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Surgical task-sharing in Sierra Leone: barriers and enablers from provider and facilitator perspectives

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ABSTRACT

Background To mitigate the critical surgeon shortage in Sierra Leone, a surgical training programme was launched in 2011, training associate alinicians in surgery and obstetrics through task-sharing. While graduates of this programme now perform most surgeries outside the capital, they continue to face significant barriers to integration within the national health system.

Methods We conducted 22 semi-structured interviews with surgical providers (n=12) and facilitators (n=10) to identify barriers and enablers of surgical task-sharing in Sierra Leone's health system. Providers and facilitators were selected from three geographically diverse hospitals with varying healthcare worker densities and also included district medical officers and representatives from the Ministry of Health and United Nations Population Fund. Data were analysed using descriptive qualitative content analysis, categorising themes into institutional, interpersonal, resource-related and sociocultural factors.

Results In total, 18 barriers and 21 enablers to surgical task-sharing were identified. Associate clinicians play a critical role in surgical care in underserved regions, help alleviate physician burnout and foster teamwork. Increasing support from younger doctors and hospital administrators signals growing acceptance. Yet, challenges such as exclusion from the healthcare service scheme, inadequate compensation, lack of training accreditation, reliance on external funding, limited national engagement and medical protectionism contribute to demotivation and attrition. These findings highlight the indispensable role of associate clinicians while emphasising the need for systemic reforms to maximise the impact of task-sharing.

Conclusions Enhancing institutional support, implementing rigorous regulatory frameworks and expanding training opportunities for physicians within the surgical training programme are essential measures to optimise the benefits of task-sharing, sustain the provision of high-quality care and improve surgical outcomes.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Sub-Saharan Africa faces a high surgical burden with the lowest surgeon-to-population ratio globally. Many countries on the continent use task-sharing to associate clinicians, but barriers like unclear policies, inadequate training, lack of standardised certification and poor recognition of associate clinicians may hinder its success.

WHAT THIS STUDY ADDS

⇒ A decade after the launch of Sierra Leone's task-sharing surgical training programme, this study is the first to evaluate its integration into the national health system. While systemic reforms are urgently needed to overcome the found systemic barriers, this study also identifies factors once seen as barriers, such as the quality of surgeries by associate clinicians and supervision, as enablers. Associate clinicians enhance surgical care in underserved areas, reduce physician burnout and foster teamwork. Growing support from younger doctors reflects a positive shift toward task-sharing.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ To maximize the benefits of task-sharing, sustain high-quality surgical care and improve surgical outcomes, strengthening institutional support, developing robust regulatory frameworks and expanding training opportunities for physicians within the current surgical training programme are needed.

INTRODUCTION

Sierra Leone faces substantial challenges in providing accessible surgical care to its rural population, exacerbated by past civil unrest (1991–2002) and recent health crises like Ebola (2014–2016) and COVID-19 (2020–2023), which have further weakened its fragile healthcare system.[1–3] As a result, 1 in 15 people in Sierra Leone have a physical condition requiring surgical consultation, with one in five of these conditions leading to unemployment, disability or stigma.[4] However, in 2023, just over 500 surgeries per 100 000 people were performed, leaving 89.9% of the surgical need unmet.[5] While financial barriers may deter people from seeking care, a major obstacle to expanding surgical services in low-income countries is the severe shortage of human resources.[4 6 7]

In 2011, Sierra Leone's Ministry of Health (MoH), in partnership with the Norwegian non-governmental organisation CapaCare, launched the surgical training programme (STP) to improve access to surgical care, particularly for rural populations.[7] Associate clinicians (ACs) are trained for 3 years to manage common surgical and obstetrical emergencies in district hospitals, following a task-sharing model endorsed by the WHO.[7–9] This approach, which redistributes tasks to less specialised healthcare workers, is considered safe, cost-effective and timely.[7 10 11] Since the inception of the STP, 96 ACs are trained and 75 are now working as surgical providers across Sierra Leone. The trainees and graduates have collectively performed over 76 000 surgeries, and this cadre of surgical providers is performing most surgeries outside the Freetown peninsula.[5] However, the experiences of surgical providers and facilitators in integrating surgical task-sharing into Sierra Leone's health system, including identifying key barriers and enablers, have yet to be explored.

This qualitative study is the first to comprehensively assess the implementation of surgical task-sharing in Sierra Leone from the perspective of providers and facilitators. The objectives of this study are to identify the main barriers to integration and enablers that support the effective implementation of task sharing surgical care within Sierra Leone's national health system. Aiming not only to close the surgical gap but also to offer insights for other countries yet to adopt this approach.

MATERIALS AND METHODS

In December 2022, semi-structured interviews with surgical facilitators and providers were conducted across Sierra Leone. Interviews were conducted with representatives from disciplines of surgical providers and facilitators. The term surgical provider was specified based on the Lancet Commission on Global Surgery's definition, encompassing any healthcare practitioner, irrespective of their professional credentials, involved in delivering surgical and/or obstetrical care.[10] Surgical facilitators were identified as individuals, irrespective of their professional credentials, who contribute to the support and facilitation of surgical procedures by undertaking logistical, administrative, or ancillary duties within surgical environments.

The STP curriculum prepares ACs—in Sierra Leone known as community health officers (CHOs) and physician assistants (PAs)—to handle surgical and obstetrical emergencies in first-level hospitals.[7 12] CHOs have completed a 3-year basic community health diploma training, while PAs hold an advanced diploma in clinical medicine, recognised as a Bachelor of Science degree through the University of Sierra Leone.[12] Postgraduate practice is preferred but not required for STP applicants. Although technically incorrect, STP-trained ACs are often referred to by the public as 'SACHO', meaning Surgical Assistant Community Health Officer. To align with interviewee quotes, the term SACHO, which includes both CHOs and PAs, is used interchangeably with ACs throughout this publication. However, where possible, we refer to ACs to maintain consistency with international nomenclature.

