

# The Role of the WFSA in Reaching the Goals of the Lancet Commission on Global Surgery

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For decades, surgery was characterized as “the neglected stepchild of global health,”<sup>1</sup> but 2015 heralded a major change. The World Bank’s Disease Control Priorities, Third Edition, Volume on Essential Surgery,<sup>2</sup> the report of the Lancet Commission on Global Surgery (LCGS),<sup>3</sup> and the World Health Assembly (WHA) Resolution on Strengthening Essential Surgery and Anaesthesia<sup>4</sup> signaled a shift in the health agenda, issuing a call to action and providing a much-needed platform and framework for key stakeholders.

Together the work of the LCGS, the World Bank and WHA highlighted the severity of the crisis in surgery and anesthesia. They also provided the human and economic arguments for an organized response.

The LCGS concluded that 5 billion of the 7 billion people in the world do not have access to safe, affordable surgical and anesthesia care. It also demonstrated that this lack of access is most acute in low and lower-middle income countries, where 9 of 10 people are affected. This immense gap in provision is particularly difficult to accept as we have known for many years exactly what is required to deliver safe anesthesia and safe surgery. The LCGS set the goal of “Universal access to safe, affordable surgical, and anesthesia care when needed.” The World Federation of Societies of Anaesthesiologists (WFSA), with its unique international network, supports this goal and is a key player in its implementation. For example, of the 6 core indicators set by the LCGS, the WFSA brings specific capacity related to the first 4 and indirectly contributes to achieving the fifth and sixth:

1. Access to timely essential surgery: A minimum of 80% coverage of essential surgical and anesthesia services per country by 2030
2. Specialist surgical workforce density: 100% of countries with at least 20 surgical, anesthesia, and obstetric physicians per 100,000 population by 2030
3. Surgical volume: 80% of countries by 2020 and 100% of countries by 2030 tracking surgical volume; a minimum of 5000 procedures per 100,000 population by 2030

4. Perioperative mortality rate: 80% of countries by 2020 and 100% of countries by 2030 tracking perioperative mortality rate; In 2020, evaluate global data and set national targets for 2030
5. Protection against impoverishing expenditure: 100% protection against impoverishment from out of pocket payments for surgical and anesthesia care by 2030
6. Protection against catastrophic expenditure: 100% protection against catastrophic expenditure from out of pocket payments for surgical and anesthesia care by 2030

## WFSA—WHERE A SPECIALIST MEDICAL ASSOCIATION MEETS A GLOBAL HEALTH NONGOVERNMENTAL ORGANIZATION

The first World Congress of Anaesthesiologists was held at Scheveningen in the Netherlands in 1955. At the end of the Congress, the WFSA was formed, with 26 Societies represented and a further 16 observing.

The WFSA objectives included “to make available the highest standards of anesthesia, pain medicine, trauma management, resuscitation, and preoperative/critical care medicine to all peoples of the world and to disseminate the same among them.”

Today the WFSA has over 130 Societies as members and represents hundreds of thousands of anesthesiologists in over 150 countries (Figure 1). Its mission is “to unite anesthesiologists to improve patient care and access to safe anesthesia and perioperative medicine,” and its vision, “Universal Access to Safe Anaesthesia,” is in line with the goal of the LCGS. These objectives have remained largely unchanged for over 60 years, with the more recent emphasis on the word “access,” which is a key driver of the work and strategy of the WFSA in the 21st century as it engages with the global health agenda.

The WFSA’s activities are supported by a network of thousands of volunteers who dedicate their time and expertise to our study. Its mission is delivered through programs in partnership with national and regional societies of anesthesiology, and other organizations that share our objectives. The WFSA works with the World Health Organization (WHO), with governments, standard setters, surgical and other clinical partners, NGOs, hospitals and training centers, health care technology and pharmaceutical companies, and other stakeholders. It welcomes partnerships with organizations that promote safe anesthesia and safe surgery.

