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Human Resources for Health

REVIEW

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Monitoring and evaluation strategies for surgical task-shifting and task-sharing interventions: a scoping review

Catherine Binda[1,2*], Rachel Livergant[3], Jamie Tersago[4], Zainab Jami[5], Le Qi Chen[4], Leah Birch[4], Chloe Blackman[6], Esther Chin[7], Hannah Wild[8], Emilie Joos[1,9] and Shahrzad Joharifard[1,10]

Abstract

Background Task shifting and task sharing (TS/S) redistribute responsibilities across cadres to expand access to healthcare, particularly in underserved areas. TS/S addresses workforce shortages and improves the availability of essential surgical procedures. The scope and geographical distribution of surgical TS/S programs are well documented, less is known about how TS/S initiatives are monitored and evaluated, especially with respect to trainee, program, and health systems outcomes. This review describes existing approaches to evaluation within surgical TS/S initiatives.

Methods We searched nine electronic databases (MEDLINE [Ovid], Embase [Ovid], CINAHL [EBSCO], Scopus, CABI Digital Library, Clarivate Web of Science, Evidence Aid, Global Index Medicus, and Eldis) on 31 January 2024 and 12 March 2025, using MeSH terms and keywords related to "Task Sharing" AND "Surgery". All patient populations, practice settings, surgical skills, and study designs were eligible. No language or time restrictions were utilized. Publications that did not describe the evaluation of surgical skills, or that focused on skills within a practitioner's typical scope of practice, were excluded. Two reviewers independently screened and extracted data. Risk of bias was assessed with MINORS. Findings were synthesized using inductive content analysis. Results were tabulated and presented graphically.

Results Of 2483 identified records, 1609 unique publications were screened, 452 underwent full-text review, and 228 were included in the review. Most studies reported surgical TS/S in low-income countries (41.7%, 95/228). Obstetric and gynaecological procedures were most commonly taught (61.4%, 140/228). In total, 1753 examples of evaluation metrics were extracted from the 228 included publications. The evaluation metrics were sorted into three themes, including metrics that evaluated TS/S providers (72.6%, 1272/1753), training programs (7.5%, 132/1753), and systems (19.9%, 349/1753).

Conclusion This scoping review comprehensively describes existing evaluation strategies. While evaluation of surgical TS/S initiatives remains heterogeneous, limiting the generalizability of any single approach, we successfully grouped monitoring and evaluation metrics into three key domains: provider, program, and health systems. Future work should focus on proposing a comprehensive but adaptable monitoring and evaluation framework that can be used by surgical TS/S programs across the globe.

*Correspondence:
Catherine Binda
catbinda@student.ubc.ca
Full list of author information is available at the end of the article

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Introduction

The 2015 Lancet Commission on Global Surgery estimated that an additional 143 million surgical procedures must be performed each year to prevent avoidable death and disability [1]. This shortfall is driven by multiple factors, including delays in seeking care, remote geography, limited prehospital transportation, and severe shortages of qualified surgeons and obstetrician-gynaecologists, particularly in low-resource settings [2–5]. To address this deficit, the Lancet Commission, along with the World Bank and the World Health Organization, has called for strategic expansion of the surgical workforce as a key step toward reducing the global burden of unmet surgical need [1, 6–8].

Task shifting and task sharing (TS/S) are strategies used to address healthcare workforce shortages [8–11]. Task *shifting* involves transferring or delegating tasks typically completed by highly qualified workers, commonly referred to as specialists, to those with shorter training and fewer qualifications, commonly referred to as associate providers [9, 12]. Task *sharing*, conversely, involves the collaborative completion of tasks by specialists and associate providers [10, 12]. TS/S can challenge conventional hierarchies, enabling improved collaboration, enhanced delivery of culturally appropriate care, and the redistribution of responsibilities to scale up services and to optimize care delivery pathways [12]. Within the surgical context, TS/S has been applied to expand surgical workforce capacity and improve access to essential procedures [10, 13].

Existing reviews about TS/S are limited to specific geographic areas or trainee types [8, 10, 11, 13]. For example, in 2023, Ryan et al. reviewed TS/S programs in sub-Saharan Africa, and in 2018, Federspiel et al. analysed TS/S programs that excluded general practitioners and non-specialist physicians [8, 10]. While these reviews are helpful in describing the distribution, scope, and trainees involved in TS/S programs, data regarding the evaluation of TS/S programs are lacking. To the best of our knowledge, there is no published assessment of the evaluation strategies utilized within surgical TS/S programs. To address this evidence gap, we conducted a scoping review to identify monitoring and evaluation strategies used in surgical TS/S programs globally. Our aim is to comprehensively describe the monitoring and evaluation of surgical TS/S programs.

Methods

We used the Arksey and O'Malley's five-stage methodology for scoping reviews [14]. Results were reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines [15] (Additional File 1 and 2). A pre-review protocol was created and archived in an open data registry (Additional File 3).

Identifying the research question

Our research question, "How are surgical TS/S programs monitored and evaluated in original publications?", was defined through large-group discussion in routine laboratory meetings and in small-group discussions with members of the authorship team (CB, HW, EJ, SJ). Key "facets" of our research question included population (trainees learning a new surgical skill outside their typical scope of practice), intervention (surgical TS/S), outcomes (monitoring and evaluation), and study design (original articles). In keeping with previous publications, task *shifting* was defined as the rational redistribution of tasks among medical teams from highly qualified workers to those with shorter training and fewer qualifications [9]. Task *sharing* was defined as the sharing of responsibilities between specialists and associate providers to optimize the distribution of cases and surgical outcomes [10]. We defined surgery as any diagnostic or therapeutic action that alters or transposes a human's tissues, as per the American Medical Association's definition of surgery [16].