The pathway to becoming a surgically trained AC, the supporting governance structure and the study participants' roles within Sierra Leone's healthcare system are detailed in figure 1. To sustain the STP, partnerships were established with key stakeholders, including the Sierra Leone government, United Nations Population Fund, Makeni School of Clinical Sciences and both first level and regional referral hospitals. Sierra Leone's health system is structured hierarchically from the national government to first-level hospitals, with oversight by MoH representatives, employees at the Directorate of Human Resources Management (DHRM), and district medical officers (DMOs). Key hospital roles include medical superintendents, surgeons, hospital administrators, ACs, STP trainees and human resource officers. Purposive sampling and snowball sampling were used to include a diverse sample across surgical and facilitator disciplines and levels of seniority. We aimed for 20–25 interviews, aligning with qualitative research norms for achieving data saturation. All 22 participants contacted by email or text message consented to participate in the study.

Setting

Three hospitals in Sierra Leone, where ACs perform surgery, were selected to reflect referral level, geography and healthcare worker density. These included a tertiary referral hospital, a regional referral hospital and a first-level hospital, the latter with basic surgical capacity.[13] This selection captures variations in surgical capacity and access, ensuring broader applicability. National stakeholders guided site selection, aligning with the referral hierarchy and care complexity of Sierra Leone's surgical system.[14] Locations remain undisclosed.

Semi-structured interviews

Semi-structured interviews were chosen for their balance of structure and flexibility, allowing in-depth exploration of participants' experiences while ensuring consistency. The interviews explored the perception of surgical task-sharing, views on the quality and safety of provided surgical care, acceptance of and attitude towards task-sharing, views on the STP, and regulatory and financial context of surgical task-sharing (online supplemental appendix A). A pilot interview was conducted with a Sierra Leonean surgical provider to evaluate comprehensibility and cultural appropriateness. Interviews were conducted in English by a single researcher (ML), who is a Dutch female and Medical Doctor and master's student in Public Health. No relationship was established with participants prior to the study; each interview began with a brief statement on the study's goals and research team background. All interviews were

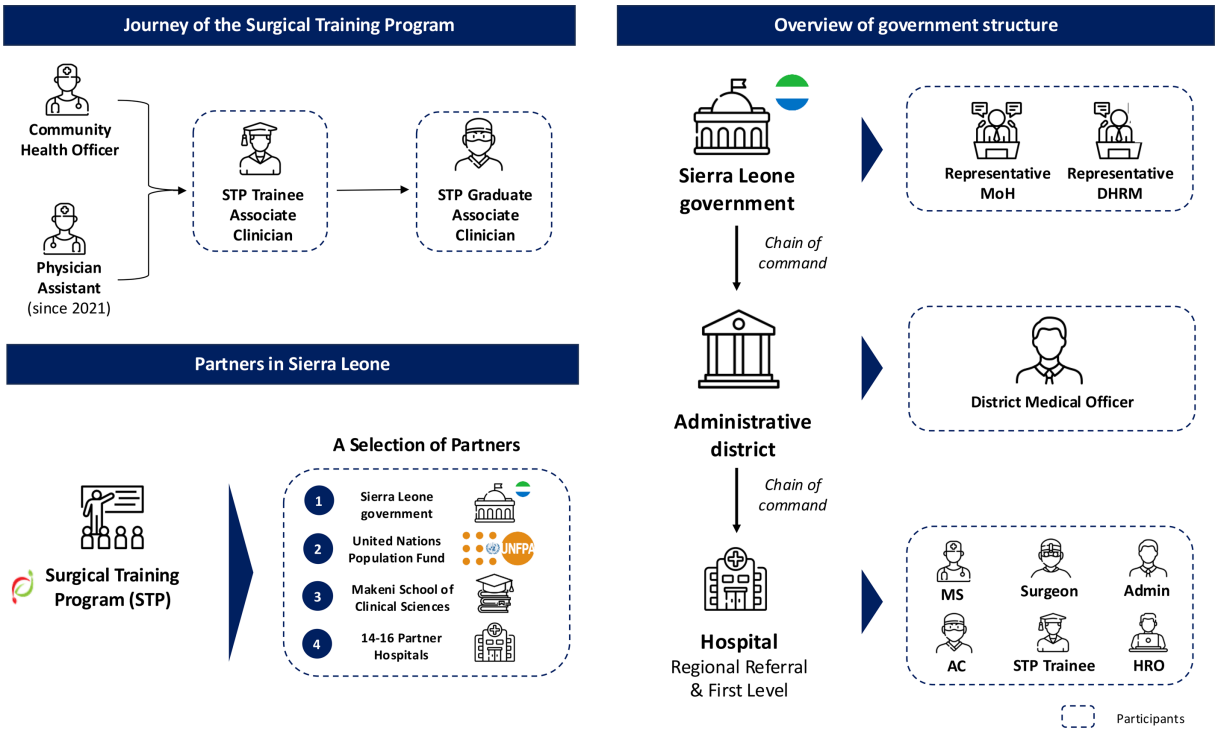

Figure 1 Selection sites for interview participants. Sierra Leone's MoH and NGO CapaCare launched a 3-year STP to train ACs in managing common surgical emergencies mostly at first level hospitals. Study participants were surgery providers and surgery facilitators; from partner organisations, ministry representatives, district medical officers and hospital administrators familiar with the STP. Circled groups indicate participant sources. AC, Associate Clinician; DHRM, Directorate of Human Resources Management; HRO, Human Resource Officer; MoH, Ministry of Health; MS, Medical Superintendent; NGO, Non-Governmental Organisation.

conducted at the participants' worksite, with only the participant and ML present in the private offices. Field notes were made, and interviews were audio-recorded and transcribed verbatim by ML and JvK, the latter being a Dutch male, Surgeon and MD in Global Health and Tropical Medicine with extensive experience from two consecutive years of working and residing in Sierra Leone. As participants might have been influenced by our background, potentially leading to social desirability bias in their responses, and our own preconceived notions or expectations could have shaped interpretation of the findings, we engaged in reflexive practices throughout the research process. No repeat interviews were carried out, and transcripts were not returned to participants for comments and/or correction. All participants provided written informed consent and no incentives were offered.

