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Implementing World Health Assembly Resolution 68.15:

National surgical, obstetric, and anesthesia strategic plan development—the Zambian experience

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HIGHLIGHTS

- Describes the challenges to accessing surgical, obstetric, and anesthesia care in Zambia
- Outlines the six key indicators that LCoGS uses to assess a country's surgical system
- Explains how the LCoGS worked with Zambia's Ministry of Health and other stakeholders to develop a strategic plan for improving access to care
- Discusses lessons learned from this effort

Nearly a decade ago, Paul Farmer, MD, PhD, and Jim Yong Kim, MD, PhD, co-founders of Partners In Health, a Boston, MA-based not-for-profit organization that provides health care services in developing countries, emphasized the need for global surgical system improvement, especially for the impoverished and disenfranchised populations in low- and middle-income countries (LMICs). Dr. Farmer and Dr. Kim, who also is the president of the World Bank, underscored the relative lack of attention that surgical services have received over the years by framing surgery as "the neglected stepchild of global health."[1]

Subsequently, groups such as the World Bank, *The Lancet* Commission on Global Surgery (LCoGS), the World Health Organization (WHO), and Harvard Medical School's Program in Global Surgery and Social Change have provided clear evidence supporting the crucial role enhanced surgical services can play in strengthening health care systems.[2] Embedded within surgical services are not only surgical specialties, but also anesthesia, obstetrics, and other health care services and professions that are necessary to ensure the delivery of safe surgical care.

In March 2015, the World Bank released the first volume of its third edition of *Disease Control Priorities*, a multi-volume publication highlighting the health service areas around the world requiring attention.[3] Surgery and anesthesia constituted the first volume of this edition of the publication. This volume identified 44 surgical procedures that all surgical systems should provide as a component of essential surgical services.

Within a month, the LCoGS reported on the current state of surgical systems from a global perspective, and found that inadequate attention had led to a global crisis, with 5 billion people lacking access to surgical and anesthesia services.[2] This finding was modeled on the three cornerstones of universal health coverage: access, safety and quality, and financial risk protection. Access was determined by distance to a surgical facility, safety by availability of pulse oximetry, and financial risk protection for the population from the likelihood of impoverishing or catastrophic expenditure due to surgical or anesthetic care costs. Furthermore, the LCoGS suggested six core indicators to measure and monitor surgical systems globally and provided a basic framework for developing national surgical system plans to address these identified gaps. This framework addressed five crucial domains: infrastructure, service delivery, workforce training and education, information management, and financing.

At the 68th World Health Assembly (WHA) of the WHO, the Zambian delegation led the effort to propose WHA Resolution 68.15. The delegation's stated goal in introducing the resolution was "to promote emergency and essential surgery and anesthesia capacity as components integral to achieving universal health coverage."[4] This resolution was unanimously supported by all member states and was adopted by the WHA in 2015.

In 2016, the Harvard Program in Global Surgery and Social Change, a research program focused on the role of surgery and its impact on impoverished health systems and contributor to the third edition of *Disease Control Priorities* and the LCoGS report, partnered with the Zambian Ministry of Health to take the theoretical framework developed by the LCoGS and implement it. Specifically, the goal was to create Zambia's first National Surgical, Obstetric, and Anesthesia Strategic Plan (NSOASP), the first major policy document at the time focused on global surgical systems.

FIGURE 1. NSOASP PROCESS IN ZAMBIA

Zambia

The Republic of Zambia is a LMIC located in Southern Africa with a population of 15 million people.[5] An estimated 74 percent of Zambians do not have access to timely, safe, and affordable surgical care.[6] After championing the effort at the WHA to prioritize emergency and essential services, Zambia has taken efforts to strengthen the surgical system from paper to policy by embarking on a process to create a NSOASP.

One of the priorities of the NSOASP was to integrate this plan within Zambia's overall National Health Strategic Plan (NHSP), which was set to renew beginning in 2017 through 2021. Creating a NSOASP as a component of a country's NHSP was an unprecedented process, requiring innovation, initiative, and strong support from a range of stakeholders, especially the central leadership role of the Ministry of Health. In Zambia, this process included the phases shown in Figure 1 (this page).

