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The Need for Children's Surgical Care Prioritisation in National Surgical Care Policies: A Systematic Review of National Surgical Obstetric and Anaesthetic Plans (NSOAPs) in Sub-Saharan Africa

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ABSTRACT

Background: Children born in Sub-Saharan Africa (SSA) have an 85 % risk of requiring surgical care by the age of 15 [1,2]. Yet, children's surgery has been largely neglected by global health policies. National Surgical Obstetric and Anaesthetic Plans' (NSOAPs) reflect countries' strategic health priorities, policies, and targets related to surgical care. This study assessed the prioritisation of children's surgical care in national surgical care policies in SSA.

Methods: This systematic review of national surgical care policies in SSA conducted in December 2022, analysed NSOAPs developed in SSA electronically for search terms "child*", "pediatric*", "paediatric*" and evaluated manually for children's surgical care in relation to the NSOAP domains, health system building blocks, and surgical care. Policies were evaluated for collaboration.

Results: Eight policies met the inclusion criteria. In the 797 (M = 99.63; SD = 34.83) text-containing pages analysed, there were 258 (15.5; 0–164) mentions of children's surgery search terms. Twenty-five percent (n = 2) of the NSOAPs dedicated sections to children's surgical care, 62.5 % (n = 5) mentioned children's surgery, and 12.5 % (n = 1) did not mention children's surgery. Children's surgery received citations in 25 % (n = 2) of backgrounds, 37.5 % (n = 3) of situational analyses, 87.5 % (n = 7) of strategic frameworks, 37.5 % (n = 3) of monitoring and evaluation, and 25 % (n = 2) of the costing sections. Overall, 62.5 % (n = 5) of countries included a children's surgery stakeholder.

Conclusion: NSOAPs are a pragmatic measure of national surgical care priorities. Our findings suggest children's surgery is not widely recognised even where commitments to improving surgical care exist. Greater prioritisation of children's surgery is needed in surgical policy development.

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1. Introduction

The global burden of surgical disease is significant. It is estimated that approximately 5 billion people lack access to safe surgical care when needed [3]. Of these, approximately 1.7 billion children and adolescents do not have access to surgical care. Lack of access to surgical care disproportionately affects populations in low- and middle-income countries (LMICs) where children make up a large fraction of the population [2–4]. Almost 85 % of children will have a disease requiring surgery by the age of 15 [1]. In Sub-Saharan Africa, where children make up a half of the population, access to surgical care for children remains an area of global and child health that is often overlooked [5].

Global health research, interventions, policies and resources in the context of children's child health, historically have under-represented children's surgical disease when compared to surgical care and when compared to child health interventions [4]. This may be due to the different resources required and prioritisation of infectious diseases at a global scale [1,4]. This means that if children's

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surgical care is not integrated into strategies geared at surgical health systems strengthening, there is a high risk, that children will not receive appropriate healthcare where and when needed.

The Lancet Commission on Global Surgery (LCOGS) proposed National Surgical Obstetric and Anaesthesia Plans (NSOAPs) as the guiding framework through which the health systems strengthening required to deliver equitable access to surgical care could be achieved [3,6]. National Health Strategic Plans (NHSPs) have long-since been utilised by countries to enact local, regional and international health priorities [7,8]. NHSPs guide strategic public health interventions and demonstrate in principle commitments to a country's healthcare priorities [7].

While NSOAP uptake has been slower than expected globally, developing an NSOAP can be seen to demonstrate a country's commitment to surgical care provision and integration into national strategic health priorities. However, little is known about the level of priority given to children's surgical care in Sub-Saharan Africa. This study appraises existing national surgical policies (NSOAPs) in relation to children's surgical care and aims to assess the prioritisation of children's surgical care in national surgical care policies in SSA.

2. Methods

2.1. Information sources

The national surgical care policies (NSOAPs) of 8 countries in Sub-Saharan Africa were searched online using Google, Harvard Medical School's Program in Global Surgery and Social Change's (PGSSC) website (which served as a database for national surgical care plans) and sourced from the authors' archives in December 2022 [9].

2.2. Search strategy and selection process

All countries in SSA were considered. If the title of the document contained the terms “national”, “surgical” and “plan” or “policy” or “strategy”, the document was included for analysis. All policy documents available for review in December 2022 were included for analysis. No documents meeting these criteria were excluded.

