morbidity and mortality. Efforts to increase the surgical workforce have been diminished through limitations in training. Funded research through international collaborative networks to strengthen fragile surgical healthcare systems and political prioritisation have also been interrupted. We must continue to advocate for equitable access to surgical healthcare during this unprecedented time, or an excess of lives will be lost.

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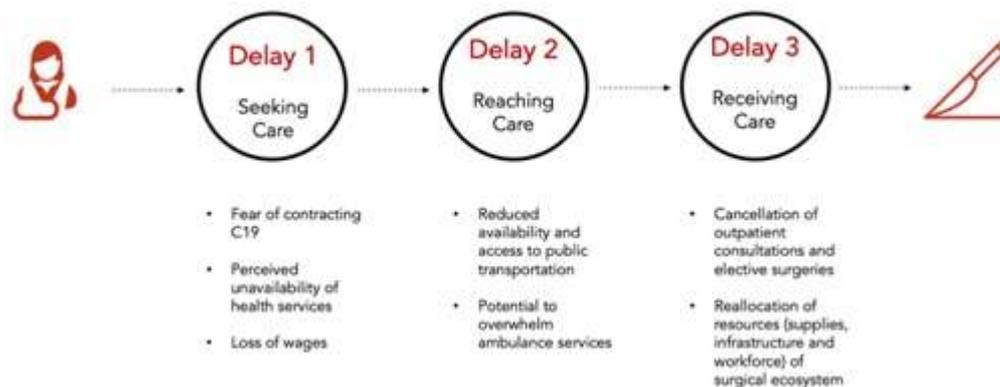
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Figure 1. Potential delays in accessing to surgical care in Sub-Saharan Africa due to COVID-19.



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