The WFSA Programmes in Advocacy, Education & Training, Innovation & Research, and Safety & Quality are supported through the work of 9 committees: Education,

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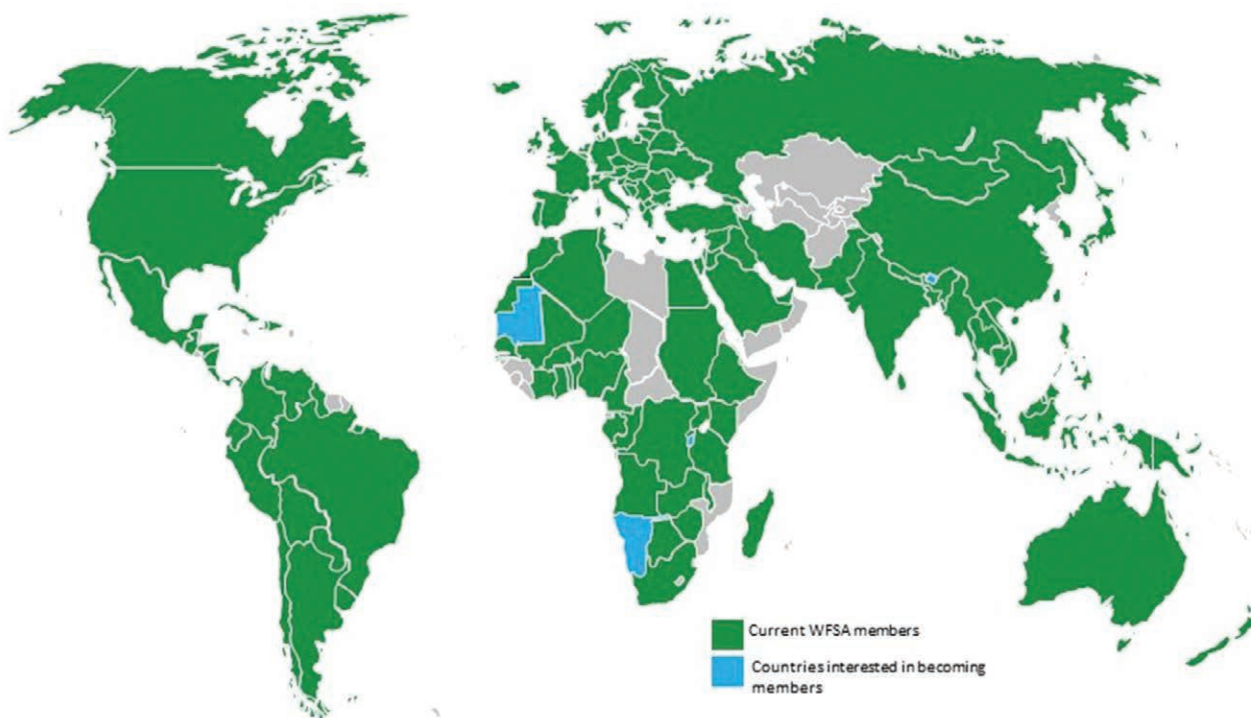
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**Figure 1.** World map with National Societies affiliated to the World Federation of Societies of Anaesthesiologists.

Safety & Quality of Practice, Constitution, Obstetric Anaesthesia, Paediatric Anaesthesia, Pain Management, Publications, Scientific Affairs, Professional Wellbeing; and an ad-hoc Anaesthesia Equipment Committee.

### THE WFSA: THREE GUIDING PILLARS

The WFSA has developed 3 framework documents that will guide the work to achieve its mission and to support the goal of the LCGS. These documents provide answers to the essential questions faced by any organization, “What? Why? How? Where? When? By whom?”

First are the International Standards for a Safe Practice of Anaesthesia,<sup>5</sup> which were originally published in June 1992 and are revised periodically. These standards are equally as important in high resource and low resource environments. A universal commitment to safety in anaesthesia is essential to improve access to safe surgery, to save lives, and to strengthen health systems.

The standards define the desired state, explain “why” patient safety is so important to anaesthesia, and that “what” the WFSA seeks to do is to ensure that these standards are available to everybody. Safety and access are inseparable elements of the WFSA’s vision.