2.3. Data extraction

Plans were evaluated for the use of the terms “NSOAP” in the title of the policy. Within the national surgical care plans, a search for the terms “child*”, “pediatric*”, “paediatric*” and “surg*”, “procedure*”, “operat*” was performed. The plans were evaluated manually for mention of children's surgical care in relation to the major NSOAP domains and chapters according to the UNITAR NSOAP Manuel [10]. These chapter domains were: background, situational analysis, strategic framework and programme, measurement and evaluation (“M&E”), and costing [3,10]. Mentions of children's surgery were also evaluated in the context of surgical health system building blocks in terms of infrastructure, equipment and supplies, health workforce, service delivery, information management and research, leadership and governance, and financing [3,10]. For each chapter and domain, the level of prioritisation was evaluated by categorising children's surgery as having a “dedicated section”, being “mentioned” or having “no mention”. In terms of the United Nation's Sustainable Development Goals (SDGs) and their relation to children's surgery, additional searches for terms “sustainable development goal*” and “SDG*” were included. To evaluate mention of children's surgical conditions, additional searches for the terms surgical “procedure*”, “surger-*”,”operat*”, “trauma*” and “injur*”; “cancer*”, “malignan*” and “oncolog*”; “congenital”; and “emergen*” were performed. The policies were manually evaluated for collaboration with the following children's surgery stakeholders: strategic partners, multilateral organisations, and children's surgery professional societies. To gain an overall sense for prioritisation of children's surgery, these terms were searched in a general context where specific reference to children was not made and citations reported separately. Data was extracted by GH using Microsoft Excel (2018).

2.4. Data analysis

The search process and inclusion and exclusion criteria are presented in the PRISMA diagram (Fig. 1). Findings were tabulated and descriptive statistics applied. Proportions and descriptive statistics for levels of prioritisation for each surgical plan were calculated.

2.5. PRISMA statement

A PRISMA 2020 checklist was completed for this study [11]. This review was not registered a priori.

3. Results

3.1. Policy selection

Of the 8 countries in SSA with national surgical plans that met the inclusion criteria, 5 were available in the public domain and retrieved from PGSSC's website [9,12–15]. For those not available through the PGSSC's website, a separate Google Search was carried out and purposive searching undertaken. This did not return results containing the policy documents. A search of the authors' archives (GH and EM) and networks yielded a further 3 national surgical care plans [16–18]. One was shared with the authors via the Southern African Development Community Technical Experts Working Group's (SADC-TEWG) communication platform, 1 was provided to the authors as an advanced copy following finalisation and 1 was retrieved through the authors' archives (Fig. 1) [9]. A ninth policy document that mentions operative care but was not identified as a national surgical plan was excluded as it did not meet the inclusion criteria of having a title that denotes a strategic focus on surgical care. The selection of policies is shown in the flow diagram (Fig. 1) [11].

3.2. Policy characteristics

All the included national surgical plans were published from 2017 to December 2022. Two policies have reached the policy end-dates. The policy documents had a mean of 99.63 (SD = 34.83) pages containing text. In terms of the titles of the policies, 62.5 % (n = 5) were called “NSOAP”, and 37.5 % (n = 3) had different titles. Of these 3, 2 only differed by a single word when compared to the term “NSOAP”, but still met the inclusion criteria. Policy characteristics are shown in Table 1.

3.3. Surgical health system alignment

Sections and subsections describing surgical health system building blocks were evaluated from the table of contents and through manual evaluation of the policy documents' contents and citation locations. None of the documents uniformly separated surgical health system building blocks. These domains were condensed or modified, and terminology altered.