Identifying relevant studies

We identified relevant studies in electronic databases, using the reference lists of included studies and relevant review articles, by asking our professional network for recommendations, and by searching for key terms on internet search engines to better capture grey literature. In consultation with a healthcare research librarian, we searched nine electronic databases using medical subject headings (MeSH) terms and keywords relating to "Task Sharing" AND "Surgery" on 31 January 2024. Searched databases included Medline (Ovid), Embase (Ovid), CINAHL (EBSCO), Scopus, CABI Digital Library, Clarivate (Web of Science), Evidence Aid, Global Index Medicus, and Eldis. Our literature search was repeated on 12 March 2025 to capture publications published between January 2024 and March 2025. Eldis was not re-searched on 12 March 2025, as this database was archived in June 2024. Publications published in selected databases from inception to 12 March 2025 were included. No language restrictions were utilized. A detailed search strategy can be found in Additional File 4.

Identified publications were compiled in Zotero, a citation management software [17], and were uploaded to Covidence, a systematic review software [18]. Duplicate publications were detected both automatically and manually on Covidence. Duplicates identified automatically by Covidence were reviewed manually to ensure accuracy.

Study selection

Two independent reviewers (CB and JT or RL) screened titles and abstracts and then full texts according to predetermined inclusion and exclusion criteria. A senior author arbitrated (HW) reviewers' disagreements. Cohen's Kappa was used to evaluate inter-rater reliability of the inclusion and exclusion criteria at the abstract screening and full-text review stages.

We included publications that described surgical task shifting or task sharing in all locations, time periods, and trainee populations. Google Translate was used to translate non-English publications into English [19–22]. Publications that did not present primary data from trainees learning a new surgical skill outside their typical scope of practice were excluded. Publications that did not describe the monitoring or evaluation of TS/S providers, programs, or systems were excluded. Review articles identified during title and abstract screening were excluded once their references were screened for additional relevant publications. In the case where data were shared between publications, for example data found in a published thesis were also reported in the form of a journal article, the more detailed publication was included [23, 24].

Charting the data

Information was extracted from every publication meeting our established inclusion and exclusion criteria using a standardized data extraction template created using a modified Conducting Systematic Reviews and Meta-Analyses of Observational Studies of Etiology (COSMOS-E) strategy [25]. Data extracted were descriptive and included publication characteristics, study location and demographic details, study techniques, and references to other pertinent publications (Additional File 5). We extracted data pertaining to the monitoring and evaluation of TS/S programs using both multiple-selection and free-text questions to maximize the breadth and granularity of data collected and comparability of data across publications. We used our knowledge of the existing literature and experiences with TS/S to design the multiple-selection questions, with special attention to evaluation strategies Entrustable Professional Activities, patient outcomes data, and clinical exams. We provided prompts for the free-text questions asking extractors to specify what indicators were used in the publication to evaluate the volume, safety, efficacy, and acceptability of TS/S providers, programs, and systems.

Data were extracted from each publication by a member of the author group and then reviewed by the first author (CB). If a particular variable was not reported in a publication, "NR" was entered in the data extraction template. Two independent reviewers completed a formal Risk of Bias Assessment using the Methodological Index for Non-randomized Studies (MINORS) score [26]. The MINORS score was selected for its simplicity, reliability, internal consistency, validity, ability to assess multiple study types including randomized and non-randomized publications, and development grounded in surgical literature.

Collating, summarizing, and reporting results

We used descriptive statistics to summarize study characteristics and Inductive Content Analysis (ICA) to collate the extracted evaluation indicators. ICA is commonly used to analyse text-based data and create practical answers to qualitative research questions, such as "How are TS/S programs monitored and evaluated?" [27]. ICA steps included: (1) familiarization with the text; (2) coding; (3) refining codes; (4) synthesizing data. Steps 1 and 2 were completed using Covidence and Microsoft Excel [18, 28], while steps 3 and 4 were completed using NVivo 15 [29]. The final code book was transformed into a graphic to visually display results.

Over the course of steps 2, 3, and 4, the granular evaluation indicators extracted as free text from the included publications were transformed into broader constructs. For example, the indicator "incidence of groin hernia recurrence one year post op in the medical doctor group compared to the associate clinician group" was transformed into the construct "recurrence"[30]. These constructs were collated into broader constructs so they could be synthesized over the course of our coding process. We defined "evaluation metric" as the smallest construct unit used to evaluate TS/S. We assessed thematic saturation using Guest et al.'s method for retrospective inductive thematic analyses. This method was chosen for ease of reporting and relevance to our presented methodology [31].

Results

Search results

Our search strategy identified 2483 publications, including 2194 articles from electronic databases and 289 from pertinent review articles and reference lists. After removing 874 duplicates, we abstract-screened 1609 unique publications. In total, 452 publications were full-text screened, and 228 publications were included in our final analysis (Fig. 1). Cohen's Kappa between the reviewers screening abstracts was 0.72 (CB and JT), 0.72 (CB and RL), and 0.65 (CB and BD), indicating acceptable agreement.