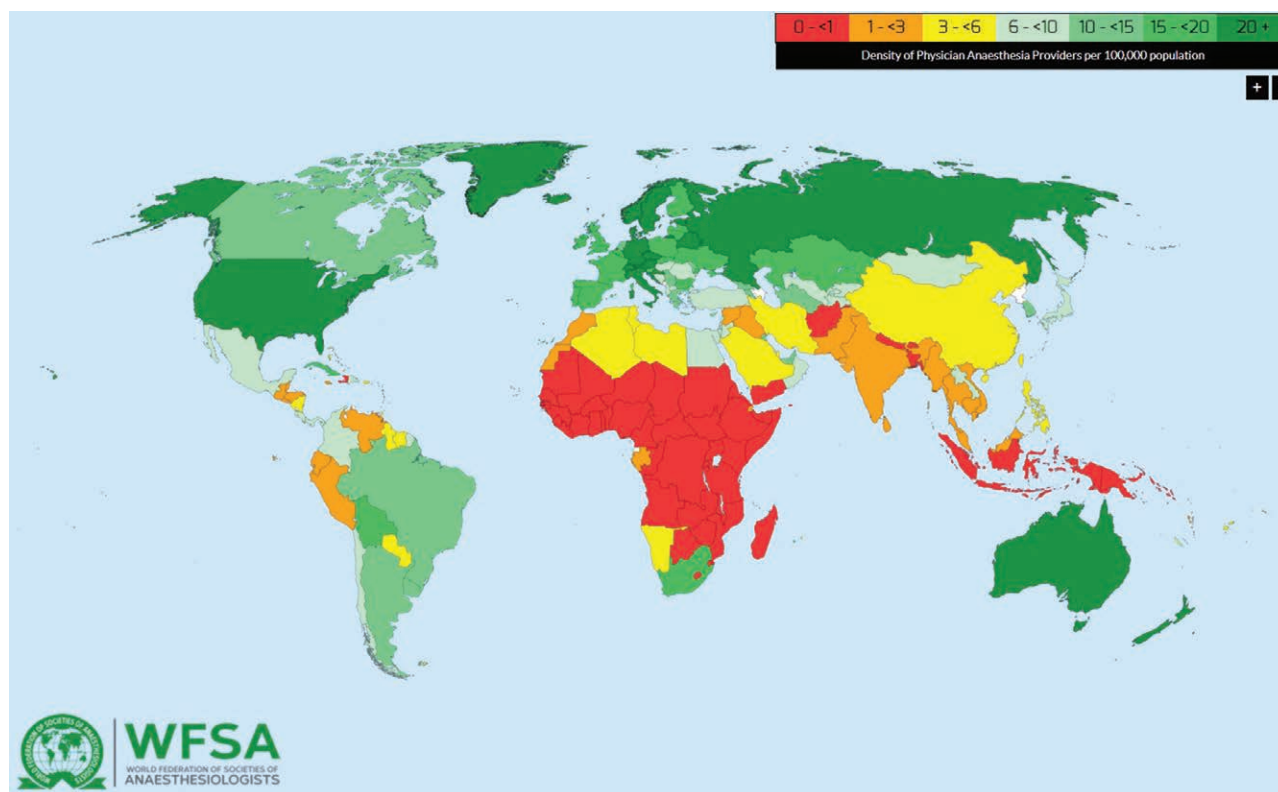
Second, the WFSA Global Position Statement on Anaesthesiology and Universal Health Coverage<sup>6</sup> was approved by the WFSA General Assembly in 2017. This provides answers to “when,” “how,” and “by whom,” highlighting the need for WFSA and anaesthesiologist leadership in addressing the crisis in anaesthesia: “Anaesthesia is complex and potentially hazardous, and optimal patient care depends on anaesthesia being provided, led or overseen by an anaesthesiologist.” It also acknowledges the important role of nonphysician providers in relation to the goal of

Universal Health Coverage by 2030: “In some countries, the anaesthesia need will be met by training anaesthesiologists. In other countries, especially those with limited resources, the need may, in part, be met by training nonanaesthesiologist providers.”

Finally, the WFSA Global Anesthesia Workforce Survey was published in *Anesthesia & Analgesia (A&A)* in 2017<sup>7</sup> and, together with the online map<sup>8</sup> (Figure 2), provides further clarity on “why,” “where,” and “how.” The density of trained anesthesia providers is 1000 times lower in some low-income countries (LICs) than in most high-income countries (HICs). In contrast, anesthesia mortality rates are 1000 times higher in some LICs than in most HICs.<sup>9</sup> This information gives a clear indication of where the crisis is most acute, and of how important strengthening the anesthesia workforce is in response. It also provides a means to measure progress. The map is open source, will be continually updated, and is intended to include data on equipment and medicines at a later date. This will provide an increasingly complete picture of anesthesia capacity around the world.

### WORKFORCE FIRST

The quality, density, and distribution of the anesthesia workforce (physician and nonphysician) has the single most important influence on reaching the LCGS and WFSA shared goal of Universal Access to Safe Anesthesia. This explains why the WFSA’s role is focused (but not only) on the anaesthesiologist provider. The LCGS set a goal of 20 specialist surgeons, anaesthesiologists, and obstetricians per 100,000 population, a figure based on the impact of workforce density on maternal survival rates. Little has been written on a specific target density for anaesthesiologists. However, the



**Figure 2.** The online workforce map showing density of physician anesthesia providers per 100,000 population.

WFSA workforce survey's authors suggested a minimum, interim, target of 5 per 100,000. Even as only a first step toward the HIC average density of almost 20 of 100,000, this target would require an additional 136,000 anesthesiologists in the world today. The situation remains challenging if we look at provider numbers as a whole and add physician and nonphysician anesthesia providers together, as this still means that more than 70 countries fall short of the interim target.

