

Expansion of national surgical, obstetric, and anaesthesia plans in Latin America: can Brazil be next?



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Summary

On the sidelines of the 75th Session of the Regional Committee of the World Health Organization for the Americas, the Republic of Ecuador hosted an event to expand on National Surgical, Obstetric, and Anaesthesia Plans (NSOAPs). NSOAPs are policy frameworks that offer governments a pathway to incorporate surgical planning into their overall health strategies. In Latin America, Ecuador became the first country to lead the development of an NSOAP and is fostering regional efforts for other Latin American countries to have sustainable surgical strengthening plans. Brazil is a prominent candidate for enrolling in an NSOAP process to enhance its public health system's functionality. An NSOAP in Brazil can help mitigate social disparities, promote greater efficiency in allocating existing resources, and optimise public health system financing. This process can also encourage the creation of resources and distinct NSOAP vocabulary in Portuguese to facilitate the development of NSOAPs in other Portuguese-speaking and low- and middle-income countries. In this viewpoint, we explore why an NSOAP can benefit Brazil's surgical system, national features that enable surgical policymaking, and how multiple stakeholder engagement can contribute to the country's planning, validation, and implementation of an NSOAP.

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In September 2023, the 75th Session of the Regional Committee of the World Health Organization (WHO) for the Americas convened representatives and

leaders to discuss regional health priorities.¹ A side event led by the Republic of Ecuador, the first country to develop a National Surgical, Obstetric, and Anaesthesia Plan (NSOAP) in Latin America, encouraged other Pan American Health Organization (PAHO) countries to integrate surgical planning within their health system strategies. Following the discussion promoted by this event, a question arises: Could an NSOAP be the next step to achieve a more robust

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surgical system and, ultimately, a better public health system in Brazil?

To answer this question, it is crucial to understand why ensuring secure, timely, and affordable surgical care is needed and cost-effective. In 2015, the Lancet Commission on Global Surgery estimated that five billion people, roughly 70% of the global population, lack access to surgical care.² However, this gap disproportionately impacts low- and middle-income countries (LMICs), where nine out of ten individuals cannot access adequate surgical, obstetric, and anaesthesia (SOA) care.² Moreover, surgical conditions account for 28% of disability-adjusted life years, 30% of years of life lost, and 23% of years lived with disability of the global burden of disease.³ Importantly, LMICs are projected to lose US\$12.3 trillion without increased investment for surgical scale-up by 2030.

In light of this evidence, several events centred on surgical system strengthening as a policy priority. The Lancet Commission on Global Surgery introduced the NSOAP framework.² Concurrently, the World Bank published the Disease Control Priorities 3 (DCP-3), highlighting 44 surgical procedures ranked among the most cost-effective health interventions and capable of saving 1.5 million lives yearly.⁴ In 2015, the World Health Assembly unanimously approved resolution 68.15 mandating Member States to strengthen emergency and essential surgical and anaesthesia care to achieve universal health coverage.⁵ More recently, in May 2023, these efforts were underlined by the adoption of resolution 76.2, which encouraged Member States to develop national policies and strategies for long-term finance, governance, and universal access to emergency, critical, and operative surgical services.⁶

NSOAPs are policy frameworks that offer a systematic approach for governments to strengthen their surgical systems. These plans are strategically designed for integration into national health policies, ensuring broad implementation and scalability.⁷ NSOAPs address six health system building blocks: infrastructure, service delivery, information management, workforce, financing, and governance.⁷ Worldwide, over 40 countries are in different stages of the NSOAP process, with 11 countries in the implementation phase, and more than 11 others currently in the developmental phase.^{8,9} Despite limited evidence on the impact and efficacy of NSOAPs due to their recent implementation, countries are gradually reassessing their analyses to compare outcomes with baseline results, typically conducted every five years.¹⁰ Evidence from Ethiopia illustrates a surge in the national surgical workforce, increasing nearly fourteen-fold from 0.35 to 5.19 specialists per 100,000 population between 2016 and 2020.¹¹ This growth has been attributed to a probable relation with accelerated

training programs, such as the Integrated Emergency Surgical Officer (IESO) program and nurse anaesthetist training, demonstrating promising advancements in surgical care.¹¹