Included publications spanned from 1975 to 2025. The first and last authors' institutional affiliations were most frequently situated in the United States of America (29.4%, 67/228 and 33.6%, 72/214) (Fig. 2). Most included publications cited representation of authors from at least one low- or middle-income country (61.0%, 139/228). Publications identified included 208 (91.2%) original articles and 7 (3.1%) abstracts. Publications used both descriptive (68.9%, 157/228) and analytic (31.1%, 71/228) methods.

Risk of bias

Eligible publications scored a mean MINORS score of 8.3 in the first 8 categories (maximum score = 16 points) (Fig. 3, Additional File 5). Most publications had a clearly stated aim, and data were collected according to a

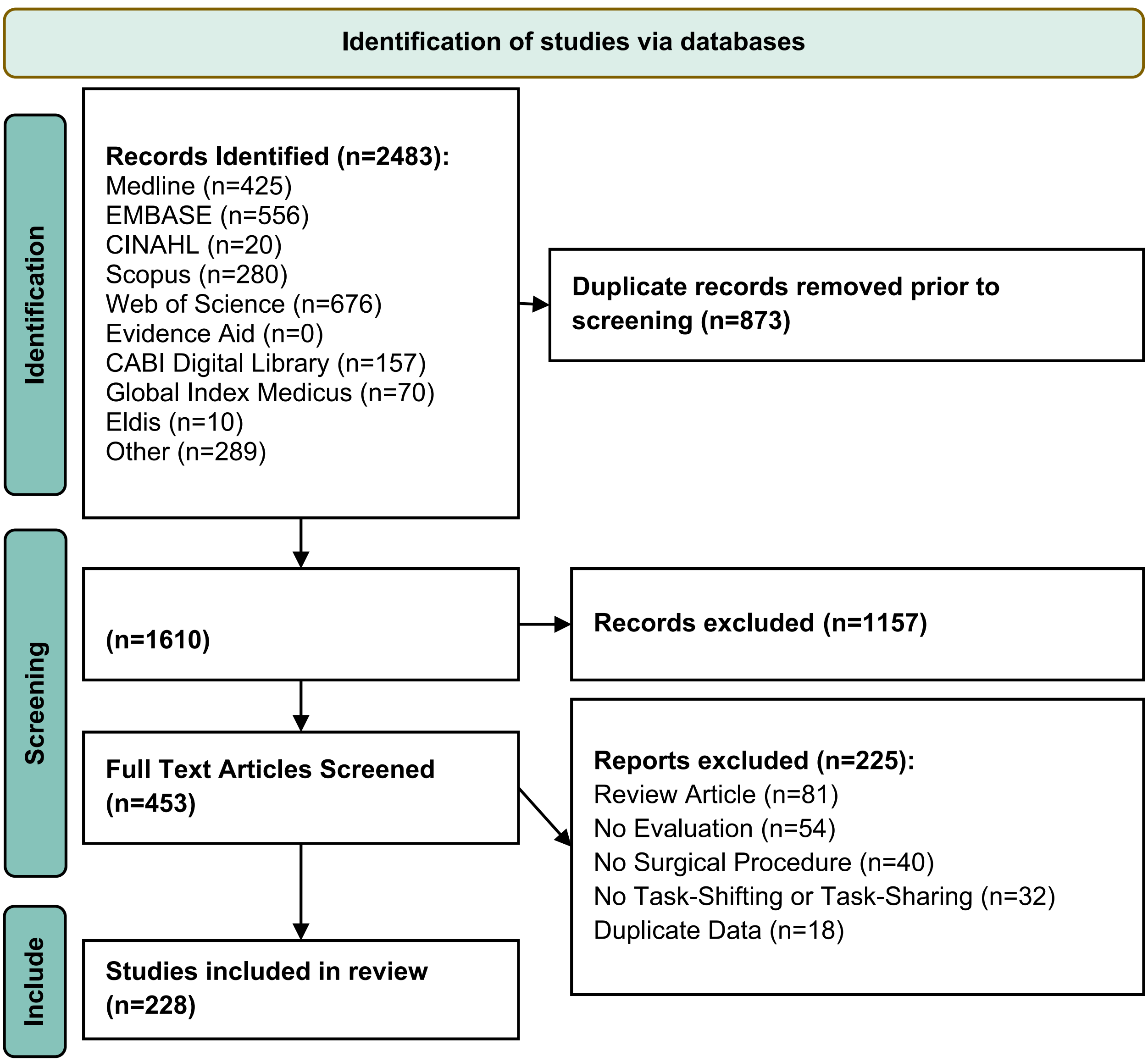

Fig. 1 Prisma flowchart. Our search of 9 databases on 31/01/2024, 8 databases on 12/03/2025, and grey literature returned 1609 unique records. In total, 228 of these unique records were included in our final review