Access is further complicated by uneven provider distribution such as rural areas having significantly lower anesthesia provider densities than urban areas, and also by significant density differences between private and public health care systems. Migration from rural areas to cities or to other countries also adversely impacts anesthesia workforce availability.

Historically, the WFSA's education and training activities have focused on anesthesiologists and other trained providers such as nurse anesthetists. Over 200 scholars have been sponsored to attend anesthesia congresses and to date over 300 anesthesiologists have been part of the Fellowship programme, a mentoring and training programme that takes place in 23 hospitals in 14 countries, offering 3- to 12-month placements. The WFSA aims to have reached a minimum of 500 fellows by 2020 and thus improve anesthesia care for over 1 million patients. To do so will require further resources and the Fund A Fellow campaign is an easy way for all to get involved.<sup>10</sup>

The WFSA also provides training in safe pediatric and obstetric anesthesia. Under the banner of Safer Anaesthesia From Education (SAFE), these courses have now reached

thousands of providers across Africa, Asia, and Latin America. These short courses clearly reinforce the relationship between anesthesia and high-profile global priorities such as Mother and Child Health.<sup>11</sup> Other courses such as Essential Pain Management are also proving highly effective in improving knowledge and competencies.<sup>12</sup> These interventions have the added benefit of deriving huge value from WFSA member societies and from colleges—the Association of Anaesthetists of Great Britain and Ireland, the American Society of Anesthesiologists, the Canadian Anesthesiologists' Society, the Australian and New Zealand College of Anaesthetists, the New Zealand Society of Anaesthetists, the Australian Society of Anaesthetists, and the Association of Anaesthesiologists of Uganda having been especially active.

All of the WFSA's educational activity is supported by high-quality educational and scientific publications. "Update in Anaesthesia" is an official WFSA journal focused on low and middle income countries (LMICs). "Anaesthesia Tutorial of the Week" provides interactive learning opportunities around popular topics. Both are accessed, free of charge, by thousands of anesthesia providers all over the world. *A&A* is also an official journal of the WFSA and the International Anesthesia Research Society commitment to a Global Health Section in *A&A* is a very valuable contribution in this context. Research is an essential element to improve health services, and the global research map is skewed in favor of rich areas of the world. The cooperation with *A&A* is one means of supporting scientific development in LMICs. Twinning research centers in high- and low-income settings is another tool, as are the WFSA Research Grants.

Despite these efforts, the workforce crisis demands that the WFSA does more to address the need for large numbers of additional anesthesia providers by 2030. As well as supporting formal qualification of physician providers through existing institutions and attracting medical students into the specialty, new models are needed to inspire more physicians to develop their anesthesia capacity. Physician providers will also be required to lead the training of non-medical providers of anesthesia (nurses, technicians, clinical officers) in contexts where this is relevant. Task-sharing models for all safe anesthesia environments are essential if we are going to reach our goal of providing access to all.

The WFSA needs to respond to the LCGS recommendation that all first-level hospitals provide access to the Bellwether procedures (cesarean delivery, open fracture, laparotomy) within 2 hours. To cover these surgical procedures, the WFSA is studying the possibility of describing competency-based curricula to train different levels of anesthesia provider. This approach aims to involve anesthesiologists in the design and delivery of solutions from the beginning. Anesthesiologist leadership is crucial for developing national surgical plans and promoting perioperative medicine, anesthesia services, and patient safety, even in situations where there is a huge gap between workforce need and availability.

