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Healthcare Leaders Develop Strategies for Expanding National Surgical, Obstetric, and Anaesthesia Plans in WHO AFRO and EMRO Regions

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Abstract

Background Worldwide, five billion people lack access to safe, affordable surgical, obstetric, and anaesthesia (SOA) care when needed. In many countries, a growing commitment to SOA care is culminating in the development of national surgical, obstetric, and anaesthesia plans (NSOAPs) that are fully embedded in the National Health Strategic Plan. This manuscript highlights the content and outputs from a World Health Organization (WHO) lead workshop that supported country-led plans for improving SOA care as a component of health system strengthening.

Methods In March 2018, a group of 79 high-level global SOA stakeholders from 25 countries in the WHO AFRO and EMRO regions gathered in Dubai to provide technical and strategic guidance for the creation and expansion of NSOAPs.

Results Drawing on the experience and expertise of represented countries that are at different stages of the NSOAP process, topics covered included (1) the global burden of surgical, obstetric, and anaesthetic conditions; (2) the key principles and components of NSOAP development; (3) the critical evaluation and feasibility of different models of NSOAP implementation; and (4) innovative financing mechanisms to fund NSOAPs.

Conclusions Lessons learned include: (1) there is unmet need for the establishment of an NSOAP community in order to provide technical support, expertise, and mentorship at a regional level; (2) data should be used to inform future priorities, for monitoring and evaluation and to showcase advances in care following NSOAP implementation; and (3) SOA health system strengthening must be uniquely prioritized and not hidden within other health strategies.

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Introduction

Surgery has been described as the "neglected stepchild of global health" [1]. Conditions requiring surgical, obstetric, and anaesthesia (SOA) services amount to 30% of the global disease burden, yet over 70% of the world's population lack access to safe, affordable, and timely SOA care [2]. Only 6% of surgical volume worldwide takes place in poorest one-third of the world, which is home to the majority of the surgical disease burden [2]. The scope and severity of the surgical disease burden in low- and middle-income countries (LMICs) has been highlighted in publications such as the Lancet Commission on Global Surgery (LCoGS) report *Global Surgery 2030: Evidence and Solutions for Achieving Health, Welfare, and Economic Development* and DCP-3 [2, 3]. The subsequent unanimous passage of "On strengthening emergency and essential surgical care and anaesthesia as a component of universal health coverage" (World Health Assembly Resolution 68.15) provided the requisite diplomatic directive to begin to address unmet surgical need [4]. Currently, there is growing commitment and interest around the world, particularly in LMICs, in increasing access to SOA care. In many countries, this newly realized commitment is culminating in the development of national surgical, obstetric, and anaesthesia plans (NSOAPs) that are incorporated into a country's National Health Strategic Plan (NHSP) [5–7].

Methods

During a regional meeting from 21–22 March 2018, a group of 79 high-level global SOA stakeholders from 25 different countries gathered in Dubai to provide technical, programmatic, and strategic support for the creation and expansion of NSOAPs ("Appendix 1"). The overarching goal of the workshop was to support country-led plans for scaling up SOA care as an indispensable component of health system strengthening. Over the two-day workshop, both published and unpublished evidence, and technical and strategic guidance were presented through formal presentations, country case studies, panels, and small group discussions. Countries at various stages of NSOAP and implementation were used as real-life examples to underscore NSOAP principles. Clinicians and policymakers, alike, resolved to use NSOAP as a tool to implement change and improve access to surgical care in the World Health Organization (WHO) African and Eastern Mediterranean regions. This manuscript highlights the content and outputs from this workshop that supported country-led plans for scaling up surgical, obstetric, and anaesthesia care as part of health system strengthening.

