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Task Shifting and Safe Surgical Care in Rural Adamawa, Cameroon: A Cross-Sectional Provider Survey

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ABSTRACT

Background/Objective: Safe surgical and anaesthesia care is essential for universal health coverage, yet rural sub-Saharan hospitals depend heavily on non-specialist providers. We assessed task-shifting practices, safety concerns and capacity-building priorities among perioperative providers in Cameroon's Adamawa Region.

Methods: In a descriptive cross-sectional survey, 20 surgical and anaesthesia providers from district and regional hospitals completed a structured questionnaire. Continuous variables were summarised as mean (standard deviation, SD) and median (range); categorical variables as frequencies and percentages; multiple-response items by separate counts, with exact binomial 95% confidence intervals (CIs) for key indicators.

Results: Mean age was 42.1 (SD 8.4) years; 16 respondents (80.0%) worked in district hospitals. Thirteen providers (65.0%; 95% CI 40.8–84.6) performed specialist-level tasks, most commonly anaesthesia administration (76.9%) and surgical procedures (61.5%). Although 12 (60.0%) reported formal task-shifting training, only 6 (30.0%) felt adequately trained; nine (45.0%) had a defined scope and nine (45.0%) received regular supervision. Fourteen respondents (70.0%; 95% CI 45.7–88.1) had witnessed adverse events related to task-shifted care, and only five (25.0%; 95% CI 8.7–49.1%) reported clearly defined referral pathways. Regular supervision and mentorship were the highest-priority intervention (75.0%).

Conclusion: Task shifting is common and perceived to improve access, but it is incompletely supported by training, supervision, equipment and referral systems. Structured task sharing with competency-based training, ongoing mentorship and verified patient-outcome monitoring is needed.

Keywords: Cameroon; capacity building; delivery of health care; rural health services; task shifting; workforce.

INTRODUCTION

Safe, timely and affordable surgical and anaesthesia care is increasingly recognised as an indispensable component of universal health coverage (UHC). Surgical conditions arise across the life course and include injuries, obstetric emergencies, congenital anomalies, infections, malignancies and acute abdominal conditions. When health systems cannot deliver essential operations promptly, otherwise treatable conditions may result in preventable death, long-term disability and catastrophic household expenditure. The Lancet Commission on Global Surgery estimated that five billion people worldwide lack access to safe, affordable surgical and anaesthesia care when needed, with the largest gaps concentrated in low- and middle-income countries (LMICs) [1]. Subsequent modelling work has emphasised that access must be judged across timeliness, capacity, safety and affordability rather than by the mere presence of an operating theatre [2]. In 2015, World Health Assembly resolution WHA68.15 formally embedded emergency and essential surgical care and anaesthesia within UHC and urged member states to strengthen first-referral services, monitoring systems, referral pathways and the appropriate use of task sharing [3].

These issues are particularly acute in rural sub-Saharan Africa, where shortages and maldistribution of specialist surgeons, obstetricians and physician anaesthetists constrain service delivery. The Lancet Commission proposed that, by 2030, countries should aim for a workforce density of at least 20 surgical, obstetric and anaesthesia providers per 100,000 population, yet many low-income countries remain well below this threshold [1]. District hospitals are often the nearest facilities capable of performing caesarean section, emergency laparotomy, hernia repair and basic trauma procedures, yet they operate with thin and unevenly skilled workforces [4,11]. Across the region, non-physician clinicians, general medical officers and nurse anaesthetists have become an indispensable part of the perioperative workforce, frequently carrying clinical responsibility beyond their original training.

Task shifting, the rational redistribution of selected responsibilities from more highly specialised cadres to health workers with shorter or different training, within a system of competency development, supervision and accountability [5] has therefore become a pragmatic strategy for expanding access. In surgery and anaesthesia, it may involve trained general medical officers, non-physician clinicians, clinical officers, nurse anaesthetists or anaesthesia technicians delivering selected procedures under defined conditions. It is not intended to replace specialist care; rather, its safety depends on clear boundaries, training, supervision, referral mechanisms and clinical governance.

Cameroon reflects many of these challenges. A cross-sectional assessment of hospitals with high trauma burden identified substantial gaps in infrastructure, human resources, interventions, equipment and supplies relevant to emergency and essential surgical care [6]. A more recent scoping review of surgical, obstetric and anaesthesia policy in Cameroon called for stronger political prioritisation, baseline assessment and the formalisation of workforce strategies, including task shifting, within national surgical planning [7]. The Adamawa Region, in the central-eastern part of the country, combines rural geography, long referral distances and reliance on non-specialist personnel, but there is little published local evidence describing how task shifting actually functions on the ground.

Systematic reviews from sub-Saharan Africa suggest that, within carefully structured programmes, trained non-surgeon clinicians can achieve non-inferior outcomes for selected high-volume, lower-complexity procedures such as caesarean section and hernia repair [8,9]. However, the evidence is heterogeneous, procedure-specific and strongly dependent on context; it cannot be generalised to informal delegation or to anaesthesia, where data remain comparatively sparse [8]. Crucially, much of the existing literature comes from a handful of countries and rarely integrates facility readiness, provider training, supervision, referral barriers and frontline provider priorities in a single setting. Region-specific data are needed to design accountable capacity-building interventions and to move from informal task shifting driven by scarcity alone toward supported task sharing.