The WFSA, and anesthesiology leaders in general, need to work ever more closely with other members of the surgical team. This applies not only in the operating room, where teamwork is a daily necessity, but also within and beyond the perioperative setting. Initiatives such as the Global Alliance for Surgical, Obstetric, Trauma, and Anaesthesia Care (G4 Alliance), and shared courses such as the nascent SAFE Operating Room training (a team-based course being piloted together with the Association of Anaesthetists of Great Britain and Ireland, the Royal College of Surgeons, the Association for Perioperative Practice, the Royal College of Nursing, and Lifebox), are welcomed. The WFSA also works with the WHO, with member societies, industry, and governments to encourage them to invest in developing the anesthesia workforce. This is in line with the WHA Resolution: “Strengthening Emergency and Essential Surgical Care and Anesthesia as a component of Universal Health Coverage” which, particularly at first level referral hospitals, is a highly cost-efficient solution to the global burden of disease.”<sup>4</sup>

### **INFRASTRUCTURE, EQUIPMENT, MEDICINES**

Infrastructure (electricity, water, roads, buildings) is primarily provided by governments or by governments and other stakeholders working together. The LCGS and the World Bank make strong arguments that sensible investment in anesthesia and surgery will bring economic rewards that far outweigh the investment.

Lack of appropriate, well-functioning anesthesia equipment is a common limitation in the administration of safe anesthesia. The WHO Surgical Safety Checklist mentions equipment 4 times. Lack of equipment, electricity, and water often determines the use (or not) of anesthetic agents. Purchasing and maintenance of equipment can be problematic and health authorities and industry should consider making group purchases possible for a country or a region, and establishing maintenance centers and teams at regional or national levels.

The anesthesia equipment committee of the WFSA brings together global expertise in anesthesia equipment and varied operating environments. It does this by identifying component parts for a basic WFSA “Safe Anesthesia Kit” (the essential equipment necessary for safe anesthesia), defining and agreeing LMIC equipment standards and anticipating which technological developments will be beneficial to LMICs.

Second, the committee seeks to establish a process for the anesthesia community to engage with equipment manufacturers to ensure that equipment is developed according to the international context (quality, suitability, affordability), and a case-by-case analysis of hospital infrastructure. Not doing so can mean that generous donations of equipment are stored, or even thrown away without being used. Even for those donations that are used initially, a lack of training, maintenance, and spare parts can contribute to the build-up of equipment graveyards.

There is an urgent and essential need to promote and protect the availability of anesthesia medicines. This includes WFSA’s work with the WHO on the Essential Medicines List,<sup>13</sup> as well as highlighting the risks associated with inappropriate or poorly advised legislation.

At the 70th WHA in 2017 (Agenda item 13.3 Global Shortages of Medicines), the WFSA highlighted the anesthetic medicines essential for safe anesthesia and therefore safe surgery and emphasized in its statement: “With 134 million surgeries each year, and with millions more surgeries required to address the 30% of the Global Burden of Disease that is amenable to surgical intervention, it is essential that any plan to ensure the manufacture and supply of essential medicines includes essential anesthetic medicines on its list.”<sup>14</sup>

Of particular note are ketamine and potent opioids. The availability of these medicines is threatened by legislation that ignores their medical value. In LICs, ketamine provides 70% of anesthetics and is the most commonly used anesthetic for cesarean delivery, a lifesaving surgery for mothers and babies. Precluding ketamine availability risks leaving millions of patients without surgery at all. In addition, opioids and ketamine are essential medicines for the management of pain, an indispensable element of appropriate and universal health coverage. The WFSA continues to raise this issue through its global #ketamine is medicine<sup>15</sup> social media campaign, as well as in its work with the WHO Expert Committee on Drug Dependence and the UN Commission on Narcotic Drugs.

### **Advocacy**

Ensuring availability of anesthesia workforce, equipment, and medicines is complex and beyond the capacity of any single actor. We are faced with the task of influencing health, education, and financial decision makers so that we strengthen health systems in a sustainable fashion, rather than providing ad-hoc or temporary solutions. These challenges reinforce the need for sustained advocacy approaches as we seek to ensure that anesthesia and surgery do not remain such neglected elements of universal health care.

The WFSA has responded by establishing the “Safe Anaesthesia For Everybody—Today” campaign to unite individuals, industry, and organizations behind an

advocacy framework. The campaign is driven by the “SAFE-T Consortium,” a global collaboration of industry and patient focused organizations committed to the advancement of patient safety and the International Standards for a Safe Practice of Anaesthesia, and the “SAFE-T Network,” a network of individual anesthesia providers committed to these same goals.<sup>16</sup>

Further to the above, the WFSA will continue to nurture its official liaison with the WHO, its presence at the WHA and other decision-making fora, its partnerships with global actors such as the International Committee of the Red Cross, and the action of our most influential constituency, our member societies. The WFSA will work with its member societies to highlight the enormous benefits to their populations and economies of investment in anesthesia and surgical care and in elaborating and implementing national surgical, anesthesia, and obstetric plans.

### FINAL COMMENTS

The world faces a crisis in anesthesia and surgical access. The crisis has known solutions, and yet for most people, safe surgery is still a luxury.

