



# The role of non-governmental organizations in advancing the global surgery and anesthesia goals

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**Abstract:** Non-governmental organizations (NGOs) are indispensable to social and economic development, particularly in states with limited resources or poor governance. With about five billion people globally lacking access to safe, timely and affordable surgical and anesthesia care, mostly in low-income and middle-income countries (LMICs), NGOs can play a critical role in meeting this significant surgical need and advancing the global surgery and anesthesia goals set by the Lancet Commission on Global Surgery in alignment with the Sustainable Development Goals (SDGs). Surgical-NGOs (s-NGOs) have historically and continue to play a vital role in reducing the surgical burden globally, providing at least 3 million surgical procedures annually in LMICs. They have done this primarily through service delivery by employing temporary platforms such as short-term surgical trips and self-contained surgical platforms or through the setting up of specialized hospitals. With the advent of the SDGs, s-NGOs are increasingly investing in strengthening local health systems by supporting various dimensions of the health systems building blocks. Health systems strengthening interventions by s-NGOs have primarily focused on the training of skilled local surgical workforce (pre-service and in-service) and investing in health infrastructure through equipment and supplies donations to capacitate local health facilities to provide high-quality sustainable surgical and anesthesia care. Despite these laudable efforts, s-NGOs have not been without challenges and criticism especially around the cost-effectiveness, sustainability, equity and quality of care provided. In this article, we review the current landscape of s-NGOs and the challenges they face. We also examine the roles of s-NGOs in advancing the global surgery and anesthesia goals and SDGs in light of the ongoing COVID-19 pandemic.

**Keywords:** Global surgery; global anesthesia; non-governmental organizations (NGOs); health systems strengthening; surgical systems

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## Introduction

Non-governmental organizations (NGOs) are indispensable to social and economic development, particularly in states with limited resources or poor governance (1,2). In the healthcare sector, NGOs provide and advocate for healthcare for the most vulnerable population groups and

bridge gaps left by the public sector (3,4). Prior to global surgery becoming a recognized academic discipline and component of global health, NGOs played and continue to play a critical role in the delivery of essential and emergency surgical and anesthesia care to vulnerable groups in under-resourced health systems or humanitarian crises (5-7).

**Table 1** Global Surgery goals set by the Lancet Commission on Global Surgery along with indicators and targets (8)

Indicator	Definition	Target
Access to timely essential surgery	Proportion of the population that can access, within 2 hours, a facility that can do cesarean delivery, laparotomy, and treatment of open fracture (the Bellwether Procedures)	A minimum of 80% coverage of essential surgical and anesthesia services per country by 2030
Specialist surgical workforce density	Number of specialist surgical, anesthetic, and obstetric physicians who are working, per 100,000 population	100% of countries with at least 20 surgical, anesthetic, and obstetric physicians per 100,000 population by 2030
Surgical volume	Procedures done in an operating theatre, per 100,000 population per year	80% of countries by 2020 and 100% of countries by 2030 tracking surgical volume; a minimum of 5,000 procedures per 100,000 population by 2030
Perioperative mortality	All-cause death rate before discharge in patients who have undergone a procedure in an operating theatre, divided by the total number of procedures, presented as a percentage	80% of countries by 2020 and 100% of countries by 2030 tracking perioperative mortality; in 2020, assess global data and set national targets for 2030
Protection against impoverishing expenditure	Proportion of households protected against impoverishment from direct out-of-pocket payments for surgical and anesthesia care	100% protection against impoverishment from out-of-pocket payments for surgical and anesthesia care by 2030
Protection against catastrophic expenditure	Proportion of households protected against catastrophic expenditure from direct out-of-pocket payments for surgical and anesthesia care	100% protection against catastrophic expenditure from out-of-pocket payments for surgical and anesthesia care by 2030

Recent research has highlighted significant global disparities in surgical and anesthesia care, with about two-thirds of the global population lacking access to safe, timely, and affordable surgical and anesthesia care (8). Poor access to surgical and anesthesia care, especially in low-income and middle-income countries (LMICs), contributes to social and economic inequalities. About 44% of people seeking surgical care experience catastrophic expenditures, and 57% are pushed into poverty, further exacerbating income inequalities (9). NGOs have contributed substantially to reducing both the social and economic disparities due to surgical disease. Surgical NGOs (s-NGOs), mostly based in high-income countries (HICs), and working in LMICs perform about 3 million surgical interventions each year and generate an average of USD 573 million in revenue yearly (5,7,10). Historically, most s-NGOs have focused on delivering healthcare services to underserved populations, complementing the public health sector (1). However, with time, s-NGOs have expanded their activities to capacity building, infrastructure development, funding acquisition, advocacy and policy engagement, research, and the improvement of information management systems (11). To accomplish these tasks, s-NGOs are transitioning from working independently and solely at the grassroots level to

collaborating with local authorities and policy makers (12,13).