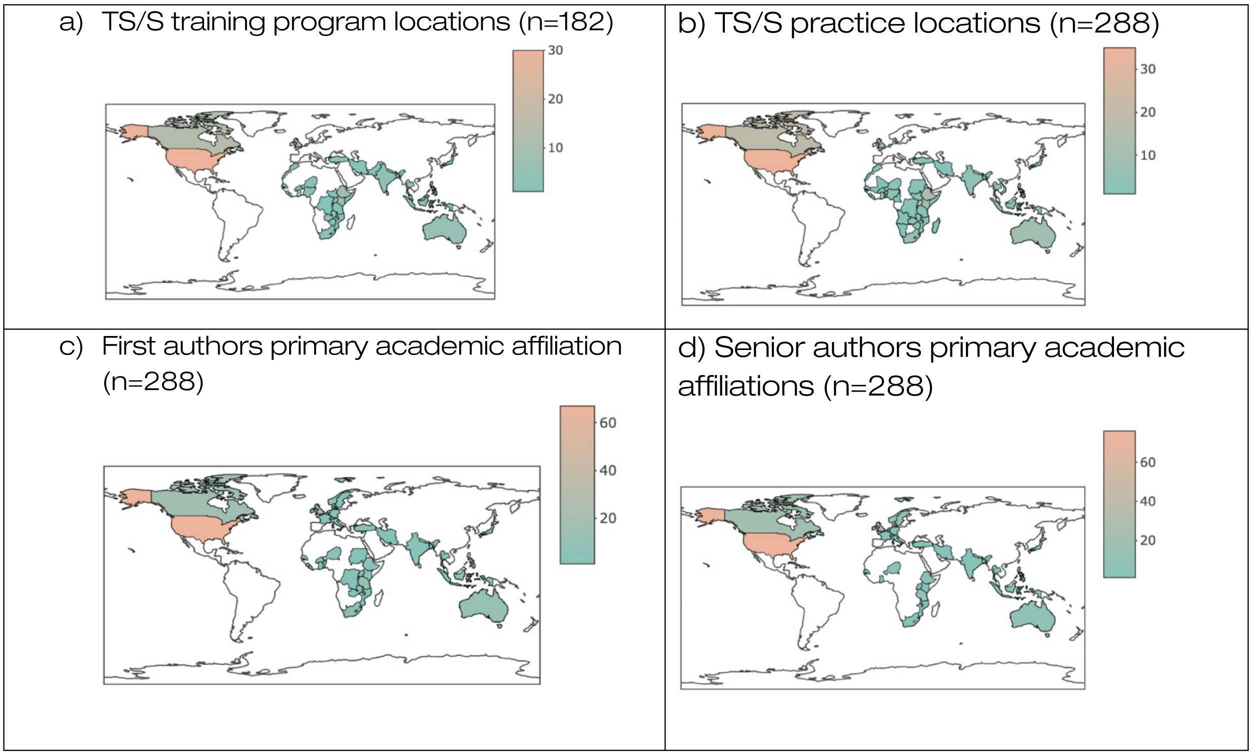

Fig. 2 World maps of TS/S training programs, practice, and authorship

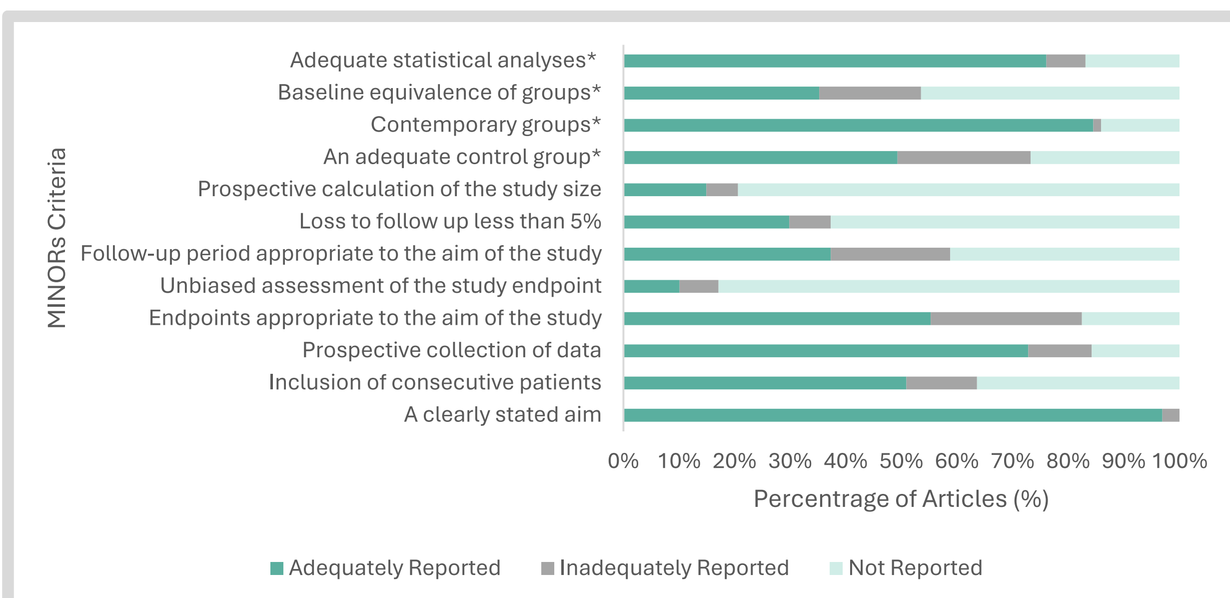

Fig. 3 MINORs risk of bias assessment of included publications (*n* = 228). *Criteria applied to comparative studies only

protocol established before the start of the studies. Most studies lacked an unbiased assessment of study endpoints or a prospective calculation of study size. Comparative publications scored a mean MINORS score of 5.4 in the 4 categories for comparative studies (maximum score = 8). Most comparisons were made between contemporary groups and had adequate statistical analysis. Only 35.2% (25/71) of the comparative studies adequately reported baseline equivalence between compared groups.

Training programs and TS/S practice

TS/S training program duration ranged from 1 day to 3 years [32, 33]. All included publications described both the location where the TS/S training took place and the location where the graduates practiced. Publications reported TS/S training in 42 different countries and TS/S practice in 50 different countries. Respectively for training location and graduate practice location, countries most frequently described were the United States of America (US) (13.2%, 30/228; 15.4%, 35/228), Tanzania (10.1%, 23/228; 13.6%, 31/228), and Malawi (8.8%, 20/228; 10.1%, 23/228). When grouped by World Bank Lending Groups [34], publications reported training and TS/S practice in low-income countries (LICs) (41.7%, 95/228) and lower-middle income countries (LMIC) (28.9%, 66/228) with the greatest frequency.