Results

Summary of conference proceedings

Drawing on experience, expertise, and lessons learned from countries and implementers around the world, topics covered included (1) the global burden of SOA conditions; (2) the key principles and components of NSOAP development; (3) the critical evaluation and feasibility of different models of NSOAP implementation; and (4) innovative financing mechanisms to fund NSOAPs. Participants noted the importance of advocacy and critical role of data-driven and data-supported arguments to highlight the critical need for improved SOA care for all people. Key arguments for

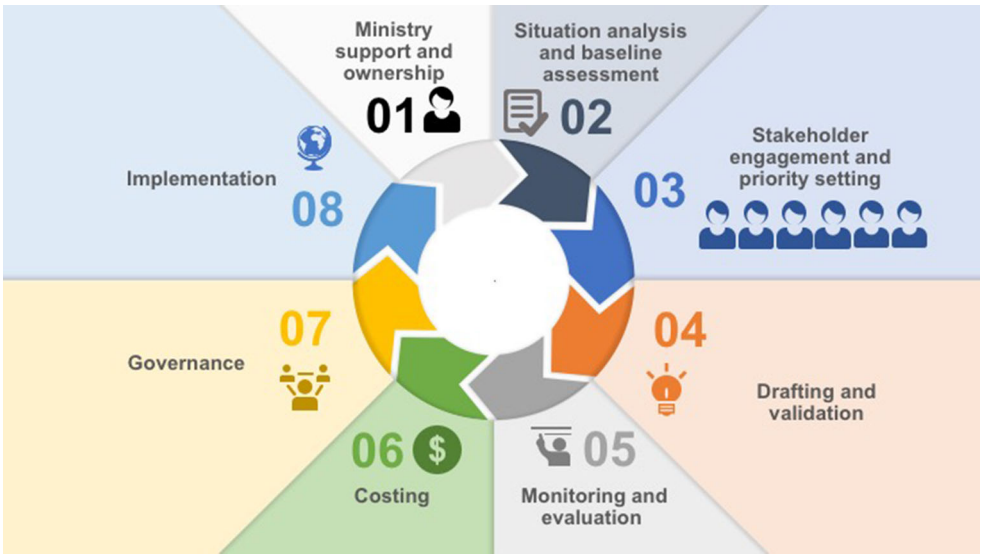

Fig. 1 NSOAP theoretical framework

the inclusion of NSOAP within the national health agenda included: (1) current capacity does not come close to meeting the SOA need in most LMICs, and where present it is often lacking in quality; (2) investment in SOA care is cost-effective; (3) emergency and essential SOA care are critical and indispensable components of universal health coverage (UHC); (4) investment in surgery is necessary to meet the sustainable development goals; (5) NSOAPs facilitate SOA system strengthening; and (6) surgery, obstetrics, and anaesthesia are indivisible components of effective NHSPs and resilient health systems [8]. With these building blocks established, the remainder of the workshop focused on the framework for and implementation of NSOAPs.

National health planning

NHSPs are high-level strategic documents that outline a country's vision, priorities, budgetary decisions, and course of action for improving and maintaining the health of its people. Such documents provide direction for improving health and are used for planning purposes, often addressing scope, distribution, and prioritization of service delivery. The development of NSOAPs, embedded within a country's NHSP, has been identified as a potential strategy to facilitate increased access to SOA care, especially in LMICs. Importantly, strategic plans are often just the beginning of national efforts to improve the SOA landscape, with their ultimate impact determined by successful implementation. Furthermore, strengthening SAO care encompasses the full spectrum of services at all levels of the healthcare system, from pre-hospital care delivery through discharge, thus improving the capacity of the system as a whole.

National surgical, obstetric, and anaesthesia plans—a framework

There are three major components involved in drafting an NSOAP: (1) defining the current gaps in access to safe, timely, affordable, and quality SOA care; (2) identifying and prioritizing solutions; and (3) creating a costed and funded implementation plan that includes collection and evaluation of countrywide data. NSOAPs cover six domains: (1) infrastructure; (2) workforce; (3) service delivery; (4) financing; (5) information management; and (6) governance. There are eight key principles involved in the development of an NSOAP (Fig. 1). Notably, these principles are not necessarily temporally separated and often occur in parallel with each other.