An organization such as the WFSA is well placed to lead a global strategy to close the gap and ensure that safe anesthesia and surgery are available to all.

To do this, the WFSA needs to work collaboratively with many organizations, governments, patients, and industry. They must become incorporated into planned approaches to building a sustainable and competent workforce, and ensuring the right infrastructure, equipment, and medicines. In addition, ever stronger advocacy is required to highlight not only surgery but also its essential partner, anesthesiology.

With determination and unity, we can close the gap in anesthesia and surgical access. Then by 2030, we can celebrate the achievement of our shared goal of Universal Access to Safe, Affordable Surgical, and Anesthesia Care when needed.

Five billion people are waiting. ■■

### DISCLOSURES

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### REFERENCES

- Farmer PE, Kim JY. Surgery and global health: a view from beyond the OR. *World J Surg.* 2008;32:533–536.
- Mock CN, Donkor P, Gawande A, Jamison DT, Kruk ME, Debas HT. Essential surgery: key messages of this volume. In: Debas HT, Donkor P, Gawande A, Jamison DT, Kruk ME, Mock CN, eds. *Essential Surgery: Disease Control Priorities.* 3rd ed. (Vol 1). Washington, DC: The International Bank for Reconstruction and Development/The World Bank; 2015.
- Meara JG, Leather AJ, Hagander L, et al. Global Surgery 2030: evidence and solutions for achieving health, welfare, and economic development. *Lancet.* 2015;386:569–624.
- World Health Organization (WHO). Strengthening emergency and essential surgical care and anaesthesia as a component of universal health coverage. Sixty-eighth World Health Assembly /WHA68.15/ Agenda item 17. May 26, 2015. Geneva, Switzerland. Available at: [http://www.who.int/gb/ebwha/pdf\\_files/WHA68/A68\\_R15-en.pdf](http://www.who.int/gb/ebwha/pdf_files/WHA68/A68_R15-en.pdf) Accessed July 21, 2017.
- Merry AF, Cooper JB, Soyannwo O, Wilson IH, Eichhorn JH. International standards for a safe practice of anesthesia 2010. *Can J Anaesth.* 2010;57:1027–1034.
- World Federation of Societies of Anaesthesiologists (WFSA). Position statement on anaesthesiology and universal health coverage. Available at: <http://www.wfsahq.org/latest-news/latestnews/682-wfsa-releases-position-statement-on-anaesthesiology-and-universal-health-coverage-uhc>. Accessed July 21, 2017.
- Kempthorne P, Morriss WW, Mellin-Olsen J, Gore-Booth J. The WFSA Global Anesthesia Workforce Survey. *Anesth Analg.* 2017;125:981–990.
- World Federation of Societies of Anaesthesiologists (WFSA). World Anaesthesiology Workforce. Available at: <http://www.wfsahq.org/workforce-map>. Accessed July 21, 2017.
- Ouro-Bang'na Maman AF, Tomta K, Ahouangbévi S, Chobli M. Deaths associated with anaesthesia in Togo, West Africa. *Trop Doct.* 2005;35:220–222.
- World Federation of Societies of Anaesthesiologists (WFSA). Fund a Fellow. Available at: <http://www.wfsahq.org/get-involved/as-an-individual/fund-a-fellow>. Accessed July 21, 2017.
- Livingston P, Evans F, Nsereko E, et al. Safer obstetric anesthesia through education and mentorship: a model for knowledge translation in Rwanda. *Can J Anaesth.* 2014;61:1028–1039.
- Goucke CR, Jackson T, Morriss W, Royle J. Essential pain management: an educational program for health care workers. *World J Surg.* 2015;39:865–870.
- World Health Organization (WHO). WHO Model lists of essential medicines. Available at: <http://www.who.int/medicines/publications/essentialmedicines/en/>. Accessed July 21, 2017.
- WFSA statement on availability of medicines. WHA. May 2017. Available at: [http://www.wfsahq.org/images/WFSA\\_meds\\_statement\\_WHA\\_2017.pdf](http://www.wfsahq.org/images/WFSA_meds_statement_WHA_2017.pdf). Accessed July 21, 2017.
- WFSA: Ketamine is medicine. Available at: <http://www.wfsahq.org/ketamine>. Accessed July 21, 2017.
- World Federation of Societies of Anaesthesiologists (WFSA).SAFE-T campaign. Available at: <http://www.wfsahq.org/get-involved/safe-t>. Accessed July 21, 2017.