Nonetheless, implementing NSOAPs is fraught with challenges, particularly insufficient funding.¹² Some countries have devised the following strategies to mitigate these constraints, serving as replicable models for aspiring NSOAPs. First, effective NSOAP planning necessitates the upfront calculation of expenses. This approach allows policymakers to allocate resources judiciously and anticipate potential funding gaps. For example, the initial estimated implementation costs of NSOAPs stood at \$69.7 million in Rwanda, \$171.44 million in Zambia, \$597 million in Tanzania, and \$16.8 billion in Nigeria.¹³ These estimates underscore the scale of investment required to ensure the successful rollout and sustainability of NSOAPs. Another strategy consists of obtaining political support and partnerships. In Nigeria, the Ministry of Health enabled entry points to drive a pilot implementation with non-governmental organisations, health facilities, and surgical colleges.¹⁴ This pilot enabled an electronic surgery registry, increased research capacity among surgical practitioners, and provided training opportunities in basic life support, safe perioperative care, and surgical instrument repair.¹⁵ The pilot demonstrated the plan's practicality, and full implementation is in progress.¹⁴ Innovative financing solutions should also be considered for SOA planning.¹² Several mechanisms were proposed in Nigeria, including expansion of the national health insurance scheme, public-private partnerships, and promoting regional in-country investments in West Africa.¹⁵ However, applying these financial mechanisms to NSOAP budgeting has yet to be expanded. Despite these challenges, current efforts demonstrate that NSOAPs are feasible policies that catalyse growth and innovation opportunities.¹²

In Latin America, Ecuador became the first country to lead the development of an NSOAP. In 2021, the Ecuadorian Vice President's Office committed to establishing a plan to strengthen the national surgical system with technical assistance from Harvard Medical School's Program in Global Surgery and Social Change (PGSSC).⁸ Launched in November 2023, the Ecuadorian NSOAP, entitled National Surgical System Strengthening Plan, is currently being implemented.¹⁶ As expected, the Ecuadorian NSOAP process encountered challenges that can occur in other Latin American countries. One of its primary challenges was securing support from various governmental entities, an effort significantly led by the Vice Presidency Office.¹⁶ Moreover, embracing transparency of data collected to identify gap indicators represented an opportunity to drive decision-making and plan targeted interventions across

involved governmental institutions. The Ecuadorian NSOAP also faced unconventional circumstances, as the policy was formulated amidst a national political, security, and climate (El Niño phenomenon preparedness) crisis, allowing for innovation and special reflections. Considering this, the NSOAP was designed with long-term goals and objectives to benefit Ecuadoreans and be amenable to any administration. Additional efforts in collaboration with the current administration are underway to transform the plan into a state policy, ensuring the NSOAP's stability and safeguarding its continuity.

Another challenge was translating Ecuador's NSOAP priorities into actionable items for ongoing monitoring and evaluation. The solution involved creating implementation projects with clear objectives aligned with stakeholders' priorities and assessment metrics. Examples of such projects included piloting the WHO International Registry for Trauma and Emergency Care and launching a postgraduate specialisation program in trauma and emergency surgery in the country.¹⁷ With Ecuador's pioneer regional role and acknowledging that 365 million Latin Americans lack access to essential surgical care,¹⁸ Ecuador urged PAHO and its Member States to bolster the region's surgical systems as an issue that impacts health systems overall and countries' economic productivity.⁸

In this call to action, Brazil is a prominent candidate for embarking on national surgical planning. The country's experience with a universal public health system — the Unified Health System (SUS, *Sistema Único de Saúde*), protected by the Brazilian Constitution — reinforces the legal support to achieve health-care access for all.¹⁹ Brazil also has government-funded policies to improve surgical care. Some examples are the “Safe Surgery Saves Lives” (*Cirurgias Seguras Salvam Vidas*) policy, the National Transplant System, and the Mobile Emergency Care Service (SAMU, *Serviço de Atendimento Móvel de Urgência*), which coordinates ambulances to reach affected patients.^{20–22} However, the government lacks initiatives to enhance the quality of assistance, especially at hospital centres. In addition, few initiatives tackle the surgical burden related to non-communicable diseases and maternal and child care.²³ Thus, the country can benefit from an umbrella policy like an NSOAP that unifies existing programs and encourages new initiatives according to the population's needs.

A critical issue in Brazil's healthcare system is the prioritisation of surgery within its health agenda. Despite a shift in mortality from infectious diseases to conditions requiring surgical intervention, health funding and policymaking continue to mainly focus on infectious diseases. The 2019 Global Burden of Diseases, Injuries, and Risk Factors Study found that, in Brazil, the top 10 causes of death and disability

combined included conditions that significantly benefit from surgical assistance, such as interpersonal violence, ischaemic heart disease, neonatal disorders, stroke, and road injuries.²⁴ However, the current government is projecting substantial investments in infectious disease programs, allocating 12 million USD for tuberculosis and 51 million USD for arbovirus surveillance.^{25,26} Despite its growing burden, specific allocations for surgical care remain notably absent from the healthcare agenda. Implementing an NSOAP to enhance coordination between the government and stakeholders could improve the allocation of financial resources within Brazil's public health system, ensuring a more equitable focus on surgical care needs.