Patient and public involvement

Patients and the public were not involved in the design, conduct or dissemination of this study.

Data analysis

We conducted a descriptive qualitative content analysis of interview transcripts, using NVivo V.1.7.1 software for coding. A consensus-based approach to coding was used to ensure consistency. After three readings for familiarity, ML and JvK independently open-coded the same five transcripts, followed by cross-validation to evaluate alignment among coders, after which the remaining transcripts were coded. New codes were added as needed, and codes were organised into categories of barriers and enablers in surgical task-sharing. These categories were refined into four main themes: Institutional, Interpersonal, Resource-related, and Sociocultural, each representing a key factor affecting task-sharing. The Institutional theme is central, influencing both Interpersonal and Resource-related aspects, while Interpersonal acts as a bridge, connecting resources with systemic factors. The Sociocultural theme encapsulates these elements, highlighting cultural norms' impact on all other areas (figure 2). The focus was on uncovering patterns, with this iterative approach enabling a thorough, data-driven understanding of the factors influencing surgical task-sharing.

RESULTS

We conducted interviews with 12 surgical providers and 10 surgical facilitators, each lasting between 20 and 60 min. Surgical providers comprised trainees, graduates, surgeons, and medical superintendents with varied clinical experience. Facilitators included HR officers, hospital administrators, and district medical officers from regional and tertiary facilities, as well as three representatives from Ministry of Health, United Nations Population

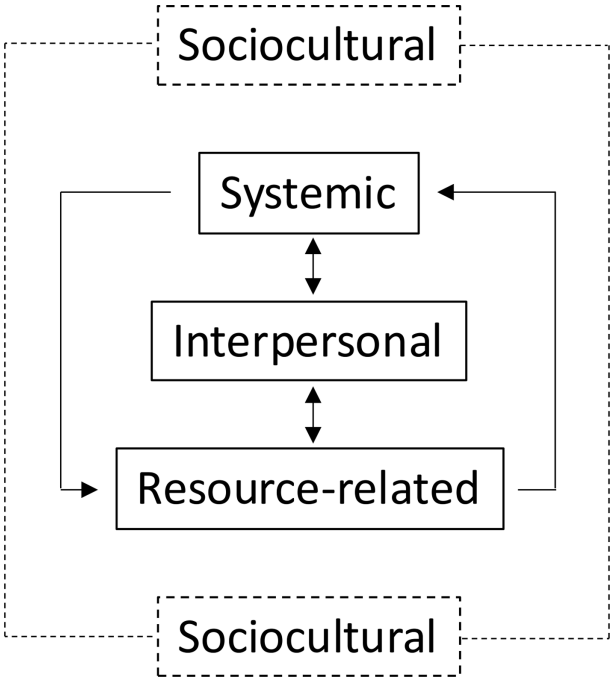

Figure 2 Conceptual framework of themes influencing surgical task-sharing. The conceptual framework of themes illustrates the interconnected themes influencing surgical task-sharing, emphasising the central role of institutional factors (systemic and resource-related), the mediating function of interpersonal dynamics and the overarching impact of sociocultural context on all dimensions.

Fund and Directorate of Human Resources Management (table 1).

Through this process, 18 barriers and 21 enablers to implementing task-sharing in surgical care were identified, which are summarised in tables 2 and 3. The tables summarize these findings by category, providing brief descriptions of the barriers and enablers affecting surgical care delivery. The text focuses on key subthemes within the four broader categories. Even when only one subtheme is highlighted, the headers are retained for consistency. Figure 3 illustrates the distribution of these barriers and enablers as identified by surgical providers and facilitators. A comprehensive breakdown of all identified barriers and enablers is provided in online supplemental appendix B

Table 1 Characteristics of interview participants

Surgical Providers	
Surgical Training Programme Trainee	**STP Trainee**
Year 1	1
Year 2	1
Year 3	2
Associate Clinician (STP graduate)	**AC**
Junior graduate	2
Senior graduate	3
Medical Superintendent	**MS**
Regional referral hospital	1
Consultant Surgeon	**Surgeon**
First level hospital	1
Regional referral hospital	1
Surgical Facilitators	
Human Resource Officer	**HRO**
Tertiary referral hospital	1
Regional referral hospital	1
First level hospital	1
Hospital Administrator	**HA**
Regional referral hospital	1
First level hospital	1
District Medical Officer	**DMO**
Major city	1
Rural district	1
Ministry of Health	**MoH**
Representative	1
United Nations Population Fund	**UNFPA**
Representative	1
Directorate of Human Resources Management	**DHRM**
Representative	1

Institutional barriers

Scheme of service

The MoH employs various healthcare cadres, including doctors, nurses and ACs. While the STP programme is open to ACs, both CHOs and PAs, most graduates are CHOs. A challenge mentioned by most surgical providers is that the MoH has yet to include SACHOs, the generic term for surgically trained ACs in Sierra Leone, within its scheme of service for healthcare workers. As a result, ACs who complete the STP work as SACHOs but are employed and paid as regular ACs, despite increased responsibilities. Interviewees expressed frustration with this arrangement, describing it as unfair and misaligned with the higher workload and responsibilities they shoulder. This perceived inequity has led to feelings of disillusionment towards the government.

> AC: There is no extra payment for you being a SACHO. You are paid as a CHO. There is no extra promotion for you being a SACHO, you are promoted as a CHO. And I tell you, with the huge work we are doing, I spent a whole night here, everybody was sleeping, I slept here, as a SACHO, but I'm still paid as a CHO.
>
> Representative DHRM: And that is linked to the business of recognition. You know, again, they feel a little upset that the system is a little slow to actually recognize them.