The aim of this study was therefore to assess existing surgical and anaesthesia task-shifting practices, perceived safety concerns and priority capacity-building needs among perioperative healthcare providers in the Adamawa Region of Cameroon. The specific objectives were to (1) describe the demographic and professional profile, workload and procedure involvement of participating providers; (2) determine the extent and nature of task-shifted responsibilities; (3) assess reported training, scope-of-practice definition, supervision and senior support; (4) identify safety challenges, adverse-event experience and referral barriers; and (5) prioritise capacity-building interventions from the provider perspective. We hypothesised that task shifting would be widespread but incompletely supported by formal governance structures.

METHODS

Study design

We conducted a descriptive cross-sectional provider survey using a structured questionnaire. The design was appropriate for establishing a provider-level baseline of reported practices, perceptions and priorities in an understudied setting. The analysed dataset comprised only de-identified, completed provider questionnaires; it did not include patient-level clinical records, facility-audit data or qualitative interview transcripts. We therefore made no causal claims about surgical morbidity, mortality or the effectiveness of any intervention, and the study is reported in line with the applicable strengthening-the-reporting principles for cross-sectional observational studies.

Setting and participants

The study was undertaken in the Adamawa Region of Cameroon, where rural geography, specialist shortages and referral constraints affect access to essential surgical and anaesthesia services. Eligible participants were healthcare providers who routinely participated in surgical or anaesthesia care, including specialist surgeons, general medical officers, non-physician clinicians, clinical officers, anaesthesia nurses, anaesthesia technicians and operating-theatre nurses. Staff without perioperative responsibilities, interns without independent clinical responsibility and short-term observers were excluded. Recruitment used an inclusive approach within accessible participating district and regional hospital services; every completed questionnaire in the supplied analysed workbook was included, giving an achieved sample of 20 providers. The number of eligible providers approached was not captured in the analysed workbook, so a response rate could not be calculated. Because the survey was exploratory, results are reported with transparent denominators and interpreted as patterns within the surveyed group rather than as population-level prevalence estimates.

Data collection and instrument

Data were collected using the structured Surgical and Anaesthesia Provider Questionnaire (Appendix). The instrument was developed for the study, drawing on WHO guidance on task shifting and safe surgery [5,16], and was organised into eight sections: demographic and professional information; facility and workload characteristics; task-shifting practices; training and capacity building; supervision and support; surgical safety and quality of care; referral and health-system support; and perceived impact and recommendations. It captured age, sex, professional cadre, qualification, clinical experience, facility level, monthly case participation, commonly performed procedures, task-shifted responsibilities, methods of skill acquisition, formal training exposure and its perceived adequacy, scope-of-practice definition, supervision type and frequency, access to senior support, surgical safety checklist use, complication documentation, witnessed adverse events, referral pathways and barriers, perceptions of health-system support and preferred capacity-building interventions. Several items allowed multiple responses; for the priority-interventions item respondents selected up to three measures they considered most likely to improve safety in their facility. The questionnaire was reviewed by the research team for face and content validity and piloted with a small group of clinicians outside the analysed sample to refine wording; no items were added or removed after pilot testing. Questionnaires were administered by trained data collectors and completed by consenting providers, then returned to the research team for double entry and consistency checks. The cleaned, de-identified dataset and an analysed frequency-distribution sheet formed the basis of this report.

Variables

Participant-profile variables included age, sex, professional cadre, qualification, years of clinical practice and years at the current facility. Service-involvement variables included facility level (district vs regional hospital), monthly case participation and procedures commonly performed or assisted. Task-shifting variables included whether the respondent performed responsibilities typically undertaken by specialists, the nature of those responsibilities, skill-acquisition methods and whether the scope of practice was formally defined. Training and supervision variables captured formal task-shifting training, its recency and perceived adequacy, supervisor type, supervision frequency and access to senior support during complications. Safety and referral variables covered checklist use, complication documentation, witnessed task-shift-related adverse events, clarity of referral pathways and referral barriers. Capacity-building variables measured perceived access benefit, health-system support and preferred interventions.

Data management and statistical analysis

Records were checked for completeness and analysed descriptively. Age, years of clinical practice and years at facility were summarised using means, standard deviations (SD), medians and ranges. Categorical variables were summarised as frequencies and percentages. For questions permitting multiple answers, each selected option was counted separately; percentages for these items therefore could sum to more than 100% and are based on the full denominator of 20 respondents unless otherwise stated. Exact binomial 95% confidence intervals (CIs) were calculated for key single-response indicators to indicate statistical uncertainty around proportions in this small sample. No inferential between-group comparisons were performed because the achieved sample was limited, the dataset lacked a comparison group and patient-level outcomes were not available. Analyses were conducted using R version 4.3.1 (R Foundation for Statistical Computing, Vienna, Austria); the workbook was prepared in Microsoft Excel. The study was conceived within the Donabedian structure–process–outcome framework, which links the conditions of care (workforce, equipment, organisation), the processes of care (training, supervision, safety practices, referral) and patient outcomes [10].

Ethical approval

Participation was voluntary and based on written informed consent. The analysed dataset contained de-identified participant codes rather than names or direct identifiers, and results are reported in aggregate to reduce the risk of deductive identification, particularly for small professional groups. Electronic data were stored on password-protected devices accessible only to the authorised research team, and any paper records were held in locked storage. Participants retained the right to decline participation, omit items or withdraw without penalty.

