

Editorial

Obstetric anaesthesia in resource limited settings

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Dear readers,

Welcome to this *Update in Anaesthesia* Obstetric Edition which includes information on different areas of obstetric anaesthetic practice, this edition, written by members of the World Federation of Societies of Anaesthesiologists (WFSA) Obstetric anaesthesia committee and experts in obstetrics anaesthesia from around the globe, offers an important contribution to improve patient care and access to safe peripartum care.

I would like to highlight some key points related to global health and maternal care of great importance to the anaesthesia provider.

Maternal Mortality

Since 2016 the World Bank has no longer categorised countries into the groups “developed” and “developing”. Rather, countries are classified into four groups (Table 1) based on gross national income (GNI) per capita set each year on July 1st.¹

Table 1. 2019 fiscal year World Bank countries classification according to Gross national income (GNI) per capita

Income group	GNI per capita US Dollars
Low income countries (LICs)	\$995 or less
Lower middle income countries	\$996 and \$3,895
Upper middle income countries	\$3,896 and \$12,055
High income countries (HICs)	\$12,056 or more

Maternal survival has significantly improved since the adoption of the United Nations (UN) millennium development goals (MDGs), the maternal mortality ratio (MMR) has decreased in 44% of countries from 1990 to 2015, almost all of these deaths were in low and middle income countries (LMICs), where the MMR is about 14 times higher than in HICs.² Most of the deaths were deemed preventable and were caused by haemorrhage, sepsis (including human immunodeficiency virus and tropical diseases), pre-eclampsia, complications of delivery, unsafe abortion, and violence.³

Anaesthesia related maternal deaths represent 2.8% of all maternal deaths in LMICs and these deaths are 300-fold higher for neuraxial anaesthesia and

900-fold higher for general anaesthesia than those reported in United States.⁴ Sobhy et al founded a rate of any maternal death of 9.8 per 1000 anaesthetics when managed by non-physician anaesthesia provider (NPAP) compared with 5.2 per 1000 when managed by physician anaesthesia provider (PAP).⁵

Post Millennium Development Goal global action agendas such as the Sustainable Development Goals (SDGs) and Ending Preventable Maternal Mortality continue to measure global progress to reduce the (MMR). According to the SDGs we are now globally seeking not only to decrease maternal deaths but also to expand enabling environments and ensure health and wellbeing.⁶

Healthcare in resource limited settings

Resource-limited settings (RLS) countries are characterised by a lack of funds to cover health care costs, either on a societal or individual basis, which leads to the challenges described in Table 2. Marshall et al reported several of these issues and highlighted the lack of common diagnostic blood tests, microbiological services, radiological investigations, reliable oxygen supplies, and even water and electricity.⁷

Table 2. Resource-limited settings (RLS) characteristics

1. Limited access to medication, equipment, supplies, devices
2. Less developed infrastructure (e.g. electrical power, water supply)
3. Equipment is relatively high cost compared to personnel
4. Limited access to maintenance and parts
5. Fewer and less trained personnel
6. Proper disposal facilities (e.g. incineration), disinfection and sterilization not always available
7. Patients and transportation to a higher level of care far from primary healthcare facility
8. No insurance for patients

In RLS are blends of cities and rural areas, resulting in differences in healthcare provision within the same resource-limited country, many health care workers

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have little or no access to basic, practical information. Indeed, many have come to rely on observation, on advice from colleagues, and on building experience empirically through their own treatment successes and failures. The disparity between theoretical and practical availability of information is due to several factors, including a failure to apply international development policies and guidelines, failure to engage with modern educational initiatives as massive open online courses and open access electronic journals/textbooks and tended to focus on approaches for higher-level health professionals, while ignoring other approaches that remain essential for the vast majority of primary health care workers.⁸

There is an interest by HICs academic centres in aiding LMICs in anaesthesia and surgical care; a large proportion of this aid is in the form of short-term medical missions, provision of equipment, and the training of personnel not only for clinical aspect but also for getting skills in research; the best way to achieve this in LMICs is building local capacity by training and mentoring healthcare workers, together with technology and skill transfer by HIC academic centres, rather than short-term aid programs.^{9,10}

As in all fields of skill development, the risk to countries and institutions in LMICs is that health care trainees can use newly acquired skills to move to the more desirable urban areas, another countries and/or higher paying posts; to avoid this it is important to build successful incentives local programs to retain these trainees.⁸

Strengthening emergency and essential surgical care and anaesthesia as a component of universal health coverage (UHC)