As global surgery has emerged and continues to grow, highlighting the significant global burden of surgical conditions in LMICs, it is necessary to revisit and reconsider the role of s-NGOs in global surgery. The Lancet Commission on Global Surgery (LCoGS) has set global targets (*Table 1*) to align and coordinate efforts towards unified goals in alignment with the Sustainable Development Goals (SDG) to be achieved by 2030 (8). The attainment of the LCoGS goals is crucial for meeting the SDG targets, as highlighted by Roa *et al.* (14). As social actors, s-NGOs have a vital role to play in the achievement of targets set by the LCoGS and SDGs. It is important to remain aware of the lessons of and anesthesia NGOs' previous efforts and adapt to ensure effective and maximum impact. In this review, we will assess the current role of s-NGOs in global surgery and explore their role in advancing the global surgery community's goals espoused in the LCoGS and the SDGs.

### Current NGO landscape

The number of s-NGOs is large and growing. In 2016, Ng-Kamstra *et al.* identified 403 s-NGOs providing surgical

care in 139 countries (15,16). Most of the s-NGOs they identified had at least one office in the USA, UK, Canada, India, or Australia. Moreover, the s-NGOs provided mostly general surgery, obstetrics and gynecology, orthopedics, plastic surgery, and ophthalmology. Current s-NGOs contribute to global surgery primarily through direct service delivery via different platforms or focus on capacity building initiatives to strengthen surgical systems in under-resourced states. Most of these s-NGOs are often involved in both direct service delivery and capacity building.

### Service delivery

Perhaps the greatest role that s-NGOs currently play in global surgery is delivering surgical care directly to patients and working to reduce the burden of conditions amenable to surgical care that is not currently being met by local health systems. Estimating the quantity of the global surgical burden currently being met by s-NGOs through direct service delivery has been a challenge because much of the surgical output of s-NGOs is not publicly reported on easily accessible databases or published research studies. According to Kudsk-Iverson, Krouch, and Chu, globally, s-NGOs provide at least three million surgical procedures each year (7). This is likely a significant underestimation because the authors were only able to survey 33% of s-NGOs identified that provided surgical care globally. Nonetheless, their study highlights the significant contributions of s-NGOs in reducing the surgical burden in LMICs through direct service delivery.

NGOs that deliver surgical services have been classified into two major delivery platforms; temporary delivery and specialized hospitals (6).

Temporary platforms are the most common platforms for s-NGO surgical care delivery. They can be further divided into short-term surgical trips and self-contained surgical platforms. Short-term surgical trips are typically organized by teams from HICs that provide care in LMICs, usually lasting from a few days to two weeks. These trips are referred to by various names including “mission trips”, “outreach”, “surgical safaris”, “service trips”, and “humanitarian missions” (17). The majority of s-NGOs identified by Ng-Kamstra *et al.* used the short-term surgical trip model (5). Each year, about 6,000 short-term surgical trips are organized by US-based organizations providing about 200,000 surgical interventions with an estimated \$250 million annual expenditure (18,19). These short-term service delivery platforms typically rely on local health care

workers for patient follow-up after surgery. Short-term surgical trips have provided a wide range of surgical care in LMICs from routine procedures like hernia repair to more complex interventions such as obstetric fistula repairs (20-22). Surgery for orofacial clefts is one of the most popular services provided by HIC s-NGOs in LMICs through short-term surgical trips (23).

Despite their significant contributions to care, short-term surgical trips have often been criticized for not being cost-effective, for providing suboptimal patient follow-up and for not being sustainable (24). Numerous studies assessing the cost-effectiveness of surgical interventions offered by s-NGOs through short-term surgical trips suggest that this care delivery platform is cost-effective. A few examples include surgical trips to the Dominican Republic at \$304.88/DALY (25), cleft lip and palate missions in eight LMICs (26), short-term pediatric neurosurgical trips to Guatemala (20), and inguinal hernia repairs in Ecuador (27), to name a few.