Ethical review and approval were obtained from the Kesmonds Institute of Research and Innovation, Department of Research Publications and Internships, Cameroon, under the Kesmonds International Research Institute Cameroon, one of the bodies responsible for research approval in the Adamawa Region of Cameroon. The approval reference number was 0041022/SG/KIU. Appropriate administrative authorisations were obtained before participant recruitment.

RESULTS

Participant characteristics

The analysed dataset contained 20 complete provider questionnaires, all from providers who reported routine involvement in surgical or anaesthesia care. Mean age was 42.1 (SD 8.4) years (median 41.5; range 29–56). Respondents had a mean of 10.2 (SD 4.7) years of clinical practice and had worked at their current facility for a mean of 6.9 (SD 4.2) years. Thirteen (65.0%) were male, five (25.0%) female and two (10.0%) preferred not to state their sex. Sixteen (80.0%) worked in district hospitals and four (20.0%) in regional hospitals. Anaesthesia nurses were the largest cadre (6/20; 30.0%), followed by general medical officers (4/20; 20.0%), specialist surgeons and non-physician clinicians (3/20; 15.0% each), operating-theatre nurses (2/20; 10.0%), and one clinical officer and one anaesthesia technician (5.0% each) (Table 1; Figure 1).

Table 1. Demographic and professional characteristics of respondents (n = 20).

Characteristic	Category / summary	n	%
Age (years), mean (SD)	42.1 (8.4)	—	
Age (years), median (range)	41.5 (29–56)	—	
Clinical practice (years), mean (SD)	10.2 (4.7)	—	
Time at facility (years), mean (SD)	6.9 (4.2)	—	
Sex	Male	13	65.0
Sex	Female	5	25.0
Sex	Prefer not to say	2	10.0
Facility level	District hospital	16	80.0
Facility level	Regional hospital	4	20.0
Professional cadre	Anaesthesia nurse	6	30.0
Professional cadre	General medical officer	4	20.0
Professional cadre	Specialist surgeon	3	15.0
Professional cadre	Non-physician clinician	3	15.0
Professional cadre	Operating-theatre nurse	2	10.0
Professional cadre	Clinical officer	1	5.0
Professional cadre	Anaesthesia technician	1	5.0

Surgical workload and procedure involvement

Half of respondents (10/20; 50.0%) reported participating in 10–30 surgical cases per month, while seven (35.0%) participated in fewer than 10, two (10.0%) in 31–50 and one (5.0%) in more than 50. On the multiple-response procedure item, caesarean section was the most commonly selected procedure (17/20; 85.0%), followed by anaesthesia for surgery (14/20; 70.0%), minor surgical procedures (13/20; 65.0%), laparotomy and hernia repair (12/20; 60.0% each), and trauma surgery (11/20; 55.0%) (Table 2). Respondents thus contributed across obstetric, emergency and general surgical care.

Table 2. Surgical workload and procedure involvement. *Multiple-response item; percentages may sum to >100%.

Domain	Category	n	%
Monthly cases	<10	7	35.0
Monthly cases	10–30	10	50.0
Monthly cases	31–50	2	10.0
Monthly cases	>50	1	5.0
Procedure*	Caesarean section	17	85.0
Procedure*	Anaesthesia for surgery	14	70.0
Procedure*	Minor surgical procedures	13	65.0
Procedure*	Laparotomy	12	60.0
Procedure*	Hernia repair	12	60.0
Procedure*	Trauma surgery	11	55.0

Task-shifting practices, training and supervision

Thirteen providers (65.0%; 95% CI 40.8–84.6) reported performing responsibilities typically undertaken by specialists. Among these 13, anaesthesia administration was the most frequently selected shifted responsibility (10/13; 76.9%), followed by surgical procedures (8/13; 61.5%), preoperative assessment (6/13; 46.2%), postoperative management (4/13; 30.8%) and emergency decision-making (4/13; 30.8%) (Figure 2). Skill-acquisition routes were mixed: formal training

programmes were reported by 13 (65.0%), short courses or workshops and on-the-job training by 11 each (55.0%), informal mentorship by 10 (50.0%) and self-learning by six (30.0%).

Although 12 respondents (60.0%; 95% CI 36.1–80.9) reported having received formal task-shifting training, only six (30.0%) felt adequately trained for their current tasks; nine (45.0%) felt partially trained and five (25.0%) inadequately trained. A formally defined scope of task-shifted practice was reported by nine (45.0%; 95% CI 23.1–68.5), was absent for seven (35.0%) and was uncertain for four (20.0%). Regular supervision was received by nine (45.0%; 95% CI 23.1–68.5), while 11 (55.0%) did not receive it; supervision frequency was monthly for six (30.0%), never for five (25.0%), rarely for four (20.0%), daily for three (15.0%) and weekly for two (10.0%). Access to senior support during complications was reported as always by seven (35.0%), sometimes by 10 (50.0%) and rarely or never by three (15.0%) (Table 3; Figure 2).

Table 3. Task-shifting, training and supervision indicators.