TS/S trainees and providers were most often medical practitioners, including Medical Doctors or Medical Officers ($n=102$) and nurses ($n=79$) (Additional File 6). When broken down by specialty, publications most commonly described TS/S in obstetrics and gynaecology (61.4%), followed by general surgery (52.6%), orthopaedics (17.1%), urology (12.9%), plastic surgery (12.7%), trauma surgery (8.8%), ophthalmology (6.1%), neurosurgery (4.4%), otolaryngology (3.1%), thoracic surgery (1.8%), vascular surgery (0.9%), and dentistry (0.4%). Types of procedures by categories varied widely depending on the country/region of training (Additional File 5). For example, of the 30 publications describing TS/S training in the USA, 56.7% ($n=17$) focused solely on endoscopy (esophagogastroduodenoscopy, colonoscopy, flexible sigmoidoscopy). Conversely, the 20 publications describing TS/S training in Malawi taught a range of skills from elective inguinal hernia repairs to exploratory laparotomies. Outside of specialty, training in leadership and communications, defined as instruction pertaining to communication with patients and collaboration with co-workers and surgical assistants, was described in 19.7% of publications [35–37].

The geographic distribution of TS/S training program and practice locations, heterogeneity in TS/S'ed procedures, and lack of universal reporting guidelines for TS/S evaluation contributed to significant heterogeneity in the evaluation metrics reported in the literature.

Evaluation strategies

Some TS/S cohorts were evaluated episodically while others were evaluated longitudinally [32, 38–40]. The longest evaluation period was five years. The Ghana Hernia Society monitored clinical outcomes from groin hernia repairs from 2017 to 2022, and the CapaCare program monitored graduates from its surgical assistant training program in Sierra Leone between 2011 and 2016 [38, 39].

In total, 1753 examples of evaluation metrics were extracted from the 228 included publications. The 1753 metrics were collated into 3 "level one" themes evaluating providers (72.6%, 1272/1753), training programs (7.5%, 132/1753), and systems (19.9%, 349/1753). "Provider" metrics evaluated TS providers' competencies, operative outcomes, and practice characteristics. "Program" metrics evaluated the capacity, cost, and recognition allotted to TS/S training programs. "System" metrics evaluated the impact of existing surgical systems on TS/S providers and of TS/S providers on existing surgical systems. Ambiguities in the categorization of metrics were reviewed and arbitrated by senior authors (EJ, SJ). Each "level one" theme had one to three layers of nested subthemes for a total of 12 "level two" themes, 26 "level three" themes and 11 "level four" themes (Fig. 4, Additional File 7, Additional File 8). In most instances, evaluation pertained to both TS/S trainees and graduates; thus, we chose to group those two categories together under the umbrella of TS/S providers. Thematic saturation was achieved with base of 10 publications with 41 themes, run length of 5 articles after 10^{+10} publications with a saturation coefficient of 1/41 (2.4%) [31].

Provider metrics

TS/S providers were evaluated on criteria including clinical competencies, outcomes, and practice characteristics.

With 272 metrics over 130 publications (57.0%%, 130/228), TS/S providers' *clinical competencies* were predominantly evaluated using formal examination (1.0%, 17/1753) [23, 32, 41–55] and workplace-based assessments (WBAs) (1.9%, 34/1753). WBAs included objective structured clinical exams (OSCEs) [23, 30, 32, 35, 38, 41, 42, 45, 46, 56–75]. Examples of examinations of knowledge included multiple-choice questions about venous cut-downs administered to trainees in the United Kingdom and Sierra Leone [32]; pre- and post-teaching multiple-choice tests administered to general practitioners in South Sudan [23]; and national certifying exams for Assistant Medical Officers in Tanzania [52]. Providers' diagnostic accuracy was evaluated using 73 metrics (4.2%, 73/1753), including expert review of appropriateness of surgical indications [48, 62, 63, 76–87] and misdiagnosis rate [35, 41, 53, 60, 70, 84, 88–101].

Endoscopic procedures were well-suited for evaluation using metrics of diagnostic accuracy, because they could be easily videotaped and reviewed by experts [70, 88, 97], the procedure could be repeated by experts [94],