Although most individual studies assessing the cost-effectiveness of short-term surgical trips have found them to be cost-effective, several reviews of these studies have found them methodologically lacking (6,28,29). For example, a review of economic research on short-term surgical trips by Nottle *et al.*, found that although several papers assessing the cost-effectiveness of short-term surgical trips, cited the World Health Organization (WHO) guidelines for cost-effectiveness analysis, none of the studies adhered to the WHO-CHOICE standards making it difficult to compare results between studies (29). Furthermore, the costs data used in many studies often do not include the cost to the hospital (space, maintenance, utilities, etc.), cost of follow-up or cost of the surgeon’s time, thus underestimating the overall costs, leading to a small incremental cost-effectiveness ratio (28). These limitations led Shrimme *et al.* to conclude in their review of the cost-effectiveness of s-NGOs that short-term surgical trips may only be cost-effective where no other surgical platform exists to treat the condition (6).

Critiques of short-term surgical trips have also pointed to poor patient follow-up as another fault of these surgical care delivery platforms (30). In reporting the impact of short-term surgical trips, outputs are often prioritized over outcomes. Surveys have shown that only between 60–80% of s-NGOs involved in short-term surgical missions track morbidity and mortality data, in stark contrast to HICs, where provider performance is often judged by these metrics (18,31). A review of 67 publications on short-term surgical trips found that only 13% reported mortality outcomes (17). Only 13 studies reported late outcomes

(eight days post-surgery) and follow-up rates ranged from 14% to 84%. This issue has also been highlighted in popular press outlets, including a recent article in *NPR* (32). Despite several frameworks being proposed for patient follow-up and reporting of outcomes, postoperative outcomes reporting by short-term surgical trips remains a challenge (33-36).

The second type of temporary platform for surgical care delivery is the self-contained surgical platform (6). These platforms can be described as mobile hospitals with the infrastructure and services needed to provide surgical care moving from one country or community to the next. One example is Mercy Ships, the largest private floating hospital in the world, which typically docks at the port of a country for about ten months while local and mostly international volunteers provide surgical services to locals (37,38). The 80-bed “Africa Mercy”, one of Mercy Ships’ floating hospitals, performs about 7,000 interventions per year (39). Cinterandes, an Ecuadorian s-NGO that uses a fully equipped truck to provide surgical care in remote communities in Ecuador, is another example, although the duration of each surgical trip is significantly shorter than that of Mercy Ships (40). Few studies have examined the cost-effectiveness of this type of surgical delivery platform.

The second main platform for surgical care delivery by s-NGOs is specialized hospitals. Through the construction of hospitals, s-NGOs establish a physical and durable local presence and work closely with local institutions (41,42). These longer-term partnerships tend to be more sustainable than temporary platforms (43). Examples include Aravind Eye Hospital in India, Partners in Health’s Hôpital Universitaire de Mirebalais in Haiti, hospitals by CURE International in several countries including Ethiopia, Kenya, and Malawi and the Indus Hospital network in Pakistan (44-46). CURE hospitals have performed more than 213,000 surgical procedures, while Aravind Eye Care System has conducted 6 million surgeries since its inception (44,47). Other s-NGOs such as Operation Smile and Resurge International have used a diagonal approach to develop self-sustaining comprehensive cleft centers in LMICs with ongoing comprehensive cleft care provided by local providers (48). Surgical hospitals often provide low-cost or free specialty care services, which under normal circumstances, are not available or affordable to the local population (6). S-NGO hospitals tend to be better equipped and pay their staff higher wages, so they have higher patient volumes and attract more skilled personnel (6,43).

## Capacity building

In recent years, the number of s-NGOs focused on increasing surgical capacity in LMICs have increased substantially. Many of these s-NGOs tend to focus on training the local surgical workforce and providing infrastructure and equipment to hospitals providing surgical care. Ng-Kamstra *et al.* (5) found that 51% of s-NGOs they identified in their review provided surgery as part of a broader health agenda, although their review was not entirely specific on how these NGOs provided care as part of the broader health agenda.