Analyzing baseline indicators

The LCoGS recommended the measurement of six key indicators necessary to assess a country's surgical system. These indicators of a surgical system are as follows:

- Two-hour access to a facility offering surgical services
- Surgical workforce density
- Surgical volume
- Perioperative mortality rate
- Protection against impoverishing expenditure
- Protection against catastrophic expenditure

The data pertinent to these six indicators are publicly available through the Zambia Health Management Information System (HMIS) and through the Institute for Health Metrics and Evaluation (IHME). These data initially indicated that 76 percent of the Zambian population have access to surgical services; however, subsequent validation showed that 74 percent of Zambians do not have access to timely, safe, and affordable surgical and anesthesia care.[6] Furthermore, the Zambian surgical workforce density was 0.79 providers per 100,000 population, far below the density of 20 providers per 100,000 that the LCoGS recommends.[2]

Surgical volume is estimated at 1,617 cases per 100,000 population, as compared with the recommended 5,000 per 100,000 population.[2] Perioperative mortality, the most basic measure of surgical outcomes, was difficult to reliably assess using the available data. However, issues of financial risk protection were calculated, which indicated that 56 percent of the population risk catastrophic expenditure from surgery, with a 94 percent chance of impoverishment from procedures such as cesarean delivery.

Partnering with local champions

With a baseline assessment of the Zambian health care system completed, the next step involved engaging local champions who shared a vision of timely, safe, and affordable surgical care. Emmanuel Makasa, MD, a Zambian orthopaedic surgeon turned global health diplomat at the Permanent Mission of Zambia to the United Nations, was a key advocate for the WHA resolution. Through his experience and relationship with the Zambian surgical community, he helped to identify individuals who were already advocating for surgical and anesthesia services in Zambia, referred to as local champions. The concept of creating a space for surgery in Zambian national policy was then presented to the Zambian Ministry of Health. Two co-authors of this article emerged as leaders of this process: Peter Mwaba, MB, BCh, MMed, PhD, FRCP, the Permanent Secretary of Zambia, and Kennedy Lishimpi, BSc, MB, BCh, MMed, FC Rad Onc, director of clinical care and diagnostic medicine within the Zambia Ministry of Health. With these individuals leading the process, major nongovernmental partners in Zambia were subsequently engaged in creating a space for surgery in Zambian national policy, including the Boston University Center for Global Health and Development and the U.K.-based Tropical Health and Education Trust (THET), both of which have a long-standing presence on the ground in Zambia.

With local champions in place, the next step in adding surgery to Zambian national policy consisted of systematically identifying and involving all other relevant stakeholders in strengthening the surgical system. Stakeholders in this context are individuals and groups who are directly affected by or work within the surgical system but are yet to become strong advocates for the system. A detailed stakeholder analysis was conducted and is summarized in Figures 2 (this page) and 3 (page 32). Nearly 1,500 individuals and groups relevant to the surgical system in Zambia were engaged in the process.

FIGURE 2.
KEY STAKEHOLDERS IN ZAMBIA NSOASP PROCESS

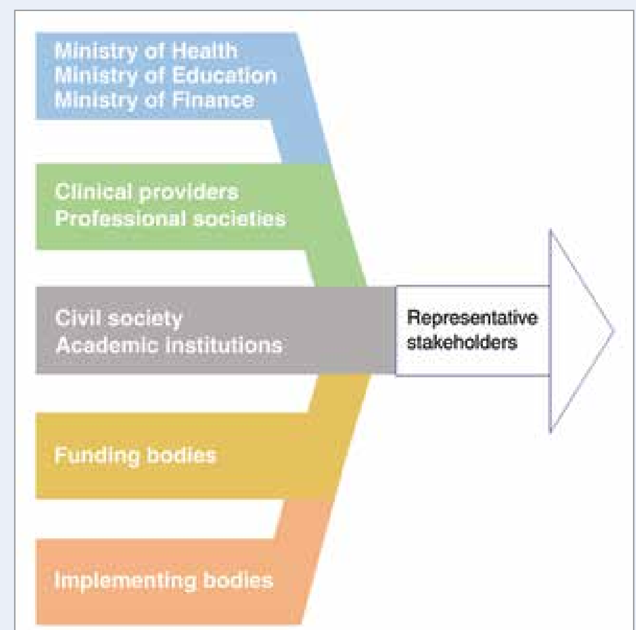
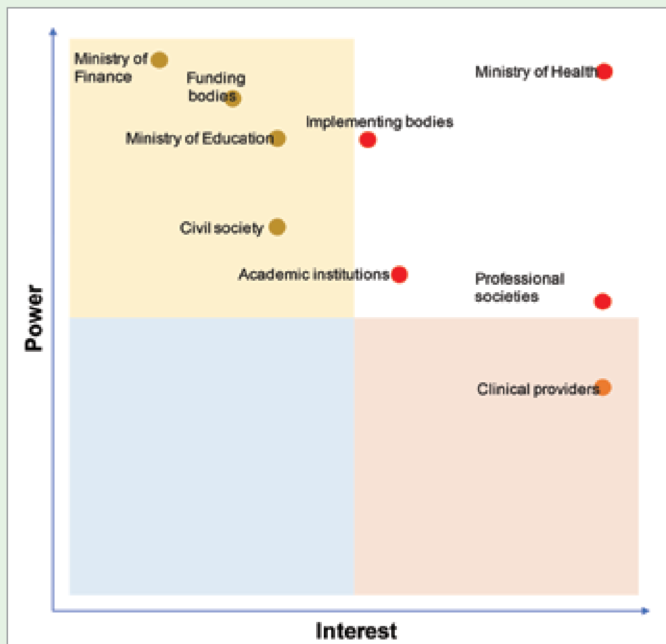


