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"A Matter of Urgency! Reboot SOA Care System to Achieve Universal Health Coverage" – A Mixed Methods Assessment of Surgical Care Capacity in Zimbabwe

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Abstract

Surgical, Obstetric and Anesthesia (SOA) care services are recognized as a fundamental component of Universal Health Care (UHC). Following the adoption of the World Health Assembly (WHA) Resolution WHA68.15 "Strengthening emergency and essential surgical care and anesthesia as a component of universal health coverage" to improve surgical care worldwide in 2015, the Zimbabwe Ministry of Health and Child Care (MoHCC) developed a SOA plan as part of the key steps towards strengthening surgical systems and improving surgical care. This study sought to characterize the availability of essential SOA care in the public health sector in Zimbabwe. A mixed methods study was carried out of a purposive sample of 29 public hospitals across all provinces of Zimbabwe. Data were collected using two tools – the Adapted WHO Program PGSSC Surgical Assessment Tool and a semi-structured key informant interview tool to assess infrastructure, service delivery, workforce, information management, and financing of surgical care. Quantitative data were analyzed using descriptive statistics. Thematic analysis was used to document the qualitative findings using basic excel sheet. Overall, in all the hospitals, SOA care was deficient with five of the six building blocks underperforming. Only 55% of the facilities were able to perform caesarean sections with a consistent available supply of general anesthesia. The median Caesarean Section Rate was 14%. Other surgeries were provided at a minimal rate with laparotomies having on average been offered to less than two individuals per 10,000. Majority of theatres were ill equipped, had limited access to anesthesia machines and blood banks. None of the facilities had uninterrupted supply to electricity (76%), oxygen (55%), running water (72%) and other basic supplies. All facilities used a poorly maintained combination of electronic and paper-based system for record keeping. There is an urgent need to reboot the SOA Care system to achieve universal health coverage.

Keywords: Surgical; Obstetrics and Anesthesia Care; Universal Health Coverage; Zimbabwe NSOAP; Surgical Care Capacity

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Introduction and Background

The World Health Organization (WHO) recognizes emergency and essential Surgical, Obstetric and Anesthesia (SOA) care as fundamental components of Universal Health Coverage (UHC). In 2015, the Lancet Commission on Global Surgery Report revealed that significant gaps exist in provision and availability of SOA care particularly in Low- and Middle-Income Countries (LMICs), where billions of people cannot access safe, timely and affordable surgical and anesthesia care [1]. The Lancet Commission further laid a framework for LMICs to consider in addressing the gaps in providing safe affordable and quality surgical care.

Universal Health Coverage (UHC) is defined as all people and communities having access to the promotive, preventive, curative, rehabilitative and palliative health services they need, of sufficient quality to be effective, while also ensuring that the user of these services is not exposed to financial

hardship [2]. UHC is key priority in the Sustainable Development Goals (SDGs) and the target is to reach 80% UHC coverage by 2030 [1]. Following the adoption of the World Health Assembly (WHA) Resolution WHA68.15 "Strengthening emergency and essential surgical care and anesthesia as a component of universal health coverage" to improve surgical care worldwide in 2015, Zimbabwe has developed National Surgical, Obstetric, and Anesthesia Plan (NSOAP) as part of the key steps towards strengthening surgical systems and improving surgical care at all levels of the health systems. Zimbabwe is among first LMIC in Southern Africa to formally commit to improving surgical and anesthesia care by making it a national priority. As of 2019, Zimbabwe is facing a double burden of both communicable and Non-Communicable Diseases (NCDs) with NCDs being fifth of the top 10 leading causes of death in the country [3]. Several of these have surgery as a component of their care, such as road injuries and diabetes mellitus. The Zimbabwe health system structure in 2020 is shown in Figure 1. Provision of SOA services is delivered through the six-tiered health care system starting with basic surgical services at the primary health facilities (clinics).