## Infrastructure support and equipment donations

Several s-NGOs such as Kids Operating Room (KidsOR) have emerged recently with a focus on improving hospital infrastructure in LMICs through equipment donations and infrastructure investments (49). In the past, the donation of medical equipment has been found to be conducted in an uncollaborative and poorly coordinated manner, often without taking into account the local needs, practicality, and sustainability (50). An inventory of 112,040 donated medical equipment in fifteen countries found that 38.3% of these were out of service (51). Several Ministries of Health, as well as academic consortiums and global institutions like the WHO have created guidelines meant to guide medical donations from planning to sourcing to operationalizing and feedback and evaluation (52). Yet, the evidence suggests that donors still fail to adhere to these guidelines (53). Such poorly coordinated medical equipment donations, characterized by the ‘dumping’ of obsolete equipment in LMICs and driven by the ‘anything is better than nothing’ mentality, can be more burdensome to healthcare workers and the entire health system (50,54). KidsOR, ProCURE and Advocates for World Health, among others, are working to circumvent these issues by performing robust pre-donation needs assessments and training local staff in the use, upkeep, and repair of donated equipment (55,56). Investments in equipment donations should also be paired with servicing plans, biomedical engineering training to ensure maintenance over time as is being done by Medical Aid International (57). Therefore, it is essential that other s-NGOs adopt best practices for medical equipment donations as they seek to capacitate weak health systems in LMICs.

Beyond the donation of medical equipment and supplies, some s-NGOs are focusing on developing sustainable

infrastructure capacity in-country. For example, in their quest to improve access to oxygen, Assist International has helped to set up oxygen plants in Kenya, Rwanda and Ethiopia (58). Other s-NGOs have attempted to take on the task of improving the supply chain system. Zipline for example has pioneered the use of drones to deliver safe blood and supplies to hospitals in remote parts of Rwanda (59). John Snow Inc. (JSI) has developed expertise in supply chain management and has worked with over 60 countries to improve local hospital supply chains (60).

### **Surgical workforce training**

With less than 12% of all available global surgical workforce providing surgical care in Africa and southeast Asia where a third of the global population lives, s-NGOs are increasingly playing a role in surgical workforce development programs in LMICs (8). Surgical workforce support from s-NGOs has so far taken two main approaches; in-service support to improve service delivery and pre-service training of new surgical providers. In-service programs such as the World Federation of Societies of Anaesthesiologists' Safer Anaesthesia From Education (SAFE) courses, which have been delivered in over 30 countries, primarily focus on improving the knowledge and skills of existing anesthesia practitioners (61). Similarly, specialty surgical skills training is being provided by a myriad of s-NGOs such as the Fistula Foundation and the Global Pediatric Surgical Technology and Education Program, among others (62,63). In-service training of surgical providers and ancillary staff have also been provided through short-term surgical trips and online/education trips such as ReSurge Global Training Program (64,65). Short-term surgical trips have also been used to provide in-service training to local providers by allowing opportunities for skills transfer through resident rotations as highlighted by Munabi *et al.* (66,67).

Another in-service focus of many s-NGOs has been the dissemination of evidence based surgical and anesthesia interventions to surgical providers in LMICs. For example, several s-NGOs including LifeBox and Mercy Ships partner with LMIC hospitals to provide training on the use of the WHO Surgical Safety Checklist which has been shown to be effective in reducing postoperative complications (68,69). Other s-NGOs such as Sterile Processing Education Charitable Trust (SPECT) are focused on adapting and increasing the uptake of evidence-based sterilization techniques to improve surgical outcomes (70). Major quality

improvement initiatives such as the International Quality Improvement Collaborative for Congenital Heart Disease by Children's Heartlink and Boston Children's Hospital have also been undertaken to collect data to guide quality improvement projects in LMICs (71).

With the exception of a few organizations such as Partners in Health, which spearheaded the establishment of the University of Global Health Equity in Rwanda, fewer s-NGOs have focused efforts on pre-service workforce development to increase the number of qualified surgical providers in LMICs (72). Seed Global Health's model in partnership with the US Peace Corps to send faculty from HICs to medical and nursing schools in under-resourced settings is another example (73). Based on our current review, there is also very little scientific literature documenting the efforts of s-NGOs to strengthen the pre-service surgical workforce in LMICs.