Indicator	Category	n	%
Performs task-shifted responsibilities	Yes	13	65.0
Performs task-shifted responsibilities	No	7	35.0
Received formal task-shifting training	Yes	12	60.0
Received formal task-shifting training	No	8	40.0
Perceived training adequacy	Adequate	6	30.0
Perceived training adequacy	Partial	9	45.0
Perceived training adequacy	Inadequate	5	25.0
Scope formally defined	Yes	9	45.0
Scope formally defined	No	7	35.0
Scope formally defined	Not sure	4	20.0
Receives regular supervision	Yes	9	45.0
Receives regular supervision	No	11	55.0
Senior support for complications	Always	7	35.0
Senior support for complications	Sometimes	10	50.0
Senior support for complications	Rarely/never	3	15.0

Safety processes, adverse events and referral arrangements

Use of the surgical safety checklist was reported as consistent by nine respondents (45.0%), intermittent by nine (45.0%) and absent by two (10.0%). Seventeen (85.0%; 95% CI 62.1–96.8) reported that perioperative complications were routinely documented, although self-reported documentation could not be verified against clinical records. Fourteen respondents (70.0%; 95% CI 45.7–88.1) had witnessed adverse events related to task-shifted care; among the 13 who personally performed shifted responsibilities, 11 (84.6%) reported such experience. This is a descriptive observation of provider experience, not a verified clinical event rate.

Referral arrangements emerged as a particular weakness. Only five respondents (25.0%; 95% CI 8.7–49.1) stated that referral pathways for complex cases were clearly defined. On the multiple-response item, transport limitations were the most frequently selected barrier (15/20; 75.0%), followed by cost to patients (13/20; 65.0%), delayed decision-making (12/20; 60.0%) and communication gaps (8/20; 40.0%). When asked whether the health system supported safe task shifting, half (10/20; 50.0%) answered “partially,” while five (25.0%) answered “yes” and five (25.0%) “no.” Despite these concerns, 14 respondents (70.0%; 95% CI 45.7–88.1) agreed or strongly agreed that task shifting had improved access to surgical care (Table 4).

Table 4. Selected safety, referral and health-system indicators with exact 95% confidence intervals.

Indicator	n/N	%	Exact 95% CI
Performs task-shifted responsibilities	13/20	65.0	40.8–84.6
Received formal task-shifting training	12/20	60.0	36.1–80.9
Scope formally defined	9/20	45.0	23.1–68.5
Receives regular supervision	9/20	45.0	23.1–68.5
Complications routinely documented	17/20	85.0	62.1–96.8
Witnessed task-shift-related adverse events	14/20	70.0	45.7–88.1
Referral pathways clearly defined	5/20	25.0	8.7–49.1
Task shifting improved access (agree/strongly agree)	14/20	70.0	45.7–88.1

Safety challenges and capacity-building priorities

On the multiple-response item on safety challenges, equipment shortages were most frequently reported (12/20; 60.0%), followed by staff shortages (11/20; 55.0%), lack of supervision (10/20; 50.0%), inadequate training (9/20; 45.0%) and delayed referrals (9/20; 45.0%) (Table 5; Figure 3). For capacity-building, respondents selected up to three priorities. Regular supervision and mentorship ranked first (15/20; 75.0%), followed by improved equipment supply (13/20; 65.0%), strengthened referral systems (11/20; 55.0%), structured training programmes (11/20; 55.0%) and clear clinical guidelines (10/20; 50.0%) (Table 5; Figure 4).

Table 5. Reported safety challenges, referral barriers and capacity-building priorities. *Multiple-response items; percentages may sum to >100%.

Domain	Item	n	%
Safety challenge*	Equipment shortages	12	60.0
Safety challenge*	Staff shortages	11	55.0
Safety challenge*	Lack of supervision	10	50.0
Safety challenge*	Inadequate training	9	45.0
Safety challenge*	Delayed referrals	9	45.0
Referral barrier*	Transport limitations	15	75.0
Referral barrier*	Cost to patients	13	65.0
Referral barrier*	Delayed decision-making	12	60.0
Referral barrier*	Communication gaps	8	40.0
Priority intervention*	Regular supervision and mentorship	15	75.0
Priority intervention*	Improved equipment supply	13	65.0
Priority intervention*	Strengthened referral systems	11	55.0
Priority intervention*	Structured training programmes	11	55.0
Priority intervention*	Clear clinical guidelines	10	50.0

DISCUSSION

This cross-sectional survey of 20 perioperative providers in rural Adamawa found that task shifting is a common, operationally important feature of surgical and anaesthesia service delivery and is widely perceived to improve access. Almost two-thirds of respondents performed responsibilities normally associated with specialist practice, and 70% agreed that task shifting had expanded access to care. Yet these access gains were accompanied by consistent weaknesses in the

supporting system: only 30% felt adequately trained, fewer than half had a formally defined scope or received regular supervision, 70% had witnessed adverse events related to task-shifted care, and only one quarter reported clearly defined referral pathways. Providers' proposed solutions were correspondingly systemic supervision and mentorship ranked above additional training alone reinforcing the case for structured task sharing rather than unsupported redistribution of work.