Patients navigate the health system from the lower level (clinics) to the secondary level (district hospitals), tertiary level (provincial hospitals) and quaternary level (central hospitals). The quinary level the health system is for super specialist health services. However, consistent with other health systems in LMICs, an MoHCC SOA service assessment conducted in 2019 reported that access to SOA services in lower levels of care was limited with an estimated 10% of district hospitals performing "bellwether" procedures including laparotomy, caesarean section, and stabilization of an open fracture. According to the MoHCC report, there were apparent deficiencies in SOA Infrastructure, equipment and supply of medicines and sundries, as well as low SOA care provider density estimated at 10/100000. SOA services also suffered inadequate funding and lack of well-organized leadership and governance structures and an unavailability of a defined monitoring and evaluation of system for SOA services [4]. Zimbabwe national operative volumes remained below the WHO recommended target of 5,000 procedures per 100,000 population by 2030. Further, the measurement of quality of care was limited by the unavailability of consolidated data to assess perioperative mortality as there was no national system for the collection of surgical outcomes. It was also noted that many patients in Zimbabwe forego surgical care and when they eventually seek such care disease would have advanced and they experience catastrophic expenditure for surgical care [5].

The aim of this study was to assess the essential surgical, obstetrics and anesthesia care capacity in Zimbabwe to inform the development of the national SOA plan as part of health systems strengthening post COVID-19 towards achievement of UHC.

Methods

Study design

We carried out a mixed methods study combining qualitative semi-structured interviews and a quantitative "walkthrough" survey assessing supply side factors associated with SOA care in 29 hospitals across 10 provinces in Zimbabwe.

Study context

In 2015, Zimbabwe moved a motion to prioritize safe surgical, obstetric, and anesthesia care at the 68th World Health Assembly where the WHO passed the resolution 68.15. Following adoption of this resolution, Zimbabwe began the process of developing its first ever NSOAP in line with the Lancet Commission recommendations for strategic health planning. In August 2018, the MoHCC held an inaugural partnership and planning meeting bringing together a multi-sectoral and multi- disciplinary team of experts which sought to provide guidance to the process in developing the NSOAP. In 2019 a Rapid Assessment for SOA services using a WHO facility assessment tool was conducted and it allowed for comprehensive analysis of the availability and quality of critical components of safe SOA care using the WHO six building blocks (Health Service delivery, Infrastructure, Products and Technologies Health Workforce, Healthcare Financing, Health Information/System Data, and Leadership and Governance. Due to the outbreak of the COVID-19 pandemic progress towards the development of the NSAOP stalled and picked up the pace at the beginning of 2022 when the current assessment was undertaken. All health facilities were heavily affected by the COVID-19 pandemics leading to partial or closure of some clinics with some hospitals only attending to emergency cases as a way of managing the spread of disease. Considering investments made to the health sector during the COVID-19 response and the rapid dynamic context of COVID-19, this assessment was considered essential in informing the development of the NSOAP.

Study sample

Twenty-nine (29) public and mission hospitals were purposively sampled across all the 10 Provinces in the country. The criteria used to select the facilities was based on the health system tier level of surgical volumes, burden of disease relative to geo-location, availability of data, as well as facility participation status in the 2019 assessment. Health facilities which did not participate in 2019 Assessment were most preferred as they had failed to provide data in 2019. In each hospital, surgical teams comprising of surgical, obstetrics, anesthesia and nursing staff, and hospital leadership teams from administration including the medical officers, human resources managers, and lab technicians were invited to participate in the qualitative key informant interviews. The WHO PGSSC SAT was complemented with a semi-structured interview tool which was administered to non-specialists and members of the hospital administration.

Study tool description

Data were collected in 2022 through a hospital walkthrough based on the Adapted WHO PGSSC Surgical Assessment Tool (SAT) for Situational Analysis to assess emergency and essential surgical care. The SAT is designed to assess the health facility infrastructure, service delivery, workforce, information management, and financing for types of surgical care in each health facility. The semi structured interview tool comprised and asked questions relevant to the six pillars of the health system.

Data collection

Data collection was undertaken over a period of five working days in June 2022. A team comprising trained and qualified obstetricians, surgeons, specialist anesthetists, monitoring and evaluation officers visited the selected health facilities and undertook walkthrough interviews with health care providers, hospital leadership and unit heads of the five building blocks in each hospital. Participants were interviewed from their workstations and their responses were entered into an open-source online platform Open Data Kit (ODK) based on forms specifically designed for this assessment. After the interviews, the research team undertook a hospital walkthrough with the respondents conducting a direct inspection to ascertain the accuracy of the responses provided. Qualitative interviews were conducted

Table 1: Breakdown of key informants by type of cadre.