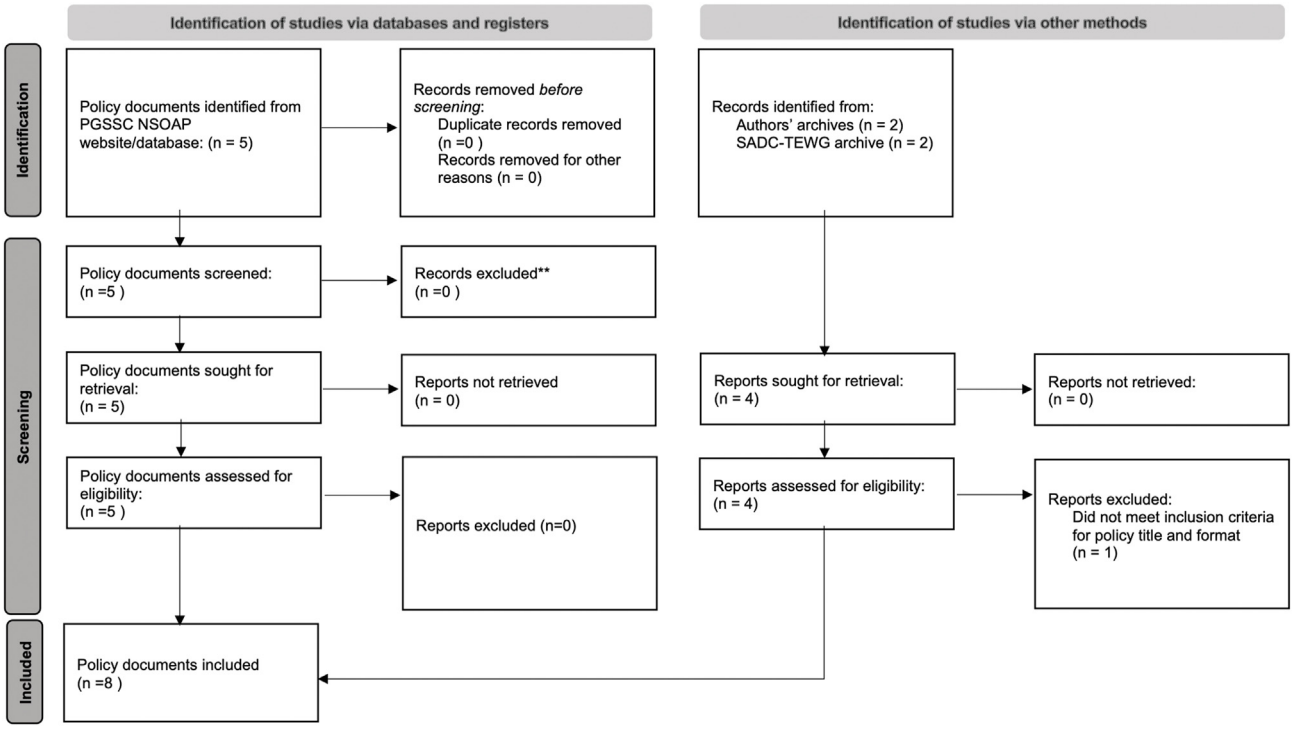

Fig. 1. PRISMA flow chart.

3.4. Children's surgery prioritisation

3.4.1. National surgical plan chapters

Throughout the 797 (M = 99.63; SD = 34.83) text-containing pages analysed, there were a total of 258 (15.5; 0–164) mentions of the search terms pertaining to children's surgery. Twenty-five percent (n = 2) of the national surgical plans dedicated sections to children's surgical care, 62.5 % (n = 5) mentioned children's surgery to some extent throughout various sections and 12.5 % (n = 1) did not mention children's surgery at all (Table 2). Children's surgery was mentioned in 25 % (n = 2) of policy background chapters, 37.5 % (n = 3) of the situational analysis, 87.5 % (n = 7) of strategic framework and programmes sections, 37.5 % (n = 3) of monitoring and evaluation (M&E) sections, and 25 % (n = 2) of the costing sections (Fig. 2). When mentions of children's surgery were evaluated in the context of surgical health system building blocks, 12.5 % (n = 1) NSOAP dedicated a section to children's surgery in terms of infrastructure, service delivery and financing, while none of the documents mentioned children's surgery in the context of research and quality improvement (Fig. 3).

3.4.2. Children's surgical care

Common paediatric surgical conditions, childhood cancers, trauma and injuries to children, and paediatric surgical emergencies were each mentioned in 37.5 % (n = 3) of the policies. Congenital anomalies were mentioned in 50 % (n = 4) of the policies. Only 37.5 % (n = 3) of the policies mentioned all 5 categories of children's surgical conditions. Within the documents the ratio of mentions of children's surgical conditions compared to mentions of surgical conditions without specific mention of children were on average 0.07 (SD = 0.1) for common and emergency surgical conditions, 0.09 (SD = 0.13) for cancer, and 0.09 (SD = 0.12) for trauma and injury. Little primary data on incidence and prevalence of children's surgical conditions is reported in countries' national surgical plans. Where baseline data

Table 1
National surgical plan included in review with policy characteristics.