Task shifting as a response to access constraints

The breadth of procedure involvement we observed caesarean section, anaesthesia, laparotomy, hernia repair, minor surgery and trauma mirrors the essential caseload of first-referral hospitals in sub-Saharan Africa and is consistent with earlier observations that surgical task shifting already functions as a de facto adaptation to workforce scarcity [4,11]. Anaesthesia was both the largest single professional group (30% of respondents) and the most frequently shifted responsibility among those performing specialist-level tasks, which is noteworthy because evidence for anaesthesia task shifting remains sparser and more conflicting than for operative delegation [8]. The predominance of caesarean section also underscores the overlap between surgical and obstetric care at district level and the importance of integrating task-sharing strategies within broader emergency obstetric and surgical system strengthening. The 70% who perceived improved access aligns with the central rationale for task sharing in WHO guidance [5] and with modelling indicating that workforce redistribution can extend the reach of essential surgery [2]. Perceived access benefit is not, however, evidence of clinical safety or effectiveness. Systematic reviews suggest that non-specialists achieve comparable outcomes for selected procedures only within structured programmes with defined caseloads, competency-based training and ongoing supervision [8,9]; they do not validate informal delegation.

Training, scope of practice and supervision

A central finding was the gap between exposure to training and confidence in it. Although 60% reported some formal task-shifting training, only 30% felt adequately prepared, and 70% reported no or only partial preparation. Formal scope definition and regular supervision each reached only 45%, and a quarter of respondents never received supervision. This matters because the literature consistently identifies clear practice boundaries, competency assessment and sustained supervision as the active ingredients that make task shifting safe [5,8,9,12]. Reviews of non-physician clinician surgery in sub-Saharan Africa have highlighted professional, regulatory, training, resource and sustainability barriers [12], and evaluations of surgical supervision models have shown that mentorship relationships build competence, help providers recognise their limits and create feedback loops for systemic problems [13]. The Adamawa findings suggest that the region should not rely on one-off workshops or informal apprenticeship. Training should be paired with documented skills assessment, written escalation criteria and continuing, structured mentorship, preferably linking district teams with specialist surgeons and anaesthetists at regional centres.

Safety processes and reported adverse events

Safety-process findings were mixed. Most respondents reported routine complication documentation, and 90% reported that the surgical safety checklist was used at least intermittently, providing a foundation for quality improvement. However, intermittent checklist use is not equivalent to reliable completion, and self-reported documentation cannot confirm completeness or accuracy; both should be audited against clinical records. The most concerning signal was that 70% of respondents, and 85% of those personally performing shifted tasks had witnessed adverse events related to task-shifted care. This item captures experience rather than a measured incidence rate and may reflect events across a career rather than a defined period; it cannot be used to infer causation. Nevertheless, it is a clear warning that frontline providers perceive avoidable harm. The WHO surgical safety checklist has been shown to reduce morbidity and mortality when implemented with genuine team engagement [14], but checklists cannot substitute for equipment, competence, supervision or referral. Structured incident reporting with standard definitions, confidential morbidity and mortality review, and patient-record audit are needed to convert this signal into actionable learning and to establish a baseline against which improvement can be measured.

Referral barriers and health-system readiness

Referral was the clearest structural weakness: three-quarters of respondents described complex-case pathways as unclear, and transport, cost and delayed decision-making were the most frequently cited barriers. This is particularly important because the safety of task shifting depends on recognising the limits of local care and escalating appropriately; a provider may be competent for selected procedures but still require dependable transport, communication and a receiving facility prepared to accept complex cases. These findings fit the “structure” component of the Donabedian framework [10]: workforce redistribution cannot fully compensate for weak equipment, staffing and referral networks. They are consistent with earlier Cameroonian facility assessments documenting infrastructure, equipment and supply gaps [6] and with regional analyses identifying referral delays as a driver of poor surgical outcomes [11]. A practical referral-improvement plan covering named escalation contacts, receiving-facility communication, transport coordination and attention to patient costs should be considered a core component of any safe task-sharing model, not an optional add-on.

Capacity-building priorities

Notably, providers did not ask only for more training. Their top priority was regular supervision and mentorship, followed by equipment supply, strengthened referral systems, structured training and clear clinical guidelines. This ordering closely maps the problems they reported and supports a comprehensive capacity-building package rather than isolated educational interventions. It echoes WHO recommendations that task shifting be accompanied by training, regulation, quality assurance and appropriate resourcing [5], and the global movement to integrate emergency, critical and operative care within UHC [15]. From a policy perspective, the data support formal recognition of task sharing as a governed health-system strategy, with authorised responsibilities, supervision requirements, monitoring indicators and mechanisms for continuing professional development embedded in national surgical, obstetric and anaesthesia planning.

STRENGTHS AND LIMITATIONS

The study has several strengths. It addresses a documented evidence gap in rural Cameroon by combining data on task-shifting prevalence, training, supervision, safety, referral and provider priorities in a single survey, and it reports exact confidence intervals to communicate uncertainty transparently. The cadres represented anaesthesia nurses, medical officers, non-physician clinicians and surgeons reflect the perioperative teams that actually deliver care in district hospitals. Several limitations must, however, be considered. The sample was small ($n = 20$) and exploratory, and the number of eligible providers approached was not recorded, so the response rate and representativeness cannot be determined; the findings should be interpreted as patterns within the surveyed group rather than prevalence estimates for Adamawa as a whole. The dataset recorded facility level but not unique facility identifiers, precluding inter-facility comparison. Responses were self-reported and subject to recall and social-desirability bias, and multiple-response items indicate the frequency with which concerns were selected rather than their severity. Most importantly, the dataset did not include facility audits, patient records, perioperative mortality, complication rates or referral-delay durations, so the study cannot establish the clinical effectiveness or safety of task shifting. The witnessed-adverse-event finding, in particular, is a provider perception rather than a verified event rate. These limitations define a clear agenda for the next phase of research.