Financing NSOAPs

Despite the common perception that the provision of SOA care is cost-prohibitive, surgery is a highly cost-effective public health intervention [9]. It will cost an estimated $350 billion to address the surgical burden of disease in LMICs by 2030, almost 50-fold less than the estimated $12.3 trillion in lost GDP that will be attributed to untreated conditions requiring surgery in the same time frame [2, 10, 11]. Additionally, the cross-cutting nature of NSOAP makes it a compelling financial and political investment as it has benefits that extend to the broader healthcare system. Domestic and external funding sources should be considered for NSOAP financing. Domestic funds may be attained through the utilization of UHC funds, improved efficiency in allocation of existing funds towards horizontal health systems strengthening, and increased investment into the health sector. For many LMICs and fragile states, additional external financing will be necessary. This may take the form of assistance from non-governmental organizations, foundations, or bilateral and multilateral development partners, amongst others. Financial assistance as well as logistic and managerial expertise may also be provided by private industry.

Implementing change in WHO AFRO and EMRO

Throughout the meeting, participants learned from the expertise and experience, and successes and challenges, of countries that are at different stages of the NSOAP process through case studies and panel discussions (Fig. 2; Table 1). Paving the way forward with NSOAP implementation are Ethiopia, Senegal, and Zambia. Tanzania's NSOAP was officially launched on 19 March 2018. Rwanda has the intention of finalizing and launching their plan in 2018. Madagascar, Nigeria and Sierra Leone have begun the NSOAP process and are currently in the mid-development stage. Sudan and Namibia have committed to developing an NSOAP.

Conclusions

The group identified several strategies to drive successful and rapid NSOAP expansion:

1. *Regionalization* There is unmet need for establishment of an NSOAP community in order to provide technical support, expertise, and mentorship at a regional level. This could be achieved by better utilizing existing regional health actors including the African Union (AU) and WHO AFRO and EMRO. WHO AFRO expressed willingness to support the creation of such a