Respondents	Number
Provincial Medical Directors	10
Nurse Anesthetist	3
Human Resources Manager	1
Sister In Charge	1
Specialist Anesthetist	2
District Medical Officers	3
Lab Technician	3
Theatre Nurse	3
Hospital Equipment	1
Specialist Obstetrician and Gynecologist	2
Total	**29**

with available and willing hospital surgical and administrative staff. All participants who were available at the time of the interviews agreed to respond to the qualitative interviews. Verbal informed consent was obtained from respondents before the interviews were conducted. The interviews were conducted in English and local languages (Shona and Ndebele) depending on the respondents' choice in response. It was common to find respondents preferring to respond in English and only use the local language (Shona or Ndebele) when giving and in-depth description which they felt would not be adequately expressed in English due to limited vocabulary. Questions were organized around the five pillars of the health system. Each interview lasted between 20 min to 25 min. Interviewers recorded participants responses into the excel sheet templates specifically designed and formatted for this purpose. A total of 29 KII interviews were conducted.

Data analysis

Key informant data were analyzed using thematic approaches to generate recurrent themes using Ms. Excel. Interview transcripts were stored in excel notes in corresponding themes that were pre-determined in line with the WHO PGSSC SAT Tool. Quantitative facility data were analyzed using R statistical computing software and included basic descriptive analysis and data visualization of frequencies. A scoring system was used to compute the availability of surgical equipment, pharmaceuticals, supplies and surgical procedures. In this study the assessment of capacity for performing basic surgery, three procedures namely laparotomy, caesarean section and stabilization of an open fracture were chosen as "Bellwether" procedures in line with international standards to act as a proxy measure for the ability of a hospital to carry out basic surgery, anesthesia and obstetric care.

Results

Qualitative data

A total of 29 Key Informant were interviewed. Table 1 shows the breakdown of respondents by type of cadre. Facility characteristics are displayed in Table 2.

Nearly all the key informants reported generalized deficiencies across all the building blocks of the health system. They also acknowledged the available resources which have contributed to current service delivery, while also indicating that there are opportunities to re-vitalize the SOA care system. Below are some quotes from the qualitative interviews (Interviews 1-5).

Facility level data

The characteristics of the 29 facilities are shown in Table 2. The majority of hospitals were (23/29) public government owned and belonged to the secondary levels of care. In general, the hospitals served population raging between 34,000–86,000 with an annual admission of 2090–3480. Most of these facilities had surgical beds ranging from 5 to 24 and had least two operating rooms.

Service delivery

- Access to timely essential surgery

Generally, there was limited access to surgical, obstetric and anesthesia services in in the assessed facilities with an estimated 10% of district hospitals performing "Bellwether" procedures. In this study the assessment of capacity for performing basic surgery, three procedures namely laparotomy, caesarean section and stabilization of an open fracture were chosen as "Bellwether" procedures to act as a proxy measure for the ability of a hospital to carry out basic surgery, anesthesia and obstetric care.

- Surgical Volumes

Surgical volumes were low with the most common major surgical procedures being caesarean section (C-section) and laparotomy. Nearly all the facilities offered C-section consistently with surveyed facilities reporting a median surgical volume of 442 procedures per year. Most of the facilities did not have post-surgery recovery rooms and some key informants reported that due to lack of recovery rooms patients are moved to the wards where they receive post- anesthesia care.

- Quality of Care and Patient Safety

There was limited data to assess perioperative mortality across all the assessed facilities. A few facilities had well maintained institutional patient records and theatre registers, however in general the majority of facilities were not utilizing the surgical checklist.

Infrastructure

Overall, SOA services in Zimbabwe were affected by inadequate infrastructure, equipment and erratic supply of medicines and sundries for SOA related services. Figure 2 shows gaps in essential SOA infrastructure elements. All hospitals reported protracted episodes of interrupted supply of essential SOA infrastructure including running water, blood, anesthesia machine, electricity X-ray and oxygen. Only 24% had consistent blood bank supplies whilst only 45% facilities had access to oxygen supplies all the time. None of the facilities had an MRI Scanner and majority also did not have CT Scanners.

Most of the district hospitals had extreme deficiencies in infrastructure. The hospitals had obsolete anesthesia equipment, a greater number of which are no longer serviceable. Some theatres at district hospital level were not fit for purpose as they do not have recovery rooms. Internet connectivity was very limited with majority of facilities reporting certain sections of the facilities having more stable connectivity but not the theatres and laboratories. Mission hospitals performed better in terms of infrastructure compared to government public hospitals. These had somewhat better functioning anesthetic machines, blood bank, X-ray machines, internet, running water and electricity. They also performed a higher number of surgical procedures per year.