Table 2 Barriers organised by category

Institutional	Scheme of service	The MoH employs ACs without officially recognising or appropriately compensating them, leading to demotivation and attrition despite their increased workload and responsibility.
	Degree recognition	The STP diploma in surgery is not officially recognised, hindering ACs' career advancement and potential university entry, while also creating tension and financial disparities with newly admitted physician assistants who hold BSc degrees.
	Licensing	ACs, despite being trained and employed for surgery, lack legal recognition and licensure, leading to demotivation, concerns about legal protection and consideration of leaving the profession.
	Local STP ownership	The initiation of the STP faced criticism for inadequate engagement and local support, political motivations and an over-reliance on external funding and trainers, highlighting the need for more sustainable, locally accountable approaches.
	Monitoring mechanisms	Surgical providers and facilitators are concerned that the absence of a licence and regulatory body for ACs leads to inadequate monitoring, potential overstepping in surgeries and poor recordkeeping.
	Literal exclusion	ACs experience isolation and stress due to remote postings, lack of supervision and the necessity of being constantly available at hospitals, often at the expense of personal time and well-being.
	Figurative exclusion	ACs feel undervalued and neglected due to inadequate financial recognition and lack of support from higher-ranking officials, leading to demoralisation.
	Governmental resource shortage	Some ACs believe they could be adequately paid, but DMOs and healthcare representatives disagree, citing Sierra Leone's donor-reliant system and widespread unpaid healthcare workers.
	Political tension	Political affiliations within the AC association, mirroring the country's major political parties, hinder collective action for government reform despite shared dissatisfaction.
Interpersonal	Power dynamics	ACs feel undervalued and exploited both in their surgical roles and financially. Meanwhile, surgeons seek recognition and prefer working with humble, eager-to-learn ACs, resulting in varying levels of collaboration and tension.
	Hostile environment	ACs and STP trainees experience hostility in their work environment, including being blamed for surgical errors and facing derogatory remarks about their non-doctor status, contributing to feelings of inferiority.
	Inclusive involvement	The role of ACs in maternal care is debated, with physicians and midwives differing on their scope. STP-like refresher courses are suggested to update knowledge, clarify roles and improve collaboration across healthcare teams.
Resource-related	Resource-constrained healthcare	Surgical providers report supply shortages, poor communication and a weakened ambulance system, forcing ACs to handle complex cases in first level hospitals and raising complication risks.
	No pin code	The lack of a MoH-issued 'pin code' leaves many healthcare workers, including some ACs, unpaid and unmotivated, driving them to private practice and reducing surgical care in public hospitals.
Sociocultural	Medical protectionism	Some physicians see surgery as their domain, opposing task-sharing due to livelihood concerns, ACs' limited training and reduced opportunities for medical students, with one AC suggesting protectionism may delay their licensing.
	Interim task sharing	It will take years to staff surgeons nationwide, positioning ACs as potential leaders in district maternal and child healthcare, yet many trained ACs hesitate to take on limited roles in BEmONC* only.
	Operator eligibility	Physicians argue that only medical school graduates should perform surgeries, emphasising academic training over surgical skill, reinforcing the view of medicine as an exclusive guild not meant to include ACs.
	Task sharing definition	While most surgical facilitators and physicians held a consistent view of task-sharing, STP trainees emphasised flexible, practical approaches to adapt roles during staff shortages.

A total of 18 barriers to implementing task-sharing in surgical care were identified.

*Basic Emergency Obstetric and Newborn Care (BEmONC) centres.
ACs, Associate Clinicians; BSc, Bachelor of Science; DMOs, District Medical Officers; MoH, Ministry of Health; STP, Surgical Training Programme.

Degree recognition

While STP graduates earn a Diploma in Surgery, it is not officially recognised as a degree by the government or any higher education institute. This lack of recognition, according to DHRM representatives, limits career progression, discouraging further medical education. Although representatives from the DHRM and MoH suggested that ACs gained experiences could potentially qualify for medical school entry, helping address the doctor shortage—this has not become effective. Since 2021, the PAs completing the STP are awarded bachelor's degrees from the