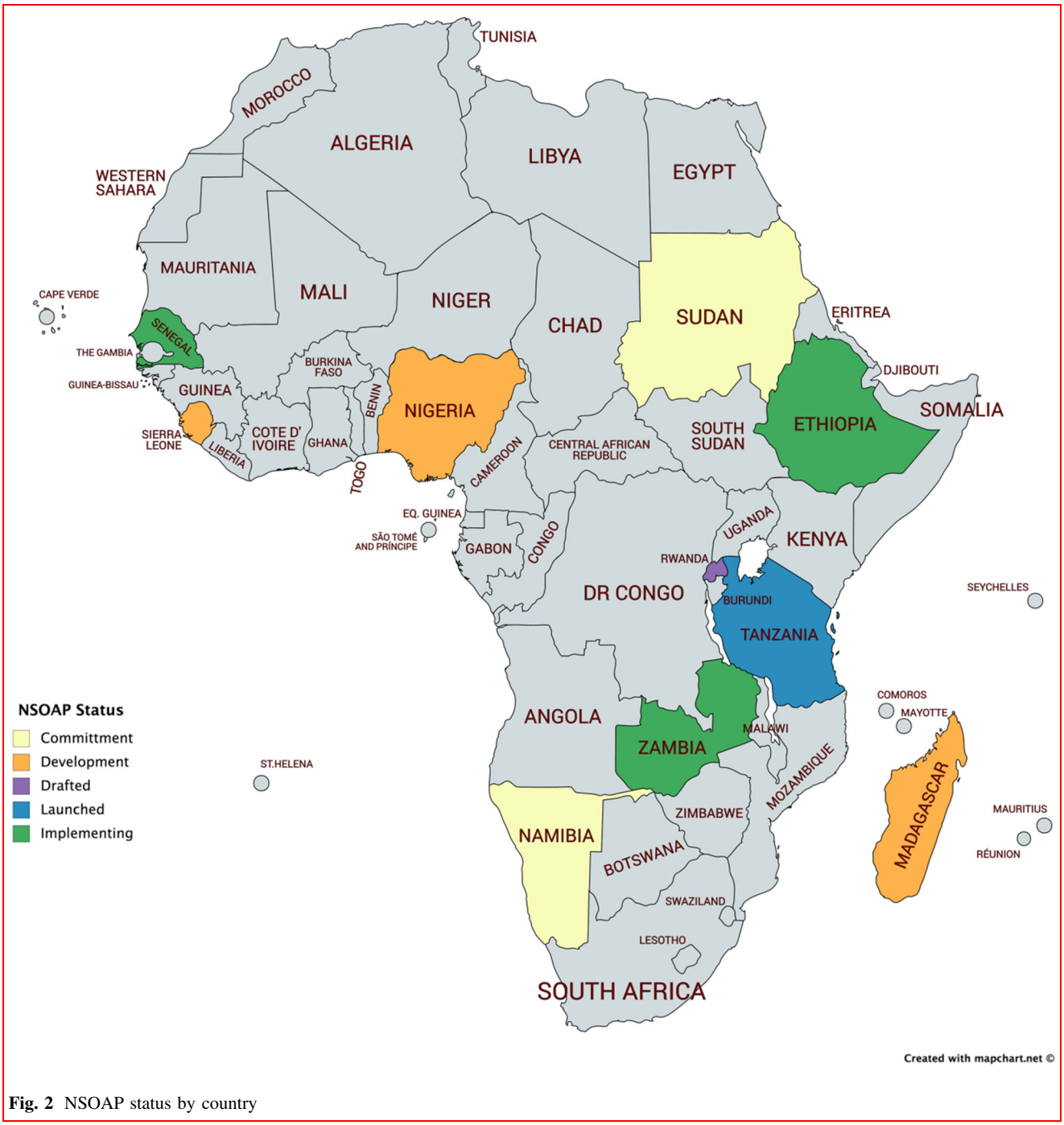

Fig. 2 NSOAP status by country

community. The College of Surgeons of East Central and Southern Africa (COSECSA) and West African College of Surgeons (WACS) are willing to leverage their expertise and network to work with member states to develop NSOAPs. Additionally, Ethiopia, Zambia and Tanzania (countries with completed plans) have committed to mentor other countries through their NSOAP development and implementation. There was a resolution to present the concept of NSOAP at the highest levels of the AU and Southern African Development Community in order to ensure the buy in and adoption from the agenda-setting agencies of the region.

2. *Data collection* Data should be used to inform future priorities, for monitoring and evaluation, and to showcase advances in care following NSOAP implementation. There was broad support for the inclusion of SOA data collection as a specific objective in each

Table 1 Status of NSOAPs worldwide

Phase of NSOAP development	Country	Progress to date
Commitment	Namibia	Gathering stakeholders and forming working group
		Goal to complete NSOAP process by December 2019
Commitment	Sudan	Meeting with the Clinical Directorate and Health Financing Department at the Federal Ministry of Health in April 2018
		Drafting complete NSOAP proposal to submit to MOH
		Goal to complete NSOAP process by mid-2019
Development	Madagascar	Initial baselining was completed and an initial stakeholder meeting occurred in September 2016
		NSOAP process temporarily stalled due to a leadership transition but in January 2018 the process restarted
		A working group is meeting regularly to draft the NSOAP with the goal of completion within the next 6 months
Development	Nigeria	Initial baselining has been completed for the federal capital territory and is due to commence in one state from each of the six geopolitical zones
		Goal to complete NSOAP process by December 2018
Development	Sierra Leone	Unique opportunities to design solutions from the ground up given ongoing reconstruction of the entire health system post-Ebola; aided by the prevalence of research on health system capacity and high density of bilateral partners
		Completed situation analysis and theory of change workshop; currently planning national surgical forum
Drafted	Rwanda	Completed the first draft of their plan and the initiatives are currently under review by a large group of stakeholders in order to achieve consensus prior to finalization
		The intent is to launch the plan in the next several months
Launched	Tanzania	Two-year collaborative process involving Department of Curative Services in the MOHCDGEC, the Program in Global Surgery and Social Change at Harvard Medical School, and the GE Foundation Safe Surgery 2020 project
		NSOAP signed in January 2018 and formally launched in March 2018
Implementing	Ethiopia	Second year of implementation
		Appointment of a core project team for the saving lives through surgery (SALTS) Initiative
		Successes include: construction of more than 100 new OR blocks, the creation of road maps for SAO workforce development in the country, the formation of vital partnerships with many funders and expert groups, the launch of a safe surgery national monitoring and evaluation program, facility-based quality improvement efforts, and development of a perioperative guidelines, amongst others
Implementing	Senegal	Fifth year of implementation
		NSOAP launched in December 2013 with implementation time frame of 5 years
		First plan to be launched at a national level and fully integrated into the NHSP
Implementing	Zambia	First year of implementation
		Specialty SOA societies have been able to successfully lobby for funding from the MOH to support NSOAP initiatives
		The NSOAP highlighted workforce as one of the largest gaps in SOA care, prompting a focus on increasing the workforce and improving the distribution of providers around the country