The facilities reported erratic provision of surgical and other support services equipment. As shown in Figure 3, whilst some

Table 2: Health facility characteristics.

	Mission (N=6)	Public (N=23)	Total (N=29)
Provinces			
Harare	0 (0%)	2 (8.7%)	2 (6.9%)
Manicaland	0 (0%)	3 (13.0%)	3 (10.3%)
Mashonaland_Central	0 (0%)	2 (8.7%)	2 (6.9%)
Mashonaland_East	1 (16.7%)	3 (13.0%)	4 (13.8%)
Mashonaland_West	2 (33.3%)	2 (8.7%)	4 (13.8%)
Masvingo	2 (33.3%)	3 (13.0%)	5 (17.2%)
Matabeleland_North	1 (16.7%)	1 (4.3%)	2 (6.9%)
Matabeleland_South	0 (0%)	3 (13.0%)	3 (10.3%)
Midlands	0 (0%)	4 (17.4%)	4 (13.8%)
Catchment_Population			
Mean (SD)	46300 (38200)	324000 (586000)	266000 (532000)
Median [Min, Max)	34200 (13200, 103000)	86400 (0, 2100000)	80000 (0, 2100000)
Admissions			
Mean (SD)	1840 (1020)	9380 (20000)	7820 (18000)
Median [Min, Max)	2090 (0, 2910)	3840 (0, 97000)	3160 (0, 97000)
Outpatients			
Mean (SD)	10500 (7620)	23500 (18200)	20800 (17300)
Median [Min, Max)	8530 (0, 22800)	20200 (0, 71200)	19700 (0, 71200)
Inpatients			
Mean (SD)	173 (52.0)	210 (241)	202 (215)
Median [Min. Max)	175 (120, 250)	140 (50.0, 1200)	140 (50.0, 1200)
Surgical_Beds			
Mean (SD)	6.67 (6.86)	46.1 (65.0)	38.0 (59.9)
Median [Min, Max)	5.00 (0, 15.0)	24.0 (0, 270)	16.0 (0, 270)
Operating_Rooms			
Mean (SD)	1.67 (0.516)	2.57 (2.21)	2.38 (2.01)
Median [Min, Max)	2.00 (1.00, 2.00)	2.00 (1.00, 12.0)	2.00 (1.00, 12.0)
Surgeries_Performed			
Mean (SD)	255 (212)	1070 (1670)	898 (1520)
Median (Min, Max)	265 (0, 486)	456 (0, 7320)	441 (0, 7320)
Annual_Budget			
Mean (SD)	169000 (191000)	2180000 (6970000)	1760000 (6230000)
Median [Min. Max)	164000 (0, 522000)	300000 (0, 33300000)	203000 (0, 33300000)

The reference period for OP, IP, and annual budget was past 12 months (TBV)

facilities mentioned 100% availability of certain equipment, some institutions did not have the relevant equipment for SOA services. Items such as the Oral Airways, Laryngeal Mask Airways (LMA's), breathing circuits which were reported as 100% available were recycled disposable equipment. In qualitative interviews some key informants reported that technicians lack training on reparation and installation of machines, and in some circumstances, there is only one technician available to cover the whole province but due to lack of transport and service kits some maintenance is handled by untrained staff or never done. Key informants also added that new, modern and user-friendly equipment especially anesthetic machines and proper facilities for piped oxygen and operating beds and tables are required. Table 3 shows the availability of SOA Equipment.

Nearly 50% of the hospitals could not run a full chemistry panel and coagulation studies. There was erratic provision of adequate surgical commodities like anesthetic drugs, sedatives and other relevant medicines. (Figure 3).

Workforce

About 72% of surveyed facilities reported having a Surgical Provider and Obstetrics and Gynecology Provider available 24 h a day; and 79% indicated an Anesthesia Provider being always available. Of the SOA specialists, the anesthesia workforce was the most deficient. The Physician Anesthetist Density was estimated at 0.56/100,000 population. At both district and provincial hospital levels most anesthesia services were being provided by Nurse Anesthetists. Participants commonly identified shortage of human resources as a key barrier to provision of SOA services at all the hospitals highlighting that the few who are available are suffering

Table 3: Availability of surgical operating equipment (Percentage of Surveyed Facilities).