IMPLICATIONS FOR PRACTICE, POLICY AND FUTURE RESEARCH

For clinical practice, participating services should agree a minimum safe task-sharing package comprising written scope-of-practice guidance, procedure limits and escalation criteria, consistent checklist use, structured complication documentation and routine case review. For education, training should be competency based, assessed in supervised practice and reinforced through refresher sessions and mentorship rather than attendance certificates alone. For management, the equipment and referral findings justify a prioritised facility-readiness audit—covering oxygen, sterilisation, essential instruments, blood access and infection prevention—and a practical referral-improvement plan. For policy, the survey supports formal recognition of task sharing within regional and national surgical plans, with defined

responsibilities, supervision standards and quality indicators. Future research should combine facility-readiness audits with prospective patient-level data on surgical volume, referral delays, postoperative complications and perioperative mortality, ideally before and after a documented capacity-building intervention, and should expand to larger, multi-facility samples that allow comparison across hospital levels. Such work should examine how specific structural supports, defined scope, supervision frequency and equipment availability—relate to objectively measured process and outcome indicators, moving beyond provider perception to test the structure–process–outcome logic that guided this study. Implementation-science approaches, including stepped-wedge or hybrid effectiveness designs, would be well suited to evaluating the kind of multicomponent capacity-building package prioritised by respondents, while qualitative methods could illuminate the professional, regulatory and motivational factors that determine whether task sharing is accepted and sustained over time.

CONCLUSION

Task shifting is a common and, from the provider perspective, access-enhancing feature of surgical and anaesthesia care in rural Adamawa. It is, however, incompletely supported: fewer than one in three providers felt adequately trained, fewer than half had a defined scope or regular supervision, adverse events were widely witnessed, and referral pathways were usually unclear. The appropriate response is neither to abandon task shifting nor to expand it informally, but to formalise it as structured task sharing with clearly defined responsibilities, competency-based training, reliable mentorship, functional equipment, consistent safety processes and dependable referral pathways. These findings provide a practical baseline for capacity-building interventions and for subsequent evaluation using verified clinical outcomes.

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CONFLICT OF INTEREST

The authors declare that they have no competing interests.

ARTIFICIAL INTELLIGENCE USE DECLARATION

Artificial intelligence tools were used to support language editing, formatting, structural organization and preparation of data visualizations. The authors retained responsibility for study design, ethical conduct, source verification, dataset validation, interpretation, scientific decisions and final manuscript approval. AI tools were not used to create participant data or patient-level clinical outcomes.

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DATA AVAILABILITY

The de-identified analysed dataset supporting the findings of this study is available from the corresponding author upon reasonable request, subject to applicable confidentiality and ethical constraints.

AUTHORS' CONTRIBUTIONS

Peter Matthew George conceived and designed the study, oversaw data collection, performed the descriptive analysis and drafted the manuscript. Megbar Dessalegn supervised the study, contributed to study design and interpretation, and critically revised the manuscript. Both authors approved the final version and agreed to be accountable for all aspects of the work.

REFERENCES

1. Meara JG, Leather AJM, Hagander L, Alkire BC, Alonso N, Ameh EA, et al. Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development. *Lancet*. 2015;386(9993):569–624.
2. Alkire BC, Raykar NP, Shrima MG, Weiser TG, Bickler SW, Rose JA, et al. Global access to surgical care: a modelling study. *Lancet Glob Health*. 2015;3(6):e316–23.
3. World Health Organization. WHA68.15: Strengthening emergency and essential surgical care and anaesthesia as a component of universal health coverage. Geneva: WHO; 2015.
4. Chu K, Rosseel P, Gielis P, Ford N. Surgical task shifting in sub-Saharan Africa. *PLoS Med*. 2009;6(5):e1000078.
5. World Health Organization. Task shifting: rational redistribution of tasks among health workforce teams—global recommendations and guidelines. Geneva: WHO; 2008.
6. Kouo-Ngamby M, Juillard C, Stevens KA, Ekeke N, Bryant L, Lee J, et al. A cross-sectional survey of emergency and essential surgical care capacity among hospitals with high trauma burden in a Central African country. *BMC Health Serv Res*. 2015;15:478.
7. Agoubi L, Carvalho M, Fewer S, Oke R, Fabo B, Daya L, et al. Integrating political prioritisation into national surgical planning: a scoping review of surgical, obstetric and anaesthesia care in Cameroon. *BMJ Glob Health*. 2024;9:e014730.
8. Bognini MS, Oko CI, Kebede MA, Ifeanyichi MI, Singh D, Hargest R, et al. Assessing the impact of anaesthetic and surgical task-shifting globally: a systematic literature review. *Health Policy Plan*. 2023;38(8):960–94.
9. Ryan I, Shah KV, Barrero CE, Uamunovandu T, Ilbawi A, Swanson J. Task shifting and task sharing to strengthen the surgical workforce in sub-Saharan Africa: a systematic review of the existing literature. *World J Surg*. 2023;47(12):3070–80.
10. Donabedian A. The quality of care: how can it be assessed? *JAMA*. 1988;260(12):1743–8.
11. Kruk ME, Wladis A, Mbembati N, Ndao-Brumblay SK, Hsia RY, Galukande M, et al. Human resource and funding constraints for essential surgery in district hospitals in Africa: a retrospective cross-sectional survey. *PLoS Med*. 2010;7(3):e1000242.
12. van Heemskerken P, Broekhuizen H, Gajewski J, Brugha R, Bijlmakers L, Borgstein E. Barriers to surgery performed by non-physician clinicians in sub-Saharan Africa—a scoping review. *Hum Resour Health*. 2020;18:51.
13. Pittalis C, Brugha R, Bijlmakers L, Mwapasa G, Borgstein E, Gajewski J, et al. Evaluation of a surgical supervision model in three African countries: protocol for a prospective mixed-methods controlled pilot trial. *Pilot Feasibility Stud*. 2019;5:25.
14. Haynes AB, Weiser TG, Berry WR, Lipsitz SR, Breizat AHS, Dellinger EP, et al. A surgical safety checklist to reduce morbidity and mortality in a global population. *N Engl J Med*. 2009;360(5):491–9.
15. World Health Organization. WHA76.2: Integrated emergency, critical and operative care for universal health coverage and protection from health emergencies. Geneva: WHO; 2023.
16. World Health Organization. WHO guidelines for safe surgery 2009: safe surgery saves lives. Geneva: WHO; 2009.