Table 3 Enablers organised by category

Institutional	Hospital surgical strengthening	All acknowledge ACs' essential role in emergency and maternal care, particularly rurally, where their constant availability has improved surgical outcomes, reduced mortality, increased patient trust and relieved pressure on physicians.
	Championing	Support for ACs is strong across medical teams, management and government, with widespread recognition of their contributions, advocacy for official acknowledgement and administrative backing from HR and health officials.
	Rural retention	A DHRM representative noted that while most doctors are city-based, ACs are bridging healthcare gaps by providing surgical care in underserved rural areas, easing doctors' burdens and improving healthcare access and equity.
	Educational institute collaboration	While STP trainees see limited progress in integrating ACs, DMOs and MoH representatives recognise challenges like unclear career paths and propose possible solutions, such as university affiliation for the STP diploma.
	Local involvement	MoH, UNFPA and DHRM representatives noted how the STP evolves from internationally led to one emphasising skilled local professionals, cultural sensitivity and local governance, fostering community ownership and sustainability.
	Supervision structure	Surgical providers emphasised the STP's strong supervisory framework and teamwork culture, where a clear hierarchy in teaching hospitals ensures role adherence, fostering trust, professionalism and respect among all practitioners.
	STP reputation	As the STP is praised for providing ACs with comprehensive skills and a proper surgery mindset, surgeons and MoH representatives would definitely support similar training for physicians.
	Reproductive health	Some providers noted physicians' hesitance to perform surgeries under the free healthcare initiative without extra training, leaving ACs to fill the gap in maternal care—a goal the STP has successfully met.
	Supportive environment	ACs find camaraderie and essential support from medical superintendents and HR staff, who provide stipends during payment lapses and arrange housing and meals, efforts deeply valued by STP trainees and ACs.
	The blueprint	The STP's success has inspired a stronger focus on developing postgraduate programmes for continuous medical education, as noted by two surgical providers.
Interpersonal	Learning willingness	ACs do not seek to replace physicians but complement them with their practical skills developed in rural settings, emphasising the mutual value of sharing knowledge and experience in clinical practice.
	Mutual respect	A surgeon noted that conflicts over medical decisions are minor compared with the STP's success, as competence often outweighs hierarchy, fostering mutual respect and mentorship between ACs and physicians.
	Community formation	The STP cultivates a wide alumni network that simplifies patient referrals and fosters a strong sense of community and support among ACs, benefiting the national health system.
Resource-related	NGO support	The UNFPA representative noted growing donor interest in expanding surgical services, with UK government and MSF** backed task sharing in Sierra Leone encouraging the MoHs to adopt this sustainable approach.
	HR shortages	While MoH and UNFPA representatives acknowledged the challenge of training enough surgeons, especially for remote areas, emphasising that increasing medical graduates must precede surgical training—highlighting the need for the STP.
	MD's surgical skills	A reluctance of physicians to work in rural first level hospitals and perform surgeries alone may stem from insufficient development of surgical skills during medical education, making the responsibility in remote locations daunting.
Sociocultural	Time required	Task-sharing acceptance is rising as a new generation of doctors, familiar with the STP and recognising the country's surgical needs, increasingly embraces collaboration with ACs.
	Seeing is believing	Surgeons and UNFPA representatives note that ACs' surgical skills contribute to improved nationwide outcomes, with reduced maternal and infant mortality confirmed by DMOs, HR managers and local communities.
	Task sharing familiarity	Most surgical facilitators endorse task sharing, recognising ACs' role in strengthening healthcare, with local administrators and former clinicians viewing it as a viable long-term solution that aligns with community values.
	Respected status	ACs gain prestige and community respect by performing surgeries in remote hospitals, boosting their job satisfaction, performance and readiness for challenging roles.
	Job satisfaction	ACs show deep commitment to community health, viewing hospitals as both workplaces and social hubs where bonds with fellow trainees enhance their professional lives.

A total of 21 enablers to implementing task-sharing in surgical care were identified.

**MSF (Médecins Sans Frontières/Doctors Without Borders) is an international emergency medical humanitarian organisation.
ACs, Associate Clinicians; DHRM, Directorate of Human Resources Management; DMOs, District Medical Officers; HR, Human Resource; MD, Doctor of Medicine; MoH, Ministry of Health; NGO, Non-Governmental Organisation; STP, Surgical Training Programme; UNFPA, United Nations Population Fund.

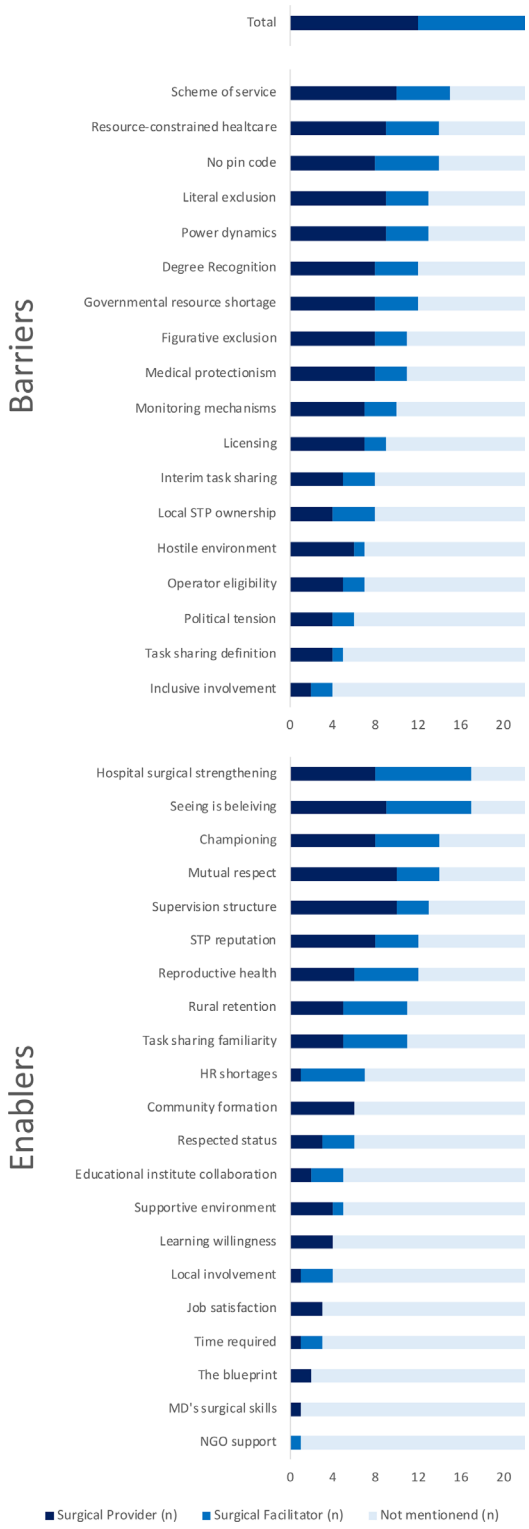

Figure 3 Distribution of surgical providers and facilitators identifying barriers and enablers. This figure illustrates the responses of surgical providers and facilitators regarding the various barriers and enablers. The dark blue bar indicates that 12 surgical providers reported specific barriers and enablers, while the blue bar represents the insights of 10 surgical facilitators. Notably, the light blue bar signifies that no providers or facilitators identified that particular subtheme. MD, Doctor of Medicine; HR, Human Resource; NGO, Non-Governmental Organisation; STP, Surgical Training Programme.

Makeni School of Clinical Sciences. This has raised concerns among the CHO graduates (SACHOs) over pay disparities, access to further education and status imbalances that could lead to future tensions.