Policy Title	Policy Dates (start-end)	Country	Number of text-containing pages	Number of mentions of children's surgery	Source
National Plan for the Development of Surgery in Madagascar	*not mentioned	Republic of Madagascar	115	0	Archives
National Safe Surgery Strategic Plan: Saving Lives through Safe Surgery (SaLTS)	2016–2020	Federal Democratic Republic of Ethiopia	111	18	PGSSC
National Surgery, Obstetric, and Anaesthesia Plan (NSOAP)	2016–2025	United Republic of Tanzania	79	1	PGSSC
National Surgery, Obstetric, and Anaesthesia Strategic Plan (NSOASP)	2017–2021	Republic of Zambia	112	13	PGSSC
National Surgery, Obstetric, and Anaesthesia Plan (NSOAP)	2018–2024	Republic of Rwanda	81	4	PGSSC
National Surgery, Obstetric, Anaesthesia and Nursing Plan (NSOANP) for Nigeria	2019–2023	Federal Republic of Nigeria	165	164	PGSSC
National Surgery, Obstetric, and Anaesthesia Strategy (NSOAS)	2022–2025	Republic of Zimbabwe	47	18	SADC-TEWG
National Surgery, Obstetric, and Anaesthesia Plan (NSOAP)	2023–2026	Republic of Namibia	87	40	SADC-TEWG; Archives

Table 2
Search results with total number and frequency of citations.

Search results	Search terms	Total citations specific to children's surgery (med; min–max)	Percentage of policies with citation % (n =)	Total unspecified citations (med; min–max)	Percentage of policies with unspecified citations % (n =)	*Total citations*	*Percentage of citations specific to children %*
Common surgical conditions	*surg*, procedure*, operat**	8 (1; 0–2)	50 (4)	360 (46; 4–92)	100 (8)	*368*	*2.17*
Cancer	*cancer, malign*, oncolog**	18 (0; 0–14)	37.5 (3)	101 (9; 0–46)	87.5 (7)	*119*	*15.13*
Trauma and Injury	*trauma*, injur**	16 (0; 0–8)	37.5 (3)	142 (17.5; 3–39)	100	*158*	*10.13*
Congenital anomalies	*congenital*	29 (0.5; 0–14)	50 (4)	–	–	*29*	-
Surgical emergencies	*emergen**	9 (0; 0–6)	37.5 (3)	–	–	*9*	-
Children's surgery (unspecified)	*child*, paediatric*, pediatric* and surg*, procedure*, operat**	258 (15.5; 0–164)	87.8 (7)	–	–	*258*	-
Sustainable Development Goals (SDGs)	*sustainable development goal, sdg*	8 (0; 0–8)	12.5 (1)	38 (3.5; 1–17)	100 (8)	*108*	*7.41*

around children's surgical conditions and care was reported, this data was largely from small studies from which inference at national or regional level was not possible, or small local studies or multicentre international studies which were not powered to make inferences for local strategies targeting children's surgical care. Only 1 policy mentioned SDGs met by addressing children's surgical care. In comparison, mentions of SDGs unrelated to children's surgery was noted in the all the documents (3.5; 1–17).

3.5. Stakeholder engagement

Of the 8 documents included, 37.3 % (n = 3) acknowledged children's care multilateral organisation involvement, 12.5 % (n = 1) acknowledged a non-governmental organisation (NGO) involved in children's surgical care, 12.5 % (n = 1) acknowledged engagement with children's surgical care professional societies and 50 % (n = 4) acknowledged the roles of children's surgical care providers in the development of the policy. Overall, 62.5 % (n = 5) of the countries included at least one category of children's surgical care stakeholder. A Spearman's rank correlation to assess the relationship between children's surgery stakeholder inclusion and number of children's surgery citations showed a positive correlation, $r(6) = 0.45$, $p = 0.26$, $p < 0.05$.