FIGURES

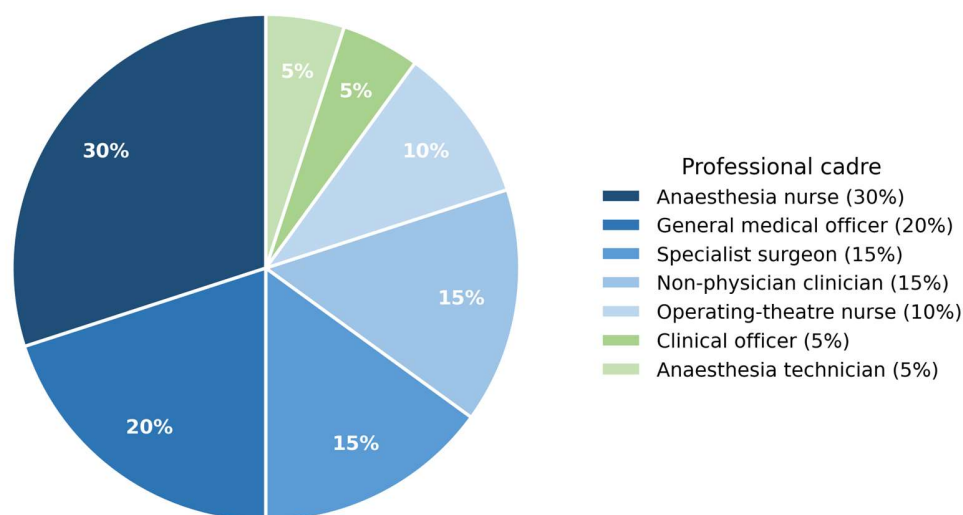
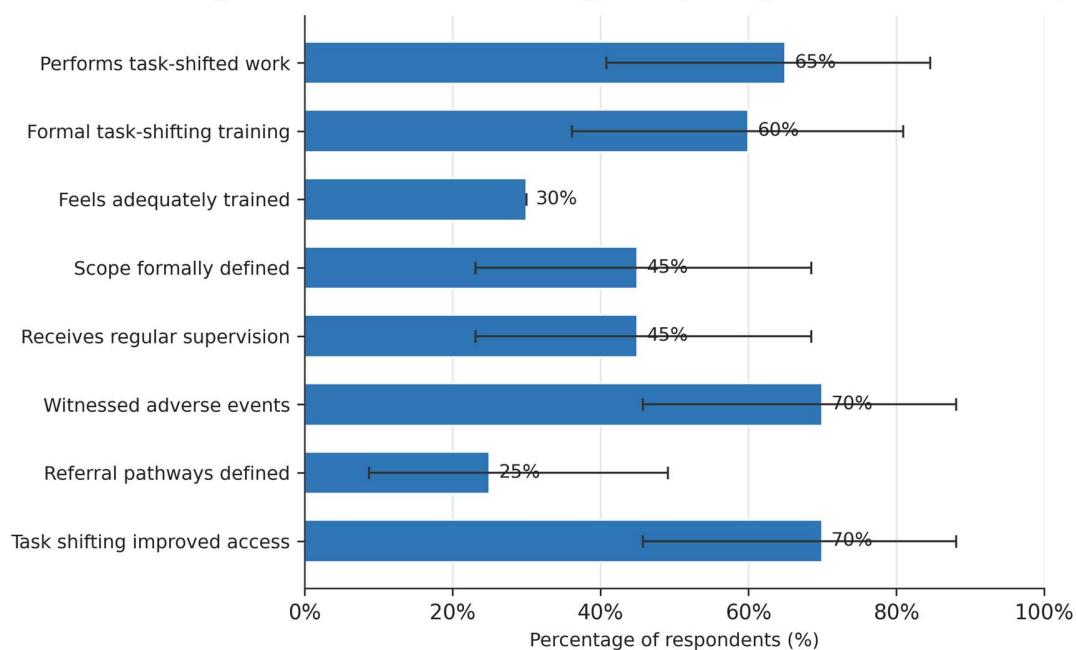
Figure 1. Professional cadre distribution of respondents (n = 20)*Figure 1. Professional cadre distribution of respondents (n = 20). Percentages use N = 20 as the denominator.***Figure 2. Selected task-shifting, safety and governance indicators (n = 20)**

Figure 2. Selected task-shifting, safety and governance indicators (n = 20). Bars show the percentage of all respondents; whiskers show exact 95% confidence intervals where available (see Table 4).