FIGURE 3.
POWER AND INTEREST OF KEY ZAMBIAN STAKEHOLDERS FOR NSOASP



Building consensus

After identifying champions and stakeholders, the Ministry of Health developed a task force, under the Service Delivery Technical Working Group, charged with the responsibility of establishing next steps to address existing gaps in surgical, obstetric, and anesthesia services for Zambia. The working group consisted of more than 60 individuals from the Zambian governmental ministries, care providers from public and private hospitals, representatives of relevant professional societies, and individuals in additional roles critical to strengthening the surgical system. This task force was divided into three committees focused on the important domains of service delivery and infrastructure, workforce, and financing and information management. A technical review panel, led by the Permanent Secretary of the Ministry of Health, comprised a cohort of key stakeholders, including development partners and regulatory bodies charged with critically reviewing draft outputs from the technical working group and its committees. To guide these discussions, a comprehensive terms of reference (TOR) was developed for each committee. Data informing issues outlined in the TOR were obtained from key informant interviews and a baseline literature and data review. This task was done with support from researchers at the Harvard Medical School's Program in Global Surgery and Social Change.

Following a review of all existing and available data, biweekly meetings were scheduled and facilitated by the Program in Global Surgery and Social Change team. These meetings included in-depth discussions of the existing surgical system in Zambia, major gaps in service provision, and consensus building on the priorities of surgical care moving forward. Between committee discussions, one-on-one follow-up meetings were scheduled to minimize the impact of potential power dynamics. The committee meetings

Attendees of the Zambia NSOASP writing workshop

took place over the course of two months in early 2016 and ultimately produced hundreds of pages of information and transcripts that needed to be synthesized.

Refining the language

To formalize all the discussions from the committee meetings, a week-long writing workshop was convened. The primary aim of the workshop was to compose and clarify policy, as well as address the feasibility, impact, and priority of key initiatives.

A total of 25 individuals participated in a writing workshop in May 2016, including representatives from previous committee meetings, as well as new members from the Zambian Ministry of Health, to facilitate appropriate policy language (see photo, this page). The structure of the workshop was similar to prior committee meetings—participants were divided into subcommittees related to infrastructure, workforce, service delivery, and governance. Previously synthesized plans were presented to the group for further discussion and refinement. The final plan included the following domains: infrastructure, service delivery, workforce, financing, and information management. Milestones and metrics were developed to be included within the upcoming National Health Strategic Plan, a five-year plan for 2017–2021.

Disseminating the plan at NSOAF

To help increase the transparency of this process of policy development as well as increase eventual uptake, a national forum was organized to disseminate the findings and goals of the plan. More than 50 members of government, advocacy, and professional societies attended the Zambian National Surgical, Obstetric, and Anesthesia Forum (NSOAF) in May 2017, and engaged in additional discussions surrounding the developed plan and ways forward. Representatives of all previously identified stakeholder groups were in attendance. Panel members included key professional society leaders, representatives from the Ministry of Health, and members of the Program in Global Surgery and Social Change team (see photo, page 35).

Financing the plan

After developing a working draft of the NSOASP, the next step was to provide informed estimates of the cost of each part of the plan to ensure the feasibility of implementation. The Ministry of Health held a costing workshop in late July 2016 to reassess and determine the costs of the NSOASP activities as already drafted in the plan (see photo, page 35). This workshop was conducted with a similar structure to the writing workshop. Based on initial costing, the team prioritized strategies that could be implemented in Zambia given financial, workforce, and resource constraints. Additionally, efforts were made to coordinate with other existing plans within the Ministry of Health to ensure collaboration and avoid repeated efforts.