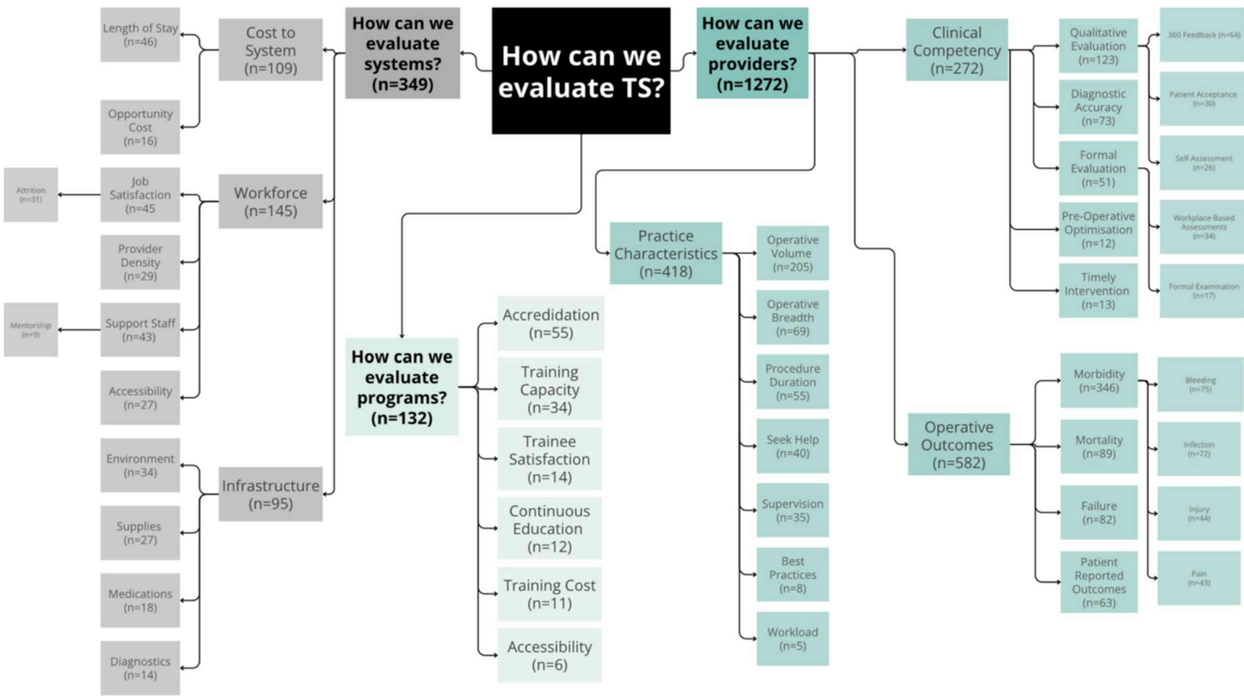

Fig. 4 Evaluation metrics applied to TS/S providers, programs, and systems. Refer to Additional File 8 for definitions of each category. (*n* = the number of times each evaluation metric was references in the included publications)

and findings could be compared to other diagnostic modalities (e.g., barium enemas) [88, 89, 96] and to the pathology [51, 84, 98]. Similarly, experts evaluated the correlation between final pathology and TS/S providers' diagnosis in the context of appendectomies [91] and gynaecologic dilations and curettage [35], and VP shunt placement by physician assistants could be confirmed radiographically [102].

Clinical competency was also evaluated using qualitative methods, including 360 feedback from peers, allied healthcare providers, and other surgeons (3.7%, 64/1753). Perceived clinical competency was also evaluated using patient- (1.7%, 30/1753) and self-reported (1.5%, 26/1753) metrics. For example, Canadian MD generalists with surgical skills were qualitatively assessed by two experts, who had to "sign-off" on the TS/S providers' skills [44]. Multiple metrics (1.7%, 30/1745) assessed patients' willingness to undergo a procedure by a TS/S provider or to be randomized to a study arm with TS/S providers [46, 56, 60, 63, 64, 68, 70, 96, 99, 103–115]. Self-assessment metrics included ratings of self-efficacy, confidence, and comfort on Likert-scales [42, 45, 73, 116–118].

The MD generalists' emergency surgical training in Ethiopia described several provider-specific evaluation metrics [74]. Experts evaluated TS/S trainee performance using a "Comprehensive Surgical Evaluation Form" (WBA) that included evaluation of correlation between the diagnosis and patients' symptoms (diagnostic accuracy), adequate and complete pre-operative investigations and treatments (pre-operative optimization), safety of tissue handling, and completeness of surgical documentation (best practices). The authors concluded that their training program may be used as a model for the training of MD generalists throughout Ethiopia [74].

We found examples of 582 *outcomes* metrics. TS/S providers' operative outcomes were evaluated quantitatively by measuring perioperative complications such as mortality (5.1%, 89/1753), "failure" (4.7%, 82/1753), post-operative bleeding (4.3%, 75/1753), infection (4.1%, 72/1753), injury to surrounding structures (2.5%, 44/1753), and pain (2.5%, 43/1753). Examples of procedure "failure" included hernia recurrence [30, 38, 40, 57, 119] and intrauterine device or ventricular shunt migration [3, 41, 56, 63, 120, 121]. Patient-reported outcomes were also captured in a few programs (3.6%, 63/1753). Metrics of patient satisfaction included patient-reported overall satisfaction and satisfaction with communication, technical quality, pain, and time spent with TS/S providers measured using visual analogue and Likert-scale [35, 36, 38, 40, 42, 45, 46, 57, 64, 67, 68, 71, 87, 92–94, 99, 103, 109, 114, 119, 122–132]. In several instances, TS/S program administrators asked patients if they would recommend the procedure to a family member or friend as a proxy for patient satisfaction [42, 45, 64, 67, 71, 105, 119, 123, 130].

TS/S providers' post-graduation *practice characteristics* were evaluated using operative volume (11.7%, 205/1753); procedure duration (3.1%, 55/1753); need for expert assistance in the form of verbal instruction, manual assistance, or referrals (2.3%, 40/1753); level of practice independence (2.0%, 35/1753); adherence to best practices (0.5%, 8/1753); and workload (0.3%, 5/1753). Measures of workload included quantitative metrics, such as the number of full-time TS/S providers [39, 133], and qualitative metrics, such as reports from Medical Officers in Ghana in which they described being overworked [134]. Evaluations of best practices included evaluations of TS/S providers' use of surgical safety checklists [57, 133] and quality of medical records [39, 67, 99, 135, 136].