Figure 3. Reported safety challenges affecting task-shifted care (n = 20)

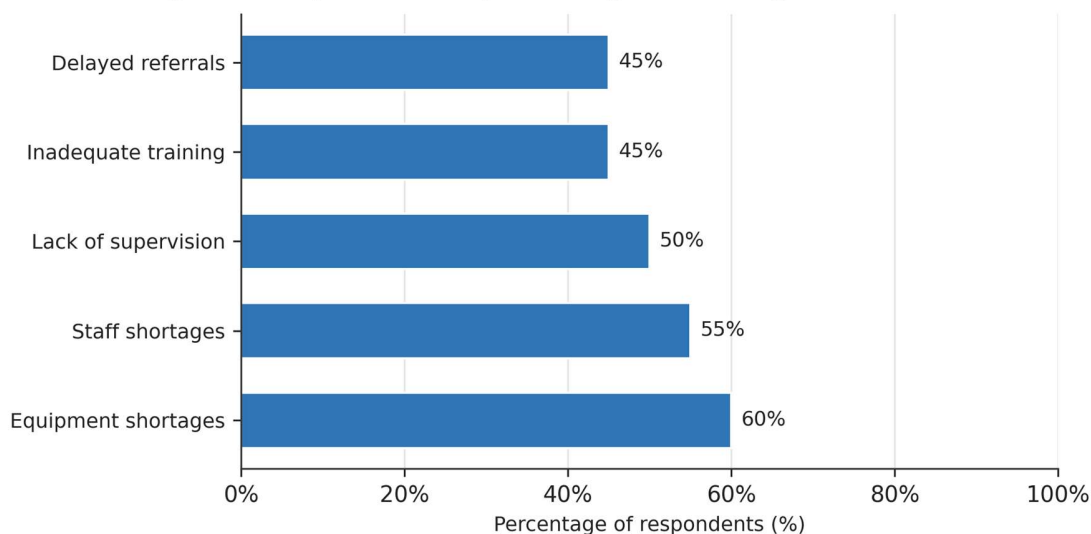


Figure 3. Reported safety challenges affecting task-shifted care (n = 20). Multiple responses permitted; percentages may sum to more than 100%.

Figure 4. Priority capacity-building interventions (n = 20)

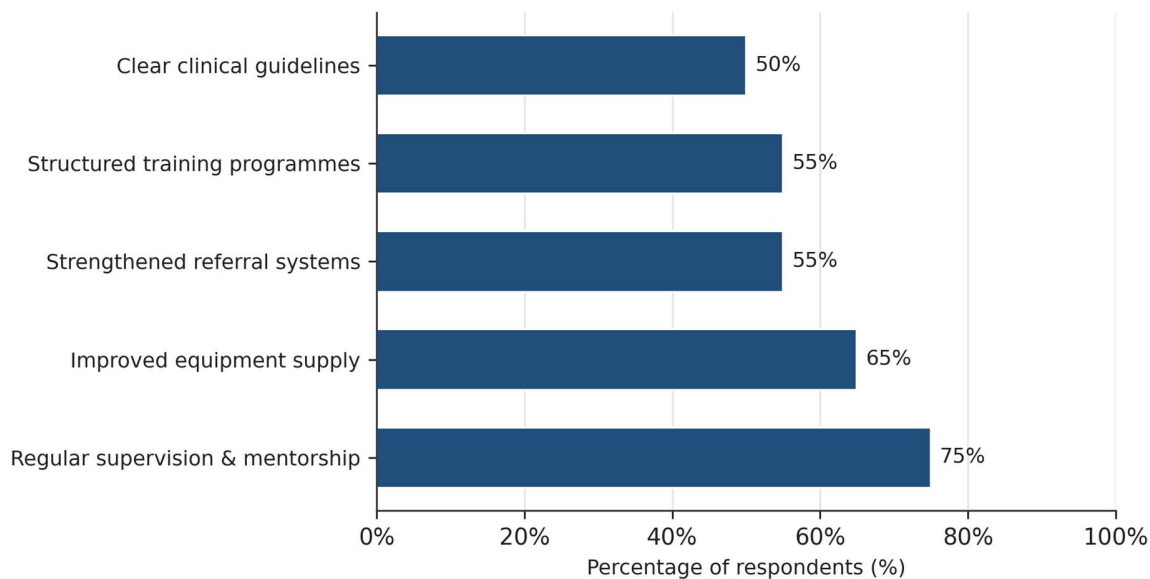


Figure 4. Priority capacity-building interventions (n = 20). Respondents selected up to three priorities; percentages may sum to more than 100%.

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