future NSOAP. These data could be utilized to inform future priorities, for monitoring and evaluation, and to showcase advances in care following NSOAP implementation. The need for data to show return on investment and create opportunities for results-based financing, impact bonds, and other innovative financing mechanisms was highlighted. Additionally, the importance of sharing these data with the international community, via the WHO and World Bank, for transparency and accountability was stressed.

3. *Financing* Health system strengthening for SOA services must be prioritized in its own right and not hidden within other health strategies. All countries were in agreement that new financial mechanisms must be developed in order to ensure allocation of funds specific to NSOAP. NSOAP champions must take the initiative to advocate for financial support from domestic and external sources. Industry also represents a potential source of support that can be engaged throughout the NSOAP process to meet the specific

surgical needs of each country. At the conference, industry began to discuss how to best partner and create a collaborative strategy for NSOAP support.

Future directions

The group requested that the WHO offices, on the country and regional level, provide technical assistance in the priority setting, drafting, and costing phases of the plans and use their significant political influence for NSOAP advocacy.

Participants agreed to meet at the COSECSA annual meeting in Kigali, Rwanda, in December 2018. By this time, most participants anticipated significant progress in their NSOAP journey: with delegates from Rwanda anticipating completion in the next several months, Madagascar within 6 months, Sudan by mid-2019, and Namibia by December 2019. At the conclusion of the meeting, there was a sense of urgency amongst participants with a growing commitment to NSOAP development from numerous countries, promising partnership opportunities with industry, and ongoing discussions of NSOAP at the highest levels of relevant regional and multilateral organizations. Furthermore, an NSOAP policy brief and WHO NSOAP manual, incorporating many of the themes from the meeting, are currently under development.

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Authors' contribution All authors have provided substantial contributions to the conception or design of the work or the acquisition, analysis, or interpretation of data for the work, drafted the work or revised it critically for important intellectual content, approved the version to be published, and agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Portions of this manuscript were presented in *National Surgical Obstetric and Anaesthesia Planning: Process and Consensus Recommendations.*

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Appendix 1

List of NSOAP Meeting Attendees

1. Maha ABDELHAFEEZ, Federal Ministry of Health, Khartoum, SUDAN
2. Aaliya AHMED, World Federation of Societies of Anaesthesiologists, London, UK
3. Katherine ALBUTT, Program in Global Surgery and Social Change, Harvard Medical School, Massachusetts General Hospital, Boston, MA, USA
4. Emmanuel AMEH, NSOAP Committee, Abuja, NIGERIA
5. Hery Harimanitra ANDRIAMANJATO, Madagascar Ministry of Public Health, MADAGASCAR
6. Erin BARRINGER, Safe Surgery 2020, New York, NY, USA
7. Ernest BARTHÉLEMY, Program in Global Surgery and Social Change, Harvard Medical School, Boston, MA, Mount Sinai Hospital, New York, NY, USA
8. Abebe BEKELE, Examinations and Credentials Committee, The College of Surgeons of East, Central and Southern Africa (COSECSA), School of Medicine, Addis Ababa University, Addis Ababa, ETHIOPIA
9. Hassen BESHIR, Federal Ministry of Health, Addis Ababa, ETHIOPIA
10. Ashish BHANDARI, Safe Surgery 2020, Program in Global Surgery and Social Change, Harvard Medical School, Boston, MA, USA
11. Ekani BOUKAR, Ministry of Health, CAMEROON
12. Isabelle CITRON, Program in Global Surgery and Social Change, Harvard Medical School, Boston, MA, USA
13. Matchecane COSSA, Maputo Central Hospital, National Programe of Surgery, Ministry of Health, Maputo, MOZAMBIQUE
14. Rachel CURRIE-CATHEY, Diamedica (UK) Ltd, Devon, UK
15. Sarah DAVIES BREEN, Keough School of Global Affairs, University of Notre Dame, Notre Dame, IN, USA
16. Mark ELLIOT, Harvard University, Cambridge, MA, USA
17. Ahmed ELSAYED, Alazhari Health Research Center, Khartoum, SUDAN
18. Mohamed FAKHRELDIN, Smile Train, UNITED ARAB EMIRATES
19. Adrian W. GELB, World Federation of Societies of Anaesthesiologists, San Francisco, CA, USA
20. Lars HAGANDER, WHO Collaborative Centre for Surgery and Public Health, Lund University, Lund, SWEDEN
21. Elise HUSIMAN, Arbutus Medical, Vancouver, BC, CANADA
22. Pankaj G. JANI, The College of Surgeons of East, Central and Southern Africa (COSECSA), Arusha, KENYA
23. Walter D. JOHNSON, Emergency & Essential Surgical Care Programme, World Health Organization, Geneva, SWITZERLAND