Item	0: Never Available	1: Sometimes, 1-25% of Time	2: Sometimes, 26-50% of Time	3: Sometimes, 51-75% of Time	4: Mostly, 76-99% of Time	5: Always, 100%
Electrocautery	24.1	13.8	10.3	3.4	10.3	37.9
Laryngeal Mask Airway	34.5	13.8	0.0	6.9	6.9	37.9
Light Source	6.9	0.0	10.3	13.8	13.8	55.2
Pulse Oximetry	0.0	0.0	0.0	3.4	6.9	89.7
Sterilizer	3.4	0.0	13.8	24.1	6.9	51.7
Suction	0	6.9	10.3	3.4	3.4	75.9

Interview 1: Service Delivery.

"…We have limited capacity to perform all surgical procedures expected to be provided at the district hospital because there aren't enough resources to do so. Be it human resources, blood, anesthetic machines, equipment… we are operating at a very limited level because of the deficiencies…"
"…Our SOA service delivery system is almost reaching a state of emergency. Its requiring immediate intervention. If nothing is done sooner, we will experience a catastrophic emergency state…"
"…Everything SOA related in this hospital can be simply described as a state of emergency. There is need to undertake a re-boot of the system because nothing is functional…"

Interview 2: Infrastructure.

"…The hospital has 4 theatres but only one is in use, the rest are closed because the equipment is obsolete. The one in use also lacks adequate equipment and frequently suffers erratic supply of medicines..."
"…The hospital experiences protracted episodes of interrupted supply of essential infrastructure for SOA service delivery. Running water is not always available, so is blood, medical oxygen, and electricity…"
"…we are facing electricity shortages in general, however we do have solar system installed but it does not cover the whole hospital and when it gets depleted all SOA care services suffer.
"…As it is now, there is no functional x-ray machine, anesthetic machine is broken down needs service, no MRI Scan and no CT scan in this facility. The ambulance is often down too…"
"…The infrastructure is so deteriorated. It was built during the pre-colonial era and is failing to cope with the dynamic demands, broken down infrastructure cannot be repaired, some machines are phased out and no one has the capacity to repair them, some is incompatible, there is just a mismatch of everything..."

Interview 3: Workforce.

"…There is an acute shortage of SOA human resources all over the country and our hospital is not spared. We have just one nurse anesthetist and when they take some time off there is no one to assist patients and the waiting list just grows longer and longer…"
"…There is only one specialist Obstetrician and gynecologist and he is generally overwhelmed because aside from doing the surgeries, he also has to manage the hospital. There has been no filling of posts for despite the availability. Most qualified personnel are migrating to other countries…"

Interview 4: Information Management.

"…The hospital predominantly uses a paper- based system for information management…"
"…There is no research being conducted at the moment in this hospital. I think it's hard for anyone to do that right now because people are focused on sorting their papers in preparation for migration…"
"…Available resources including time are too limited to have research done. The few personnel available are overwhelmed with responsibility to offer the services even with the context of resource constraints…"

Interview 5: Financing.

"…The whole hospital is affected by lack of funding and surgical services completely underfunded to the extent that patients pay huge amounts for everything…"
"…Patients have to pay for blood and blood tests from private labs because these are not done in the hospital as machines are down and this has been happening for a long time…"

burnout and more and more health workers were leaving the country. Five of the respondents remarked that they were in the process of facilitating their migration and they were at advanced stages such that they would have left the country within the next two to eight weeks. Some participants also indicated that hospitals located in the rural areas or further from the major towns lose qualified personnel to urban areas and due to lack of satisfactory incentives most are always on the move, and it remains a challenge to find staff to fill the posts in remote areas.

Information management

Overall, there was no defined M&E system for SOA services in all the facilities. Majority of hospitals reported heavily relying on a paper-based system. None of the hospitals were able to immediately provide reported surgical volume data during the assessment, but instead required lead time to put it together. Interviews with key informants revealed inconsistencies regarding regular tracking of patient data. They also highlighted challenges with training of staff on health information systems. Regarding research agenda, none of the facilities were undertaking any notable research and participants did not perceive any support being available to support research.