Brazil's vast territory and diverse regional health challenges must also be considered when creating and implementing surgical policies. Like Brazil, Pakistan encountered similar challenges and may serve as an instructive example when developing an NSOAP. Pakistan's federal government oversees the strategic direction of healthcare services. However, provincial governments are responsible for prioritisation, policy formation, and service delivery.¹⁰ The continuing creation of Pakistan's National Vision for Surgical Care 2025, initiated in November 2018, shows this approach.¹⁰ The plan lays out a framework for each provincial government to identify local barriers to surgical care, create specialised provincial SOA strategies, and implement context-specific interventions within their health networks.¹⁰ This adaptive strategy, suited to Pakistan's governance structure and regional health goals, provides a compelling model for other nations experiencing comparable issues, like Brazil, to build the NSOAP framework to their particular regional needs.

In Brazil, establishing an NSOAP will require the involvement of critical governmental institutions, including the Ministry of Health, the National Council of State Health Secretaries (CONASS, *Conselho Nacional de Secretários de Saúde*), and the National Council of Municipal Health Secretaries (CONASEMS, *Conselho Nacional de Secretarias Municipais*). For instance, the Ministry of Health oversees the implementation of health policies at the federal level, offering guidance and support to state and municipal health authorities.²⁷ Simultaneously, CONASS and CONASEMS actively participate in the public health system's policymaking, coordination, and decision-making.²⁷ Politically, these entities are essential to advocating for surgical care prioritisation, ensuring its momentum and progress. These institutions can align the NSOAP with existing regulations and available resources, enhancing the policy's feasibility and sustainability.⁷ They can also be responsible for developing the necessary governance structures to lead the NSOAP's effective

implementation and foster collaboration among stakeholders.⁷ Particularly, both CONASS and CONASEMS can help identify local priorities for states and municipalities, playing an essential role during the NSOAP's structural implementation.

One potential benefit of improving surgical care in Brazil is mitigating socioeconomic inequalities. Despite being an upper-middle-income nation, Brazil has pronounced social disparities.²⁷ According to the 2022 census by the Brazilian Institute for Geography and Statistics, 67.8 million Brazilians lived in poverty, and 12.7 million faced extreme poverty. These figures constitute 31.6% and 5.9% of Brazil's population, respectively.²⁸ Moreover, Brazil's Gini coefficient — a measure of wealth distribution inequality — surged to 48.9 in 2020, placing the country into the ranks of the world's most unequal societies.²⁹ As a result, these disparities affect health outcomes, hindering surgical care's availability, capability, and delivery.^{27,30} Such inequities also impact Brazil's public health system financing. Brazil is projected to face a deficit of 375 million USD in health financing from 2015 to 2030 should investments in surgical care remain unfulfilled.³¹ Investing in surgical care can lead to decreased disability rates and alleviate financial burdens on patients and their families, as untreated surgical problems are often associated with reduced work opportunities. Worldwide literature exemplifies how poverty relates to poorer postoperative outcomes and higher healthcare expenses. Mehaffey et al. uncovered that, in the US, patients from severely distressed communities had higher rates of 30-day mortality (1.8% vs. 1.4%), postoperative complications (9.8% vs. 8.5%), and hospital readmissions (7.7% vs. 6.8%).³² Smith et al. found that there is a high risk of catastrophic and impoverishing expenses related to paediatric surgery in Somaliland, particularly in rural areas and among the poorest quintiles.³³ Thus, addressing surgical systems' challenges can not only enhance healthcare quality but also serve as a strategic measure to mitigate social inequalities, two objectives of paramount importance within the Brazilian context.

Additionally, structuring a surgical system policy provides opportunities to enhance the country's surgical workforce. The Lancet Commission on Global Surgery recommended that countries calculate their national specialist surgical workforce density by summing the number of specialist surgical, anaesthetic, and obstetric physicians actively practising per 100,000 people.² The commission also recommended achieving a minimum density of 20 such specialists per 100,000 population by 2030.² Based on this framework, and according to the 2023 Brazilian Medical Demography, Brazil's surgical workforce density stands at 66 per 100,000 inhabitants, surpassing the minimum recommended ratio by threefold.³⁴ However, disparities in

workforce distribution persist. Previous studies demonstrated that over 70% of surgical providers are concentrated in major urban areas, where only 24% of the country's population live. Most Brazilian specialists still practice in private health services, which serve only 30% of the country's population.³⁴ Although the NSOAP framework serves both low- and middle-income countries, NSOAPs may serve these country groups differently. While low-income countries suffer from a shortage of surgical workforce, Brazil and other middle-income countries face difficulties in equitably distributing their available specialists. Consequently, the NSOAP framework presents a valuable opportunity to develop tailored strategies and interventions that address the specific workforce dynamics and challenges faced by each country group.