4. Discussion

This systematic review of national surgical care plans in Sub-Saharan Africa (SSA) reveals limited emphasis of children's surgical

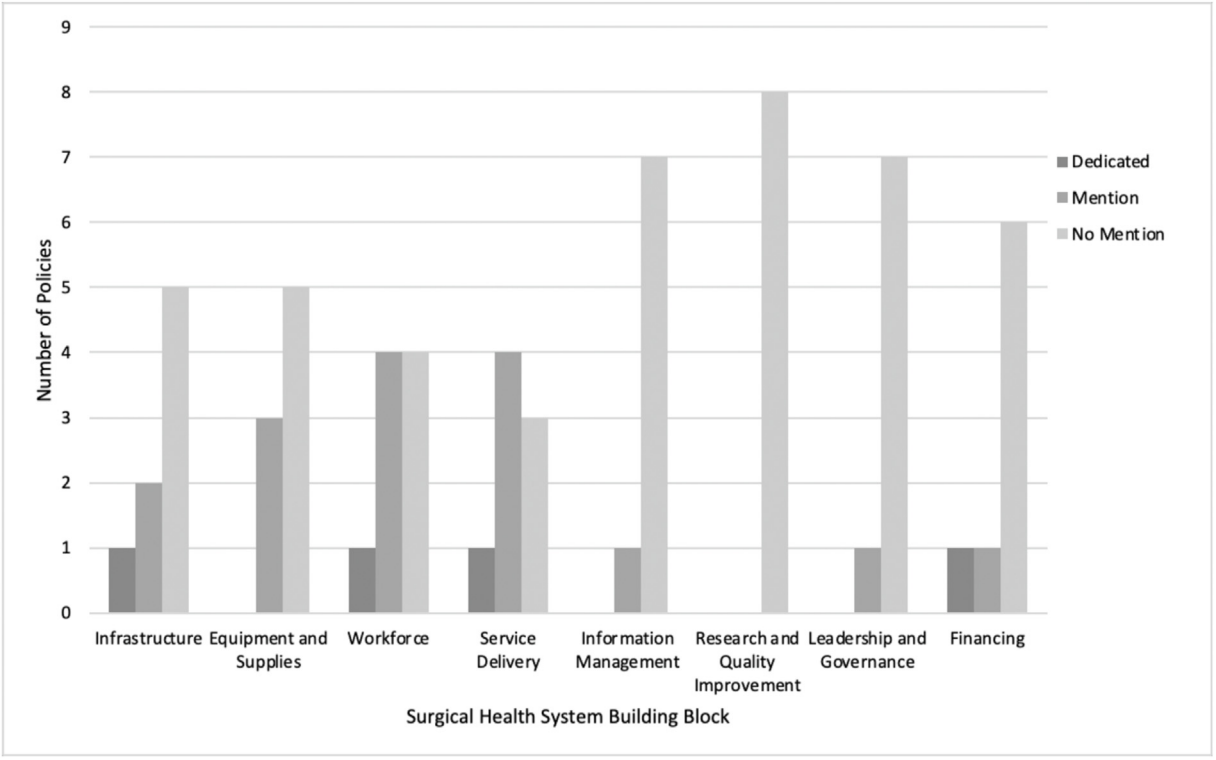

Fig. 2. Number of policies and level of prioritisation of children's surgical care in terms of surgical health system building blocks.

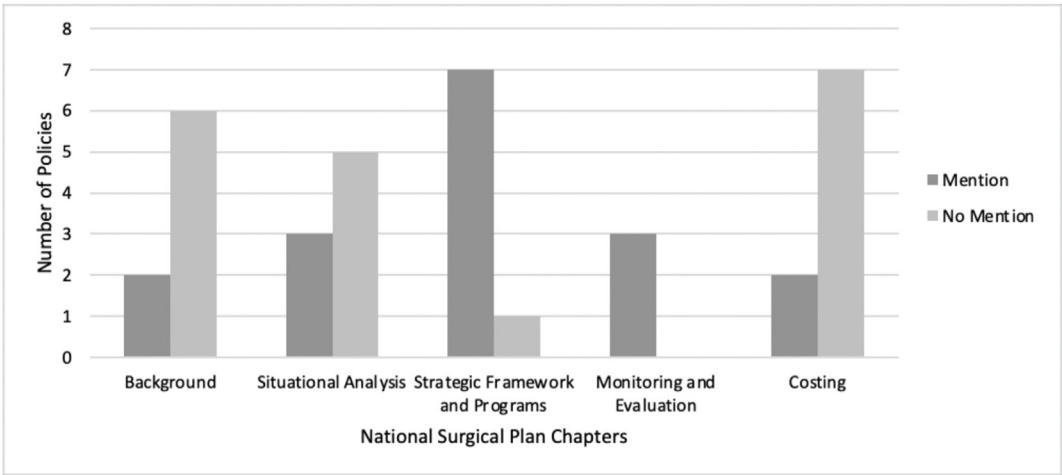

Fig. 3. Number of policies and level of prioritisation of children's surgical care terms in national surgical plans.