Financing

All the facilities reported experiences of inadequate funding for SOA services. Patients often paid catastrophic out of Pocket Expenditures (OOPE) for SOA care with patients paying up-to US$600.00 for laparotomy and open fracture repairs, $25.00 for X-rays and FBC, and $400 for C-sections. There is no government health insurance in Zimbabwe. According to qualitative interviews, patients pay for everything including medicines and the costs are very high such that some patients end up presenting to hospitals with advanced disease when care required is even more expensive. Due to shortage of infrastructure, personnel and medicines patients are also referred to higher levels of care and face challenges with transport costs which further increases expenses to the patients.

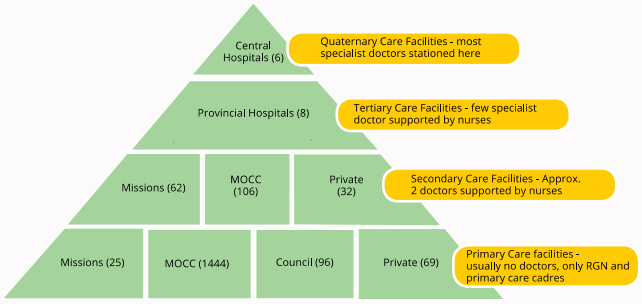

Figure 1: Zimbabwe health system structure.

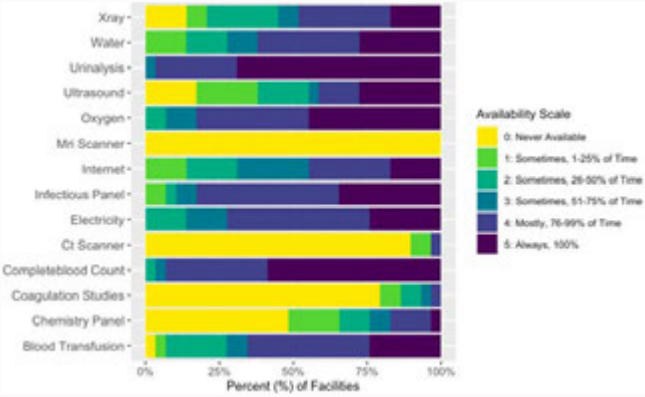

Figure 2: Infrastructure availability for SOA services.

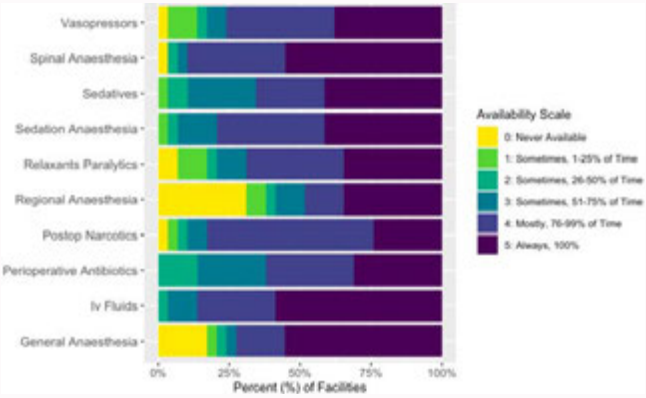

Figure 3: Availability of tracer medicines for SOA.

Discussion

One key informant described the SOA service delivery system in Zimbabwe as a state of emergency requiring immediate intervention. The findings of this study confirm this assertion. In Zimbabwe in all the hospitals, SOA service delivery was deficient with five of the six building blocks underperforming. Only 55% of the facilities were able to perform caesarean sections with a consistent available supply of general anesthesia, with other major surgeries referred to higher level facilities. The median Caesarean Section Rate was noted to be 14%, which is within the WHO recommended threshold of 10% to 15% in line with the observation that for the district hospitals offering SOA services, this was mainly caesarian sections. Other surgeries were provided at a minimal rate with laparotomies having on average been offered to less than two individuals per 10,000 population (Max, 20) whilst general surgeries were provided to 28 (median) individuals per 100,000 population. Majority of theatres were ill equipped and had limited access to anesthesia machines, pulse oximeter and blood banks. Further, none of the facilities had uninterrupted supply to electricity (76%), oxygen (55%), running water (72%) and other basic supplies for resuscitation, airway management and obstetric services. All 29 facilities used a poorly maintained combination of electronic and paper-based system for record keeping.