24. Desmond JUMBAM, Safe Surgery 2020, Program in Global Surgery and Social Change, Harvard Medical School, Boston, MA, USA
25. Salmaan KESHAVJEE, Center for Global Health Delivery–Dubai, Harvard Medical School, Boston, MA, USA
26. Tariq KHAN, Alliance Healthcare, Neurotraumatology Committee, World Federation of Neurological Societies, Northwest School of Medicine, Peshawar, PAKISTAN
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36. Isaac MINANI, Ministry of Health, BURUNDI
37. Robert MIROS, 3rd Stone Design, Inc., San Rafael, CA, USA
38. Martin Ekeke MONONO, REPUBLIC OF THE CONGO
39. Akutu MUNYIKA, Intermediate Hospital Onandjokwe, Ondangwa Oshikoto Region, NAMIBIA
40. Shiva MURUGASAMPILLAY, Global Public Health, ZIMBABWE
41. Jacques NIYONKURU, Ministry of Public Health and Fighting Against AIDS, Department of Supply and Demand for Care, BURUNDI
42. Mzaza NTHELE, Zambian Ministry of Health, Lusaka, ZAMBIA
43. Susuti A. NUHU, Federal Ministry of Health, Abuja, NIGERIA
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58. Theresia SHIVERA, Windhoek Central Hospital and Intermediate Hospital Katutura, Windhoek, NAMIBIA
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61. Emi SUZUKI, Development Data Group, The World Bank, Washington, D.C., USA
62. Emma SVENSSON, Program in Global Surgery and Social Change, Harvard Medical School, Boston, MA, USA
63. Mohammad TALAFA, Masimo, UNITED ARAB EMIRATES
64. Prosper TUMUSIIME, REPUBLIC OF THE CONGO
65. Kathryn UTTS, Johnson & Johnson, New Jersey, USA

66. Alex VAN DER HORST, Namibian Surgical Society, Windhoek, NAMIBIA
67. Asha VARGHESE, GE Foundation, Boston, MA, USA
68. Kerry VAUGHAN, Program in Global Surgery and Social Change, Harvard Medical School, Boston, MA, Department of Neurosurgery, University of Pennsylvania, Philadelphia, PA, USA
69. Martin VELLER, University of Witwatersrand, Johannesburg, SOUTH AFRICA
70. Leah WALKOWSKI, USA
71. Peter WEINSTOCK, Boston Children's Hospital Simulator Program, Boston, MA, USA
72. Ekani Boukar Mahamat YANNICK, Representative of the Ministry of Public Health of Cameroon, CAMEROON
73. Prem YOHANNAN, Hospital Privado de Maputo, Country Representative, The College of Surgeons of East, Central and Southern Africa (COSECSA), Maputo, MOZAMBIQUE
74. Samuel ZEMENFESKUDUS, Health Service Quality Directorate, Ethiopian Federal Ministry of Health, Addis Ababa, ETHIOPIA

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