> AC: This is the desire of everybody. If we can have a college or an institution that can recognize the years you have spent as a CHO, the years you spent for the surgical training program, if you have an institution that can do that, trust me, all SACHOs will go to that direction.
>
> Representative DHRM: But if it is recognized by them, then if you want to go into the medical training program, then you should have a placement because already you've proven your capability, your competence. So I've been encouraging them to say please if you, you can be doctors.

Licensing

Graduates from the STP lack a distinct licence to practice, a gap shared with CHOs despite the 2022 Allied Health Professionals Act, which has yet to take effect. Interviewees highlighted that even once implemented, the Act will not provide ACs a separate licence to perform surgery. Surgical providers expressed that this lack of licensing demotivates ACs, who feel vulnerable without legal protection and fear prosecution if complications arise. Some ACs reported disappointment in being trained to perform surgery yet remaining legally restricted, with a few considering leaving the profession due to these limitations.

> AC: So we are always scared that once we get to a problem, it will be very difficult for us to defend ourselves.
>
> AC: Some of us, we already have Plan B for some of us. So I'm feeling painful for CapaCare, because if they continue to train people and at the end of the day the reason why the people are being trained is not effective. It's a fruitless endeavour.

Local STP ownership

Interviewees noted that STP's initiation and implementation lacked sufficient engagement with the Sierra Leonean medical community. One surgeon cited an ongoing lack of local support due to limited knowledge about the training curriculum. SACHOs mentioned that CHO participants often had non-governmental organisation (NGO) connections but not government contracts, suggesting early local involvement could have prevented later challenges. UNFPA and MoH representatives contrasted the programme with East African models, as training in Sierra Leone is still largely conducted by expatriates. A DMO emphasised institutionalising training for sustainability, while a UNFPA representative warned that reliance on external funding risks programme continuity and local accountability.

> Representative MoH: I think usually the Sierra Leoneans are not involved. They, I think, are involved in a recruitment process. They're part of a board or something that

recruits. When it comes to the actual training Masanga [hospital] usually brings in expatriates.

Representative UNFPA: So the program is useful to have. It's good to have, but it's not your own program. So even if it collapsed, maybe you won't feel bad.

Interpersonal barriers

Power dynamics

ACs expressed frustration when supervised by less proficient doctors during complex surgeries. They felt their expertise was undervalued and exploited when assigned only to free obstetrical surgeries. Some surgeons feel uncomfortable with skilled ACs, preferring those who appear humble.

STP trainee: They spent a lot of time doing medicine, like 7 years. And how can someone just do 3 years and then match up to that level? Not all, but some of them see that it will not be good that we are matching together with them. And they don't like that.

Representative MoH: They could be tying the knots. They could do some small stitches, doing some suctions, help control bleeding. So I had very good relationships with them.

Resource-related barriers

Resource-constrained healthcare

Surgical providers highlighted how resource limitations and supply chain issues within the healthcare system influence surgical task-sharing, including a lack of essential equipment, poor communication, and for example, inadequate lighting in theatres. The deteriorated ambulance system since Ebola hampers patient transfers, leaving ACs to manage complex cases in first level hospitals, increasing complication risks.

AC: Or sometimes you want to go at midnight and there is no surgical gloves, no sutures. Those delays can actually cause trauma to the patient, either they lose baby or you guys have maternal death, those are some of the challenges.

Surgeon: For a population of 8 million, it's an understatement to say that it is grossly inadequate. We don't even have a proper trauma team.

Sociocultural barriers

Medical protectionism

Some physicians oppose task-sharing in surgical care, seeing surgery as their exclusive domain. Concerns include threats to livelihood, unfairness over ACs operating with less training and STP trainees limiting medical students' opportunities. One AC suggested that medical protectionism might delay licensing of STP graduates, as key Ministry roles are held by Medical Doctors.

Surgeon: So, yeah, it has to deal with the control. And then also, also, people think that, I mean, it's an injustice also to us doctors, you know. And we've, we've come a long way to train a specialist.

Representative DHRM: Because they feel that some bread or some biscuit is being taken out of their mouth. So that's the fundamental reason. They want to protect their space. They feel that's their profession, they should be doing such thing.

Institutional enablers

Hospital surgical strengthening

All interviewees recognise the vital role of ACs in emergency surgical and maternal care, performing the majority of surgeries, especially in rural areas. Their round-the-clock availability has contributed to improving surgical care, helped reduce maternal and infant mortality and eased the workload on overstretched physicians. ACs' competence ensures safe procedures and helps maintain patient trust, while also relieving pressure on regional and tertiary referral hospitals, by handling common surgeries.

Human Resource Officer: Yeah, there are evidences because if you look at the data sensing by the M&E [monitoring and evaluation] officers in the district, there are data improvements in the maternal deaths. It's coming down, you understand, because of the response of these people.

Medical Superintendent: Yeah, it has been wonderful. It has been a miracle receiving this for most of our patients here.

Championing

Support for ACs is strong across medical teams, hospital management and government. Medical superintendents and hospital staff value their work, leading to advocacy for official recognition. Hospital management appreciates ACs for easing workloads, with HR offering administrative support. At regional and national levels, health officials also acknowledge their vital contributions.

Representative DHRM: I have a letter now where the Medical Superintendent for [name hospital] is complaining to say: Oh, my SACHOs were taken away…he is requesting that they are sent back.

Rural retention

One DHRM representative especially highlighted the demographic disparity, where most people live in rural areas but doctors are mostly concentrated in cities. ACs, trained to serve communities, have helped address this by staying in hard-to-reach areas and bridging service gaps, providing surgical care in underserved regions. Their presence eases the burden on doctors and improves rural healthcare access. This shift is enhancing healthcare equity in Sierra Leone, benefiting rural communities.

AC: And then for those living in the community, they are benefiting most because they don't have to pay

transportation to go to the regional hospital or other places, except if we needed to refer them.