Regional collaboratives have emerged to train surgical providers and are seeing early successes. Examples of such programs include the West African College of Surgeons (WACS); the College of Surgeons of East, Central, and Southern Africa (COSECSA); the Royal Australasian College of Surgeons; and the Pan-African Academy of Christian Surgeons (PAACS) with unique training models that focus on increasing surgical and anesthesia providers. Retention rates of surgical graduates trained through COSECSA have been shown to be as high as 93% (74).

### **Advocacy**

In recent years, several global and national policy initiatives have been adopted to raise the political prioritization of surgical and anesthesia care globally and nationally. Examples include the adoption of Resolution 68.15 by the World Health Assembly in 2015 recognizing surgical and anesthesia care as components of universal health care and the adoption of National Surgical Obstetric and Anesthesia Plans (NSOAPs) by several countries to improve surgical care holistically (75-77). S-NGOs were critical in advocating for the adoption of several of these policies. The G4 Alliance, a consortium of s-NGOs, Academia, and other organizations, was created to build the political priority for surgery, obstetrics, anesthesia and trauma and continues to support s-NGOs in this regard (78). Individual s-NGOs have contributed to the development of NSOAPs through advocacy, advising on the content and development process and providing technical expertise (77).

## Challenges faced by s-NGOs

Although s-NGOs are often painted in a “heroic” light, they are not without challenges and criticisms. We highlight a few here. One of the challenges faced by s-NGOs is that of care coordination. Where more than one NGO provides the same service, it is not uncommon that there are themes of mistrust and competition between these NGOs rather than collaboration (79). Poor coordination of activities can lead to ineffective use of available resources and redundancy.

Another challenge faced by s-NGOs is inequitable provision of care. Defining a strategy that respects the rights of patients, local practitioners, and local institutions can be cumbersome. Among all the rights that need to be protected, patient rights, are the most important. Unfortunately, some s-NGO volunteers are often unqualified, and the host country often lacks the tools to vet, accredit visiting providers, and enforce regulations (80). Standard surgical practice and training in HICs often do not prepare visiting specialists for healthcare delivery in resource-limited settings. HIC trainees and specialists have specialized practices that often do not afford them experience with a wide range of surgical diseases encountered in resource-constrained settings (81). These difficulties are compounded by the fact that well-meaning HIC surgical providers are often not used to operating with limited resources. As a result, inexperienced providers are sometimes given operational *carte blanche* in an unfamiliar environment to the detriment of patient safety.

Sustainable funding also remains a major challenge with many s-NGOs. In various development sectors, NGOs have sometimes been criticized for being driven by funder requirements, which are sometimes disconnected from the actual needs of the populations they seek to serve. The constant push from funders can also lead to short-cycle programs that have limited sustained impact on communities served.

## Way forward

The current COVID-19 pandemic has significantly disrupted the provision of regular healthcare services, including surgical services around the world. A modeling study by the COVID-Surg Collaborative estimated that over 28 million surgeries would be canceled or postponed during the 12-week peak disruption due to the COVID-19 pandemic (74). This is particularly concerning in LMICs

where access to surgical care was severely restricted before the pandemic. The WHO has also noted the current COVID-19 pandemic is likely to remain with us for the foreseeable future (82). It is therefore important to discuss how the COVID-19 pandemic will affect the role of s-NGOs in the advancing global surgery and anesthesia goals.

The activities of most s-NGOs have been significantly disrupted by the COVID-19 pandemic, although there has yet to be an effort to estimate the impact of this disruption. S-NGOs involved in short-term trips for care delivery and capacity building have had to cancel most of their programs (15,16,83). While some s-NGOs have made efforts to transition programs online, s-NGOs that provide surgical care directly through short-term trips have been most impacted.