These findings point to the need for Zimbabwe to initiate significant investments towards strengthening emergency and essential surgical care and anesthesia capacity. There is need to undertake targeted interventions to improve the infrastructure, workforce, SOA information management, and improvements in financial risk protection for patients through provision of adequate financing for SOA care in line with the recommendations of the Lancet Commission on Global Surgery (LCoGS) on the targets to achieve universal health coverage.

Unavailability of adequate SOA personnel at the hospitals was common across the country. This presents fertile opportunities for the third delay in accessing where patients may reach the hospital but fail to receive health services on time [6]. This situation is highly likely in all the hospitals and further influenced by scenarios where one of the key providers is present but another unavailable such as where a surgeon is present, but the nurse anesthetist is not there. Ultimately such circumstances limit access to SOA care and increase treatment costs for the patients who may be referred to higher levels of care or delay treatment while disease advances. Zimbabwe suffers the plight of shortage of qualified SOA care providers especially in the rural areas and has experienced a huge exodus of trained health personnel who have left the system to the developed countries [7]. Of particular note is the marked increase noted post-COVID-19 period where the specialists and RGNs have left the country [8]. Zimbabwe is faced with the challenge of retention of trained health personnel and is also not producing enough to keep the numerical adequacy stable.

Several studies that have been conducted to provided evidence on SOA services in developing countries using the WHO PGSSC (SAT) Tool reported similar findings as the current study. For example, unavailability of diagnostic equipment in this study was striking and similar to that reported previously from other LMIC [9]. Similarly, challenges with maintenance of equipment and infrastructure were also similar to those in other developing countries, where surveyed equipment was generally found to be out of service at any given time and would remain so for protracted periods of time [10]. The lack of equipment and essential supplies remain a limiting factor in providing adequate surgical care.

Similar to previous reports in LMIC, most hospitals reported regular data collection predominantly using both paper-based systems, and with some electronic systems while also acknowledging the limited capacity for collection and reporting activities [11]. This suggests the need for Zimbabwe to initiate targeted interventions to improve the quality of surgical data collection in all hospitals. Key surgical indicators, such as surgical volume and perioperative mortality rate, can be incorporated into the National Health Information System (DHIS2). Staff responsible for data collection can be exposed to on-site training on how to correctly collect the data on the indicators.

Catastrophic Out of Pocket expenditure for surgical care is

common in Zimbabwe as is in many countries in the developing world. According to recent literature, in Ethiopia, nearly one-third of total health expenditure comes from out-of-pocket payments compared with 18.1 percent worldwide [12]. Although the current study was not able ascertain exact patient costs associated with surgery in the surveyed hospitals, few indications from the key informants pointed to high costs paid by patients. This study recommends that surveys be conducted in Zimbabwe to obtain measures of catastrophic and impoverishing expenditure and inform policy in addressing the challenges. The government of Zimbabwe is currently undertaking exercises to develop an essential health benefit package and a roadmap has been developed towards a national health insurance. This must be expedited to ensure financial risk protection for its citizens. Zimbabwe has recently launched its first NSOAS (2022–2025) and at present a costed implementation plan of this strategy is underway. Implementation of this strategy will make significant contributions towards strengthening the health system for SOA service provision towards UHC.

This is the first study reporting a standalone assessment of surgical capacity in Zimbabwe. It is also the first and significant study undertaken to inform the development of Zimbabwe's first National Surgical, Obstetric and Anesthesia Strategy (NSOAS). Its strength lies in the mixed methods design that was used. However, some limitations are acknowledged. The use of the WHO PGSSC (SAT) Tool has inherent limitations associated with using a standardized survey tool where some questions are not relevant to the context. To address this, the current study adapted the tool and excluded the questions that were considered irrelevant. Another limitation is that this study was restricted to supply side and did not obtain the demand side perspectives. This is a missed opportunity as patient perspectives could have provided insight into the quality of care and information on the affordability of SOA services.

Conclusion

In conclusion, the purpose of this study was to assess the essential surgical, obstetrics and anesthesia care capacity in Zimbabwe to inform the development of the national SOA strategy as part of health systems strengthening post COVID-19 towards achievement of UHC. The deficiencies in all the surveyed health system blocks were almost universal across all the facilities. All these combined, form the greatest barrier to surgical care delivery of emergency and essential surgical and obstetric procedures. Our study shows that the status of SOA presents an urgent need for a reboot of the system. There is need for significant investments improvement in Zimbabwe's emergency and surgical care program in the post COVID-19 context.

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