Educational institute collaboration

STP trainees feel little progress has been made in integrating ACs into the healthcare system, but DMOs and MoH representatives expressed contrasting views. They acknowledge the lack of a clear career path for ACs and proposed possible solutions, for example, allowing SACHOs to enter medical schools using their surgical training instead of A-levels and affiliating the STP with universities to recognise the Diploma in Surgery. Efforts have begun by expanding eligibility for the STP to ACs from the School of Clinical Sciences in Makeni—known as PAs, which are awarded a bachelor degree and will be regulated by the Medical and Dental Council of Sierra Leone.

> Representative MoH: There should be a career pathway created for them I mean, based on qualification and requirements will be set. Those ones who meet the requirements and have the qualifications should be given the opportunity to enter into the normal pathway to become doctors, pharmacists, you know.

Local involvement

MoH, UNFPA and DHRM representatives highlighted the evolution of surgical training in Sierra Leone, shifting from a solely international run programme to one focused on local involvement and cultural sensitivity. The programme now emphasises the role of skilled local professionals. This approach values trainers who understand the community's language and culture. The programme's governance has also expanded to include local representation, fostering ownership and sustainability.

> STP trainee: So but actually, even some of those SACHOs are there to teach us. They are really competent. Yeah, most of the teaching is done by those SACHOs. And also, sometimes they do bring some of the foreign doctors.

Interpersonal enablers

Learning willingness

The majority of ACs mentioned they did not seek to replace physicians or take over their roles; they understand that their responsibilities differ from those of doctors. One doctor emphasised the critical value of hands-on clinical experience, which goes beyond what textbooks can teach. Known for their practical skills gained in rural first-level hospitals, ACs are eager to share their expertise—a sentiment shared by a surgeon who believes that sharing knowledge is invaluable.

> STP trainee: I know I am a CHO. I am not a doctor, and you are a doctor. I need to give you the respect of a doctor. I will never do a procedure without informing my supervisor, that is the doctor.

> Surgeon: So they [ACs] have very good skills. And even as a doctor, you can learn from them. You can copy those skills and perfect them to your own techniques also.

Resource-related enablers

NGO support

The UNFPA representative noted growing global donor interest in expanding surgical services, with UK support in Sierra Leone highlighting the effectiveness of task-sharing. ACs working in Médecins Sans Frontières run hospitals further demonstrate international backing, encouraging the MoH to adopt this approach as a sustainable solution to surgical care gaps.

> Representative UNFPA: The one with the surgical service provider, where we train community health officers [ACs] to provide surgery, including Caesarean section, it's funded by the UK, mainly the UK government through UNFPA as an agency.

Sociocultural enablers

Time required

The acceptance of task-sharing in Sierra Leone is growing as older surgeons retire and a new generation, familiar with the STP from the start, takes over. Younger doctors, often peers with ACs, are mentioned to be more open to sharing workloads due to the country's unmet surgical need. The decade-long presence of the STP has also helped foster this shift.

> Representative DHRM: You know, what I think? For the younger, because now a lot of the older guys are fading out. For the younger doctors, they kind of understand, they kind of relate because you look at the other man even though it's a SACHOs, he might be your colleague or you attended school together. You know, you're of the same age range or age group. So, you find it a little easier to kind of connect.

DISCUSSION

This qualitative study explored the barriers and enablers to implementing surgical task-sharing in Sierra Leone from the perspectives of surgical providers and facilitators. While nearly all interviewees acknowledged the vital role surgically trained ACs have obtained for surgical and maternal care delivery, significant challenges persist that indicate that without institutional, interpersonal, resource-related and sociocultural changes, the potential benefits of task-sharing in surgical care may not be fully realised.

Several of the barriers identified in this study were also highlighted in a scoping review across 25 sub-Saharan African countries that identified 14 barriers to surgical task-sharing.[15] This includes the absence of supportive policies and legal frameworks for task-sharing practices, lack of formal recognition and acceptance of ACs within the healthcare system, unclear or restrictive definitions of the roles and responsibilities of ACs, limited pathways for professional growth and advancement for ACs and

challenges in retaining ACs due to inadequate incentives and motivation. In contrast, other barriers identified by van Heemskerken *et al*[15] were actually perceived as enablers in this study. These include the high quality of surgical procedures performed by ACs in Sierra Leone, as well as adequate supervision and mentorship provided to ACs during and after their training.

Professional hierarchies and concerns over scope of practice contribute to interpersonal tensions, mirroring challenges in other sub-Saharan African countries implementing task-sharing.[16–18] For example, in Zambia, training ACs to perform surgery increased surgical capacity but faced challenges related to recognition and support.[19] Similarly, task-sharing in Uganda, Malawi and Tanzania improved access to essential surgical services but encountered regulatory and workforce barriers.[20–22] These parallels suggest that institutional and sociocultural barriers are common obstacles in implementing task-sharing models across different settings.

The Concepts and Opportunities to Advance Task-Shifting and Task-Sharing framework, developed by Orkin *et al*, suggested four necessary conditions and four important considerations for effectively implementing task-sharing programmes.[23] The four necessary conditions include a cadre of providers that are willing to be trained to deliver the intervention, existing providers willing to provide the necessary training,[6 7] clinically effective interventions[7 10 11] deliverable by healthcare workers with less training[5 24] and a health problem that is difficult to address due to a shortage or inaccessibility of human health resources.[7] All those necessary conditions are present and were to some degree recognised among the interviewees. Furthermore, Orkin *et al* included four important considerations related to the introduction of task-sharing or task shifting. First, the health problem needs to be significant. Most respondents acknowledged that AC improved access to emergency obstetrical care for rural populations, a well-known priority for the Government of Sierra Leone.[4 25] Second, the intervention needs to be protocolised. Although the intervention is clearly described, the training takes place within 14–16 hospitals across the country, and there is a rigorous system for monitoring and evaluation of both trainees and graduates,[7] some respondents expressed lack of local ownership as a concern for long-term sustainability. Third, sufficient resources are needed to scale up the intervention. Several participants expressed concerns about the reliance on donor funding for the STP, which could hinder its scalability. Lastly, the intervention needs to be socially acceptable. To some extent, the STP has gained acceptance within the healthcare community, particularly among the younger physicians who view ACs as an important and necessary part of health teams at the facility level.