Program metrics

Program recognition (3.1%, 55/1753), training capacity (1.9%, 34/1753), trainee satisfaction (0.8%, 14/1753), and cost (0.6%, 11/1753) were all used evaluate TS/S training programs. Some programs were recognized by national governments [42, 45, 47, 50, 52, 55, 56, 73, 85, 103, 106, 115, 118, 122, 137–155] or through another type of diploma or certificate [45, 58, 59, 75, 84, 137–139, 149, 156–159]. In terms of cost, one publication estimated the costs of training and deploying TS/S providers using budget reviews, annual expenditure reports, enrolment registers, accounting statements from training institutions, and interviews with directors and administrators in Mozambique and Tanzania [37]. Trainee satisfaction was evaluated using perceived relevance of training to practice [145, 160–163] and the overall satisfaction with trainings [118]. One study described using proxies for trainee engagement, including the number of hours trainees logged on virtual modules [23]. Additionally, TS/S trainers evaluated the length, complexity, and availability of training resources [41].

Systems metrics

Publications evaluated the impact of existing surgical systems on TS/S providers, and of TS/S providers on surgical systems. To analyse the impact of systems on TS/S providers, publications reported the availability of diagnostic tools, including laboratory investigations and imaging [20, 62, 73, 106, 141, 145, 162, 164–169]; medications, including intravenous fluids and blood [37, 45, 58, 78, 86, 116, 133, 134, 166–168, 170–175]; supplies, including sterilized instruments; [45, 52, 57, 65, 116, 120, 122, 133, 135, 141, 146, 153, 157, 164, 167, 174, 176–183] and designated care areas, including pre- and post-operative units [37, 58, 69, 106, 111, 112, 116, 134, 135, 146, 153, 157, 164, 166, 167, 172, 173, 176, 177, 184, 185]. Systems-level factors were reported to have a significant impact on TS/S activities; for example, TS/S cataract surgeons reported being unable to practice surgery in East Africa due to the lack of key infrastructure and equipment [177].

TS/S provider satisfaction was described in 37 publications (16.2%, 37/228). One publication specifically described TS/S graduates' satisfaction with the financial compensation that they received and their opportunities for career advancement [122]. Several publications used TS/S provider attrition to monitor job satisfaction. For example, we found reports of TS/S provider attrition due to lack of equipment [146], provider demise [37, 43, 50, 135, 162], personal reasons [37, 43, 50], promising alternative career opportunities [116, 138, 166], and insufficient progress through training [43, 138]. There was heterogeneity in the way TS/S provider attrition was reported because of disparities between the number of TS/S trainees who began training and the number who continued to practice at the time of evaluation; losses to follow-up; and variability between the time between training completion and evaluation of ongoing practice.

The impact of TS/S providers on surgical systems was evaluated by analysing the costs associated with TS/S providers. For example, the costs of MD generalists performing groin hernia repairs in Ghana [186] and of Clinical Officers performing Caesarean sections in Burkina Faso [83] were compared to the costs of specialists delivering similar types of care. Many publications commented that TS/S providers working in regions without access to specialists provided care locally, negating the need for costly patient transfers [82, 155, 187–189]. While the majority of publications concluded that TS/S practice was more cost effective than specialist care [37, 40, 41, 52, 83, 93, 99, 104, 133, 150, 155, 158, 186–196], some authors were critical of the high costs of running small-volume surgical centres in sparsely populated HICs like Canada [197, 198]. Similarly, in regions with significant financial constraints, one author suggested that money should be used to support unemployed high-skilled workers before money is spent to train lower-skilled workers [104]. Others reported that TS/S providers lightened the load of specialists, allowing them to spend more time on high-skilled tasks or offload specialists amidst disasters such as the Ebola crisis [61, 125, 130, 185, 190, 199, 200].

Discussion

This scoping review synthesizes nearly five decades of literature on the evaluation of surgical task-shifting and task-sharing (TS/S) programs worldwide. Unsurprisingly, most programs were reported in low-income countries, particularly in sub-Saharan Africa, where the Lancet

Commission has documented the greatest unmet surgical need [1]. Obstetric, gynaecologic, general surgical, and orthopaedic procedures were most frequently taught, reflecting alignment with established Bellwether procedures—Caesarean section, laparotomy, and management of open fractures [201]. The prominence of these procedures within surgical TS/S programs suggests that TS/S is being strategically leveraged to close critical gaps in access to essential surgical care.

Task-shifting and task-sharing often take place outside of academic institutions and lack the administrative support that exists within formal post-graduate programs [8]. Despite this obstacle, we identified 49 TS/S evaluation strategies in over 40 countries, demonstrating the feasibility of monitoring and evaluating TS/S programs even in resource-constrained settings. Importantly, the heterogeneity of monitoring and evaluating metrics highlights both the ingenuity of local adaptations and the lack of standardized frameworks. By categorizing these metrics into provider-level, program-level, and system-level domains, our review provides a structured lens through which the diversity of evaluation approaches can be understood and compared.

At the provider level, the most frequently reported evaluation metric in our review was post-operative outcomes—a critical surrogate for patient safety. Operative volume, which remains the only validated indicator of quality post-graduate surgical education, was the next most commonly reported indicator [202–204]. Reliance on case counts alone, however, risks obscuring important dimensions of competency [202, 205]. Less frequently reported metrics, such as diagnostic accuracy, workplace-based assessments, and patient-reported outcomes, may offer more nuanced insights into the quality of training and practice and reflect a transition towards competency, as opposed to time based, evaluation strategies in surgical education [202, 205].