## Health systems strengthening

Research showing the significant burden of surgical conditions globally as well as the ongoing COVID-19 pandemic highlight the urgent need for strengthening and building sustainable health systems in LMICs (8,84,85). S-NGOs can play a catalytic role in building the capacity of local health systems to provide more sustainable surgical care and be less dependent on short-term surgical trips. With the current gaps that exist in the surgical workforce and poorly equipped healthcare facilities in LMICs, s-NGOs could play a critical role in meeting these health systems gaps by partnering with local institutions to design sustainable health workforce programs focused on strengthening the local capacity of the health system. For example, in-service partnerships with surgical providers in district hospitals to improve their skills could improve the quality of surgical services provided. Innovative tele-mentoring and distance education programs such as those provided by Orbis and Project ECHO could be considered for continued capacity building during the COVID-19 pandemic and beyond (86,87). Similarly, pre-service programs between s-NGOs and local universities and medical schools to develop curriculums and training programs for surgical providers will be impactful. The foreseeable impact of starting anesthesia training programs and surgical residencies in countries without such programs should be acted on by s-NGOs. Important supporting and ancillary staff such as theater and intensive care units (ICUs) nurses, physiotherapists, speech and audiology providers,

community health workers, radiographers and equipment sterilizers should also be trained.

S-NGOs can also play a critical role in equipping trained surgical providers with the instruments and supplies they require to provide high quality surgical care. However, in doing so, s-NGOs should ensure that medical donations and infrastructure investments are conducted in respect of WHO and Ministry of Health guidelines (88).

It is important for NGOs engaging in health systems strengthening programs to recognize that true capacity building programs often require significant time to see impact. They should be cognizant of this when developing programs and play an active role in educating their funders as well.

### Service delivery

While strengthening the capacity of local health systems should be a priority for s-NGOs, they can continue to play a key role in the provision of surgical care to meet the needs, especially in countries with severely under-resourced health systems. We have spent considerable time revisiting the evidence for short-term surgical trips in this review. While short-term surgical trips have impacted the lives of millions of patients over the decades, it is important that s-NGOs that have a short-term surgical trip model consider the evidence presented in this review and others. Concerns have been raised about the cost-effectiveness, sustainability, patient follow-up, equity and long-term impact of short-term surgical trips (6,28,30). One model that is gaining ground is in-country surgical trips organized and mostly staffed by in-country surgical teams with the capacity for patient follow-up (89). A diagonal approach to service delivery in which vertical surgical care platforms are also used to strengthen health systems has been proposed by Patel *et al.* (90). Providing surgical care through more permanent platforms appears to be the more sustainable and impactful route of service delivery allowing for capacity building while ensuring that patients receive the highest quality surgical care.

Coordination, collaboration, and strong bonds with Ministries of Health and local stakeholders when possible should be encouraged within s-NGOs to ensure the sustainability of programs and capacity building. Coordination and collaboration between s-NGOs is equally crucial for attaining the goals espoused by LCoGS and the SDGs.

### Policy advocacy and research

Historically NGOs have played major roles in global health diplomacy from advocating for global action against HIV/AIDS to advocating for the adoption of the Framework Convention on Tobacco Control by the global community (91,92). Likewise, s-NGOs will likely need to play a role in global surgery advocacy to ensure that the improvement of surgical and anesthesia care is prioritized within National Health Strategic Plans (93). While NSOAPs have been adopted by numerous countries, particularly in sub-Saharan Africa as policy initiatives to improve surgical care, political and financial commitment to these strategies have been limited (75,94). During the development of these NSOAPs, s-NGOs can play several roles including policy advocacy, monitoring the content and policy development process, lobbying for content (geographic equity focus on vulnerable groups), providing technical expertise based on experience and research and brokering necessary information. Even beyond the development of NSOAPs, NGOs can play important roles in implementing components of the NSOAP and supporting local surgical priorities while ensuring that their activities are in coordination with the long-term objectives of the government. Evidence generated from this implementation can also be used to inform the scaling up of interventions to the broader population and catalyze further investment into surgical systems by governments and global health funders. Coordination between global surgery advocacy coalitions like the G4 Alliance and Global Initiative for Children's Surgery should be encouraged such that policy and advocacy efforts with s-NGOs are unified.

In line with generating evidence for strengthening surgical systems, partnerships between local and international s-NGOs and research institutions should be encouraged in order to gather scientific evidence needed to drive surgical policy formulation and implementation. Implementation science should be scaled up to study contextual factors that influence the adoption and sustainability of surgical programs in different contexts (95).

### Conclusions

NGOs are crucial societal actors and play an important role especially in providing healthcare to the most vulnerable in resources-constrained or poorly governed states. S-NGOs have played and continue to play a crucial role in providing

surgical care in underdeveloped and under-resourced health systems. With increased focus on health systems strengthening, the s-NGO sector can play a critical and catalytic role in the achievement of the LCoGS goals and the SDGs.

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