Implications

To sustain task-sharing in surgical care, enhanced institutional support for ACs is essential, including the establishment of clear career pathways, regulation and renumeration. There are several examples from the African continent where these measures have been successfully implemented, like Zambia[26] and Malawi,[27] where ACs are registered alongside physicians. In Kenya[28] and Uganda,[29] separate 'clinical officer' councils have been established, hereby creating licensing mechanisms that provide legal protection and recognition. Fair compensation and professional development opportunities have demonstrated to enhance AC motivation and retention in Uganda.[30 31] These efforts reflect WHO recommendations for optimising health worker roles through task-sharing to enhance access to essential interventions.[32]

Our study has demonstrated that interpersonal and sociocultural barriers exist for task-sharing surgical care in Sierra Leone. The WHO Global Strategy on Human Resources for Health,[33] supported by findings from a South African review,[34] has found that addressing power dynamics and fostering stronger interprofessional relationships can enhance collaboration between physicians and ACs, thereby improving patient care and promoting teamwork. In Sierra Leone, steps have recently been taken that might help address these dynamics. The NGO CapaCare, in collaboration with the MoH, has introduced joint Continuous Professional Development (CPD) courses for junior Medical Doctors, residents in surgery and obstetrics, and graduates of the STP.[35] The main purpose of the CPD courses is to provide refresher training courses and introduce new skills through specialised courses such as proctology, urology, external fixation and advanced burns courses. However, a secondary aim of the CPD is to offer joint training opportunities for doctors and ACs to improve working relationships and reduce professional tensions.

The incorporation of the STP within the Makeni School of Clinical Sciences awarding a bachelor's degree under the University of Sierra Leone has been another important step to institutionalise the task-sharing initiative.[36] Providing accreditation to training programmes is essential for integrating ACs into the health workforce, as seen in Ethiopia,[37] Kenya,[38] Tanzania[39] and Zambia,[19] where advanced diplomas enable ACs to pursue specialist training.

However, without reform and official adoption of the programme into the healthcare system in Sierra Leone, difficulties with retaining ACs as well as donor reliance on the programme can significantly challenge its sustainability. Therefore, our findings can aid in informing health system reform both within Sierra Leone and in similar settings. The first key policy recommendation is to amend the Allied Health Professionals Act to formally recognise ACs that have completed the STP as a distinct cadre within the MoH scheme of service. This should be accompanied by the establishment of a licensing framework that defines the ACs' scope of practice, surgical competencies, legal responsibilities and professional standards to be held accountable to. Legal protections

should be introduced within this framework that safeguard the ACs from prosecution when acting within their defined scope of practice. A review of the salary structure should be conducted to review alignment with the ACs' level of training and workload. Non-financial incentives, primarily formal degree recognition by the MoH, can be an important aid in improving access to further education and support career progression.

Ensuring that these reforms are implemented requires building on the enablers identified in this study. Across medical teams, hospital management and governmental levels, there are champions who believe the role of ACs in delivering essential surgical care is vital, who also highlight their importance for increasing and retaining access to surgical care in rural areas. Mobilising and uniting their support, fostering collaboration among stakeholders, can play a pivotal role in expediting legislative and administrative reform. NGOs, as well as hospital management and representatives from the MoH, can align their efforts by jointly advocating for structural changes. ACs themselves must be actively involved in advocacy efforts as well to ensure their perspectives are actively integrated into policy discussions and reforms.

Reflection on quality

Strengths of the study include the inclusion of a diverse range of participants across different disciplines, levels of seniority and geographical locations, enhancing the credibility and transferability of the findings. The use of rigorous qualitative analysis methods, including independent coding and iterative refinement of themes, contributes to the trustworthiness of the results.

However, there are limitations to consider. First, interviews were conducted in only three hospitals. Although the sample included diversity in geographical regions, referral levels and healthcare worker density, enhancing the likelihood that the findings reflect a range of experiences relevant both within and outside the country, it may still limit the generalisability of the findings to other settings. Additionally, the findings may not be generalisable beyond the Sierra Leonean context due to unique cultural and institutional factors. For future research, and when assessing the applicability of the identified barriers and enablers for task-sharing in different settings, validation of our study findings with providers and facilitators from these diverse geographical regions could help determine whether they are recognised and applicable across these areas, or if there are region-specific insights that warrant further consideration. Furthermore, the potential for researcher bias is a concern, given that the interviews were conducted by Dutch medical professionals.

CONCLUSION

This study emphasises the significant contributions of ACs to surgical care in Sierra Leone and underscores the need for systemic reforms to overcome the barriers to effectively implement and sustain this task-sharing intervention. Recognition of ACs as a distinct cadre within the MoH, supported by a licensing framework and legal protections, formal degree recognition, expanded training opportunities and the design of a transition framework to shift STP to national governance, are steps to optimise the benefits of task-sharing, sustain the provision of high-quality care, and improve surgical outcomes in Sierra Leone.

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Competing interests JvK has served as the Medical Superintendent at Masanga Hospital in Sierra Leone, the primary training site for associate clinicians participating in the Surgical Training Program (STP), which is organised by CapaCare in collaboration with the Ministry of Health in Sierra Leone. TF and TA, an associate clinician and a Medical Doctor, respectively, have both completed the STP. TA is working for CapaCare as Training Coordinator. HAB serves as an unpaid board member of the Norwegian non-governmental organisation CapaCare. Authors ML and HJB declare no conflicts of interest or financial ties to disclose.

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