Program-level evaluation was sparse, with certification emerging as the most consequential metric. Many TS/S programs operate outside of academic institutions and lack recognition by national licensing bodies, limiting graduates' career trajectories and retention [104, 127, 146, 206, 207]. Even highly regarded initiatives, such as the CapaCare program in Sierra Leone, continue to face barriers to formal recognition [208]. Standardizing surgical TS/S program certification and recognition at national and international levels could strengthen the legitimacy of TS/S graduates, expand their scope of practice, and improve workforce retention.

At the systems level, longitudinal monitoring of TS/S graduates and their integration into surgical systems was rare but highly informative. Programs such as the Ghana Hernia Society and CapaCare demonstrated the value of long-term follow-up for capturing surgical outcomes, provider retention, and systemic barriers [38, 208]. Longitudinal follow-up on TS/S providers within surgical systems is critical, given that the reported retention of TS/S providers in surgical systems is highly variable and as low as 0% [87]. Without longitudinal evaluation, the sustainability and broader health system impact of TS/S initiatives remain unclear.

This review is primarily limited by heterogeneous and potentially duplicate data, which made it difficult to neatly quantify and categorize monitoring and evaluation strategies. Further, the applicability of evaluation metrics is highly dependent on context, as certain evaluation metrics work better in some settings and for some procedures than others. For example, video recording a procedure may not be feasible in low-resource settings due to a lack of equipment, internet connectivity, and electricity. However, the purpose of this scoping review was not to prescribe which evaluation metrics should be used, but rather to identify existing monitoring and evaluation metrics for surgical TS/S to lay the groundwork for future proposition of monitoring and evaluation frameworks.

Additional limitations pertain to our search strategy. We did not systematically review grey literature, because we believe that we reached thematic saturation using the literature captured in our academic database review and snowballing given our sample size of 228 articles is much larger than the 20 articles required to achieve a saturation coefficient of 2.4% [31]. Along the same lines, academic curricula are not typically published in academic databases, so we potentially missed syllabi and documents pertaining to TS/S provider evaluation at the programmatic level that may have also detailed evaluation metrics. Additionally, we did not evaluate TS/S in non-surgical specialties, even though methods of TS/S evaluation in these spaces may be generalizable to surgical TS/S programs. Finally, there is a bias in the literature to describe novel interventions and therefore longitudinal TS/S programs may be underrepresented in our review.

Conclusion

This review consolidates current knowledge on the evaluation of surgical task-shifting and task-sharing (TS/S) programs and highlights significant gaps in standardized assessment. We identified 1753 evaluation metrics across 228 publications, underscoring both the breadth of efforts to monitor TS/S and the heterogeneity that limits comparability. Overall, the diversity of evaluation approaches underscores the need for a more comprehensive but adaptable framework for TS/S monitoring.

Moving forward, the development of a unified, multilevel TS/S evaluation framework is essential.

This framework should combine provider-level competency metrics with program-level recognition and systems-level impact assessment. Crucially, it must be flexible enough to accommodate varying resource constraints while still enabling cross-program comparisons. By aligning evaluation practices across settings, future TS/S programs can more effectively demonstrate safety, legitimacy, and impact. In doing so, TS/S evaluation can move beyond documenting feasibility toward guiding sustainable scale-up, ensuring that surgical TS/S programs contribute meaningfully to strengthening surgical capacity where it is most needed around the globe.

Supplementary Information

The online version contains supplementary material available at https://doi.org/10.1186/s12960-026-01056-0.

Supplementary Material 1. PRISMA 2020 checklist for abstracts.
Supplementary Material 2. PRISMA 2020 checklist.
Supplementary Material 3. Pre-review protocol.
Supplementary Material 4. Detailed search strategy.
Supplementary Material 5. Data Extraction template.
Supplementary Material 6. Definitions of TS/S provider cadre.
Supplementary Material 7. Evaluation metrics reported in each record.
Supplementary Material 8. Evaluation metrics codebook definitions.

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Author contributions
CB, EC, HW, EJ and SJ designed the study protocol. CB, RT, JT, ZJ, LQC, LB, CB, HW were responsible for the acquisition and analysis of data for the work, CB drafted the manuscript, and all authors provided editing and final approval of the manuscript.

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Data availability
Data available in Additional File 5 and 7.

Declarations

Ethics approval and consent to participate
Not applicable.

Consent for publication
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Competing interests
The authors declare no competing interests.

Author details
[1]Global Surgery Lab, Branch for Global Surgical Care, University of British Columbia, Vancouver, Canada. [2]Division of General Surgery, Department of Surgery, University of Ottawa, Ottawa, Canada. [3]Division of General Surgery, Department of Surgery, University of British Columbia, Vancouver, Canada. [4]Faculty of Medicine, University of British Columbia, Vancouver, Canada. [5]Faculty of Land and Food Systems, University of British Columbia, Vancouver, Canada. [6]Division of Family Medicine, University of Calgary, Calgary, Canada. [7]Department of Obstetrics/Gynecology, Faculty of Health Sciences, McMaster University, Hamilton, Canada. [8]Department of Surgery, University of Washington, Seattle, WA, USA. [9]Section of Trauma and Acute Surgery, Division of General Surgery, Department of Surgery, University of British Columbia, Vancouver, Canada. [10]Division of Paediatric Surgery, Department of Surgery, University of British Columbia, Vancouver, Canada.

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