care within health policies, even in countries with dedicated surgical care policies- National Surgical, Obstetric and Anaesthesia Plans (NSOAPs). Despite their potential as advocacy tools, NSOAP adoption has been slower than expected, with only 8 of the 48 countries in SSA developing NSOAPs in the conventional format [6,10]. On a wider scale, National Health Policies, Strategies and Plans (NHPSPs) play a pivotal role in prioritising a country's public health programs [7,19]. Surgical care has historically been underrepresented in NHPSPs, further reinforcing the need for national surgical care plans [3,8,19]. While access to safe surgical care in general is receiving increasing attention, the question of whether children's surgery is receiving adequate support in the context of global surgery remains.

Overall, only 25 % of NSOAPs in SSA dedicated sections to children's surgery, with minimal citations of children's surgery compared to general citations of surgical conditions, cancer and trauma and injury (Table 2). This underrepresentation occurs despite almost half the population in SSA being children, with 85 % of those expected to require surgical care before the age of 15 [1,4,5]. While the number of citations in a national surgical policy document may not fully represent the reality of country-level surgical healthcare delivery, it provides insight into current trends and priorities for health planners. This was suggested by Citron. et al. (2016) in a systematic review of NHPSPs that evaluated the prioritisation of surgery relative to other priority programs [8]. This concept emphasises the role that surgical care prioritisation through NSOAPs plays in improving surgical care focus and support on the national level.

While the policy documents in this review displayed variability in terms of NSOAP titles, chapter structure and the categorisation of health system domains compared to proposed framework, core principles were considered in all the policies [3,10]. Local health policy language and formats, contribute to variability in the documents' lengths, depth of analysis, and domain categorisation [20]. This made direct comparisons using number of citations difficult. Thus, we evaluated prioritisation in the context of health system building blocks and major chapters in terms of dedicated sections, some mention, and no mention at all. Children's surgery was cited most frequently in workforce and service delivery domains, indicating potential benefits for the broader health system. Sections dedicated to children's surgery infrastructure, workforce, service delivery and financing were found in only 1 NSOAP. This NSOAP used a baseline assessment tools designed to evaluate children's surgical care and cited the most local primary data around children's surgical care and children's surgical disease [15]. These findings emphasise an urgent need to improve children's surgical care research capacity and collaboration in the region. Data and indicators are key strategic planning and decision-making tools for policymakers. Without this vital data, children's surgery is unlikely to receive the attention and resources it requires. NSOAPs present a well-structured and demonstrated avenue for children's surgical care integration in national health planning. With 2 of the NSOAPs having approached, and 4 approaching, the policy end-dates show that the opportune time for strategic prioritisation of children's surgery is now during the policy update and review process.

Representation and inclusivity are important aspects of the stakeholder engagement process [10]. NSOAPs that included strategic children's surgery stakeholders had a positive association with increased citations of children's surgery. This review highlights the role that multilateral, surgical care, academic, political and advocacy organisations play in developing national surgical plans. The role that organisations such as the SADC-TEWG, PGSSC and Wits SADC Regional Collaboration Centre for Surgical Healthcare (WitSSurg) play in information-sharing, problem-solving, advocacy and collaboration, as well as in providing technical support for NSOAP development is evident.

5. Limitations

Differences in policy structure make comparability of the number of citations difficult. The authors accounted for possible variations in terminology, language, and spelling. This search strategy did not include NHPSPs with different titles, or that are not independent from existing national health plans or plans to address children's surgery. It is possible that other documents for policies that include children's surgery are in use. Further work is needed to evaluate the prioritisation of children's surgery in the context of child health policies, child health programs and NHPSPs in general to better integrate children's surgical care across various health system domains.

6. Conclusion

National surgical, anaesthesia and obstetric plans (NSOAPs) play an indivisible role in surgical care prioritisation. NSOAPs are a pragmatic measure of national surgical care priorities. Our findings suggest that children's surgical care is not widely recognised as a public health priority even where a commitment to improving

surgical care in general exists. Greater prioritisation of children's surgery is needed in surgical policy development to ensure robust and equitable surgical systems are developed.

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