Conclusion

The Zambian NSOASP was a locally driven process to scale up much-needed surgical, obstetric, and anesthesia services in the country. It was developed with significant collaboration between all stakeholders, including the Ministry of Health, professional societies,

continued on page 35

TABLE 1. LESSONS LEARNED DURING ZAMBIAN NSOASP PROCESS

Indicators define baseline	• Indicators are necessary to initiate broad conversations about surgical system development in an evidence-based manner • Highlighted the need to focus on skilled workforce development and institution of financial protection mechanisms • Much of the data needed to calculate indicators is publicly available or easily collected • Perioperative mortality presented a challenge; the remaining five indicators were calculated based on publicly available data from the IHME and Zambia HMIS
Local champions	• Local champions are critical for initial advocacy • Local champions were early adopters of the shared goal to address the critical situation for surgery, anesthesia, and obstetrics and led the process with the Ministry of Health (MOH) to prioritize surgical care
Broad stakeholder engagement	• Ministries (health, finance, and so on), clinical providers, professional societies, civil society, academic institutions, funding bodies, and implementing bodies • Partnerships with other major stakeholders require interests to be aligned and ensure equity in engagement and a transparent process • Policy change on a national level requires oversight and direction by MOH • Leaders must be aware of what is currently being funded to identify areas of overlapping scope, and openness of MOH allows broad partner buy-in • Those expected to enact and implement the intended plan should be engaged early in the process • Opinions of professional societies and clinical providers were prioritized
Working groups build consensus	• Priorities and goals of the surgical care system must be prioritized through consensus, usually through recurring committee meetings and working groups • Inter-meeting follow-up was included to allow for continued open discussion, especially for groups with less influence or power • Working groups must include both proponents and opponents of the process, to facilitate conversation and increase uptake • Additionally, committee members in each working group should be allocated to ensure adequate and equitable representation • Development of the plan should be transparent and without bias • External and neutral facilitator (Harvard Program in Global Surgery) was invited as a partner to help prevent bias
Writing the plan	• Measures for implementation and monitoring and evaluation must be included • This ensures sustainability of activities listed, and allows progress to be monitored • Policy writers are crucial to provide strength to the plan's language • Key players from prior steps continued to be included throughout the process, to ensure continued engagement and relevance
National Surgical Forum	• National Surgical Forum promotes transparency • Increased buy-in from clinical providers who are implementing the plan • Forum provides an opportunity for continued engagement and advocacy • Forum was used as an opportunity to engage funders, media, and ministry
Costing the plan	• Costing process highlights the value of different components of the plan • Evaluation of cost and impact ensures the best use of resources • Consultative process addresses concerns of feasibility, impact, and priority
Implementation	• Design is determined by funders and health care implementers • Continued engagement of all stakeholders is necessary • As implementation of the plan progresses, feedback and optimization of the NSOASP is best accomplished by stakeholders experiencing the effects

Panel at the Zambian NSOAF

Costing workshop facilitated by the Zambian Ministry of Health and the Program in Global Surgery and Social Change team

regulatory bodies, cooperating partners, the private sector, and the general public. The plan was developed using an important framework covering the following domains required for surgical care: infrastructure, service delivery, workforce, financing, and information management. These domains are codependent and can only be effective with corresponding developments in other areas.

Although the plan has been developed and its costs determined, this process is only an initial step toward adding surgery and anesthesia to Zambian national health care policy. Furthermore, although it is the first policy of its kind globally, we are still discovering what lessons can be learned from Zambia's experience in development and implementation (see Table 1, page 34). The implementation of this plan can only be accomplished with proper monitoring and evaluation processes in place. However, the commitment of the Zambian Ministry of Health to this plan ensures continued progress toward the availability of safe and affordable surgical, obstetric, and anesthesia services for all Zambians. ♦

REFERENCES

1. Farmer PE, Kim JY. Surgery and global health: A view from beyond the OR. *World J Surg.* 2008;32(4):533-536.
2. Meara JG, Leather AJ, Hagander L, et al. Global surgery 2030: Evidence and solutions for achieving health, welfare, and economic development. *The Lancet.* 2015;386(9993):569-624.
3. Mock CN, Donkor P, Gawande A, et al. Essential surgery: Key messages from Disease Control Priorities, 3rd edition. *The Lancet.* 2015;385(9983):2209-2219.
4. Organization WHA Resolution 68.15—Strengthening Emergency and Essential Surgical Care and Anaesthesia as a Component of Universal Health Coverage. 2015. Available at: apps.who.int/gb/ebwha/pdf_files/WHA68/A68_R15-en.pdf. Accessed April 21, 2017.
5. Central Intelligence Agency. Zambia. The World Factbook 2016. Available at: www.cia.gov/library/publications/the-world-factbook/geos/za.html. Accessed April 18, 2017.
6. Esquivel MM, Uribe-Leitz T, Makasa E, et al. Mapping disparities in access to safe, timely, and essential surgical care in Zambia. *JAMA Surg.* 2016;151(11):1064-1069.