World Health Assembly resolution 68.15 recognizes access to emergency and essential anaesthesia and surgical care as an integral part of UHC.¹¹ There is also growing recognition that up to one third of the global burden of disease is surgically correctable, which is a greater burden than that of human immunodeficiency virus, tuberculosis and malaria combined. There is an urgent need to address deficiencies in access to safe anaesthesia care. An additional 1.27 million surgical, obstetric and anaesthesia providers will be required by 2030 to achieve Universal Health Coverage.¹² The World Federation of Societies of Anaesthesiologists (WFSA) is committed to working with governments and non-governmental organisations to improve patient care and access to safe anaesthesia worldwide. Anaesthesiologist led development of anaesthesia services is vital if we are to achieve Universal Health Coverage by 2030.¹³

In RLS countries, anaesthesia is associated with unacceptably high mortality rates, training and ongoing maintenance of standards for a safe practice of anaesthesia and tools to assess surgical and anaesthesia capacity are essential for increasing the number of providers and improving the safety for patients worldwide.^{14,15,16}

Training future anaesthesia provider in obstetric care

Anaesthesia should be provided, led, or overseen by an anaesthesiologist, the anaesthesia provider is an essential member of the delivery unit team. Nearly 60% of women require anaesthetic intervention around the time of delivery. The number of patients who deliver by caesarean section is increasing in all the world and many more require anaesthetic care for operative/assisted deliveries, obstetric emergencies treatment and procedures during pregnancy or puerperium on the labour and delivery (L&D) suite, operating rooms and critical care facilities.

Additionally, obstetric practice carries a high risk of medical liability and anaesthesiologists are frequently named as part of the obstetrics team. Through increasing patient safety initiatives, practicing patient safety behaviours and prevention of fatigue and burnout, we can continue to improve clinical care and decrease medical error in patient care. As a result, the modern obstetric anaesthesia provider must have a role of peripartum/perioperative physician.⁶

Finally I hope that the readers of UIA find it a useful addition to their anaesthesia libraries; this edition will be available along with all the other WFSA education resources at www.wfsahq.org.

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References

1. World Bank Country and Lending Groups. <https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-worldbankcountry-and-lending-groups>. Accessed 10 December, 2018.
2. Alkema L, Chou D, Hogan D, et al. Global, regional, and national levels and trends in maternal mortality between 1990 and 2015, with scenario based projections to 2030: a systematic analysis by the UN Maternal Mortality Estimation Inter-Agency Group. *Lancet*. 2016; **387**: 462-74.
3. Nair M, Nelson-Piercy C, Knight M. Indirect maternal deaths: UK and global perspectives. *Obstet Med* 2017; **10**: 10-5.
4. Mhyre JM. The critical role of obstetric anaesthesia in low-income and middle-income countries. *Lancet Glob Health*. 2016; **4**: e290-1.
5. Sobhy S, Zamora J, Dharmarajah K, et al. Anaesthesia-related maternal mortality in low-income and middle-income countries: a systematic review and metaanalysis. *Lancet Glob Health* 2016; **4**: e320-e327.
6. Vasco M. Training future anesthesiologists in obstetric care. *Curr Opin Anesthesiol* 2017, **30**: 313-318.
7. Marshall JC, Bosco L, Adhikari NK, et al. What is an intensive care unit? A report of the task force of the World Federation of Societies of Intensive and Critical Care Medicine. *J Crit Care* 2017; **37**: 270-6.
8. Vasco M, Pandya S, Van Dyk D, et al. Maternal critical care in resource limited settings. Narrative review. *Int J Obstet Anesth*. 2019; **37**: 86-95.
9. Chellam S, Ganbold L, Gadgil A, et al. Contributions of academic institutions in high income countries to anesthesia and surgical care in low- and middle-income countries: are they providing what is really needed? *Can J Anaesth*. 2019; **66**: 255-262.
10. Bashford T, Vercueil A. Anaesthetic research in low- and middle-income countries. *Anaesthesia*. 2019; **74**: 143-146
11. WHA Resolution 68.15. Strengthening emergency and essential surgical care and anaesthesia as a component of universal health coverage. World Health Assembly, Geneva, May 2015. Available at <http://apps.who.int/medicinedocs/documents/s21904en/s21904en.pdf>. Accessed 10 December 2018.
12. The WFSA Global Anesthesia Workforce Survey. *Anesth Analg*. 2017; **125**: 981-990.
13. WFSA Releases Position Statement on Anaesthesiology and Universal Health Coverage (UHC). https://www.wfsahq.org/images/UHC_Position_Statement_Final.pdf Accessed 10 December, 2018.
14. Morriss W, Ottaway A, Milenovic M, et al. A Global Anesthesia Training Framework. *Anesth Analg*. 2019 Feb; **128**: 383-387
15. Gelb AW, Morriss WW, Johnson W, et al. World Health Organization World Federation of Societies of Anaesthesiologists (WHO-WFSA) International Standards for a Safe Practice of Anesthesia. *Anesth Analg*. 2018; **126**: 2047-2055.
16. Anaesthesia Facility Assessment Tool. <https://www.wfsahq.org/images/wfsaanaesthesia-facility-assessment-tool.pdf>. Accessed 10 December, 2018.