Brazil's historical commitment to developing national and international partnerships should also be noted when strengthening the national surgical system. Brazil has local champion groups in Global Surgery that can facilitate these partnerships while providing technical assistance for NSOAP planning. For example, since 2016, the Brazilian Team of PGSSC has been involved in research, implementation, and advocacy efforts to strengthen the country's surgical system. Promoting an NSOAP can attract additional external support, reinforcing Brazil's capacity to drive meaningful change in SOA care.⁷ Involving diverse stakeholders such as healthcare professionals, academia, and civil society organisations in developing and implementing NSOAP creates a shared commitment to improving the country's SOA care, making it more resilient throughout governmental administrations.

Box 1.

Proposed steps to develop an NSOAP in Brazil

1. Gain support and ownership from the Ministry of Health, CONASS, and CONASEMS to increase the odds of integrating the NSOAP into the national health strategy and providing the necessary resources to implement the NSOAP effectively.
2. Conduct a baseline assessment of surgical systems to identify their gaps and needs, enabling evidence-based planning and resource allocation.
3. Gather stakeholders from the baseline assessment to develop a plan that reflects diverse perspectives, considering each stakeholder's capacity and expertise.
4. Establish priorities by defining the most critical needs to direct resources and tailor the NSOAP objectives.
5. Involve funding and implementation agencies throughout the process to ensure proper execution of the NSOAP while endorsing innovative financing mechanisms.
6. Assemble a leading team to oversee diverse stakeholders, translate the NSOAP into actionable initiatives, and foster partnerships representing front-line needs.
7. Monitor outcomes to analyse the plan's impact on surgical care, promoting equity, adjustments, accountability, and sustained progress.



Fig. 1: Steps to implement a National Surgical Obstetric and Anaesthesia Plan in Brazil. Abbreviation: NSOAPS, National Surgical Obstetric and Anaesthesia Plan. Adapted from National Surgical, Obstetric and Anaesthesia Planning Manual. 2020. Geneva, Switzerland: United Nations Institute for Training and Research (UNITAR).

Medical societies can also contribute to the NSOAP process. These organisations embody shared concerns, daily practices, and visions for the future of surgical delivery in the country.⁷ By drawing on their members' technical and clinical expertise, such societies can provide insights into the unmet surgical needs and make recommendations to adapt the plan according to the demands of the SOA community. Such groups also have partnerships with several other stakeholders, which may strengthen the support of professional organisations in the NSOAP ownership. Another highlight comprises the scientific journals of these societies, which can serve as a forum for communicating advances related to NSOAP. Additionally, professional associations can target campaigns and promote educational activities to ensure the support from the broader medical community and general public. To encourage the development of an NSOAP in Brazil, we propose the guidelines highlighted in [Box 1](#) and [Fig. 1](#).

In summary, the NSOAP approach provides a framework for governments to improve surgical care and attain universal health coverage. With efforts to

strengthen surgical systems occurring in Latin America, Brazil is an attractive candidate to embark on an NSOAP and optimise its surgical system's functionality, resilience, and finances ([Box 1](#), [Fig. 1](#)). As a country with one of the most robust public health systems worldwide, implementing an NSOAP in Brazil can inspire other countries with public health systems to adopt a similar pathway. Lastly, this process can promote the creation of related vocabulary and resources in Portuguese to facilitate the development of NSOAPs in other Portuguese-speaking countries and LMICs. As strengthening surgical systems is a priority for the World Health Organization, a regional agenda for PAHO, and a national interest for the Brazilian government and many other stakeholders, a Brazilian NSOAP can be the ultimate link to improve surgical care nationwide.

Contributors

AG, LNC, LT, RVF, TUL, FB, and JF conceptualised and defined the methodology of the manuscript. AG, LNC, LT, TUL, FB, and JF administered the manuscript's activities. JBS, GS, RF, RVF, DM, RC, LFF, NA, ABV, and JGM validated the research outputs. AG, LT, and LNC wrote the original draft. JBS, GS, RF, RVF, DM, RC, LFF, NA,

ABV, JGM, TUL, FB, and JF reviewed and critically edited the manuscript. FB, JF, and TUL supervised the manuscript.

Declaration of interests

LLF is a member of the World Federation Society of Anesthesiologists Council and Director of International Relations of the Brazilian Society of Anesthesiology. RC is a Board member of the Brazilian College of Digestive Surgery, the São Paulo Chapter of the Brazilian College of Surgeons, and the Brazilian Association of Gastric Cancer. All authors declare no competing interests.

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