Building and retaining the neglected anaesthesia health workforce: is it crucial for health systems strengthening through primary health care?

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Background

The world health report 2008 emphasizes "that putting people at the centre of service delivery" is not only about service delivery models from a short-term perspective, but rather about long-term commitment to health care.[1] Given the critical shortage of the health workforce, investments in training, retaining and sustaining them are necessary. Sub-Saharan Africa is a prime example of uneven distribution of health-care personnel. The subcontinent carries 24% of the global burden of disease in 11% of the world's population, but has as little as 3% of the world's health workers.[2] The concern for countries in sub-Saharan Africa and other nations was recognized by the World Health Assembly resolution WHA59.23 that urged for rapid scaling up of health workforce production.[3] Addressing the situation should take into account the four reforms (universal coverage, people-centred service delivery, leadership and public policies) towards refocusing health systems through primary health care.

Importance of anaesthesia workforce

The contribution of surgical conditions to the global burden of disease and the potential impact of the provision of basic surgical services at the first referral level facility is widely under appreciated. It is estimated that 11% of the world's disability-adjusted life years (or years lost from healthy lives) are from conditions that are very likely to require surgery.[2] Adequate surgical care as a primary care strategy can address and greatly alleviate this burden.[4] Increasing evidence is beginning to emerge that maternal and infant survival is proportionately correlated to the number of health workers providing obstetric care that includes anaesthesia.[5,6]

The delivery of surgical (including obstetrics and trauma) care is highly dependent on the availability and retention of a trained anaesthesia health workforce. The United Kingdom Confidential Enquiry for Perioperative Death in 1987 reported one death per 185 000 anaesthetic procedures; whereas in Zambia (University teaching hospital), it was one death per 1925. The avoidable anaesthesia-mortality rate in Malawi (central hospital) was one death per 504; in Nigeria (teaching hospital) for Caesarean sections, one death per 387 anaesthetic procedures; in Togo (teaching hospital), one death per 133; and in Zimbabwe (district hospital), one death per 482.[7] Many of these unnecessary deaths were a result of airway problems and hypovolaemia in healthy young patients.[7]

Though the common perception is that anaesthesia services are only required at the level of secondary and tertiary health-care facilities, the availability of basic services at the first referral level facility can contribute significantly to a reduction in death and disability. At the district and sub-district level, health personnel are expected to provide a range of anaesthesia services (local, intravenous ketamine, spinal and general anaesthesia) for the management of pregnancy-related complications, unsafe abortion, injuries (road traffic accidents, domestic violence, burns, falls, rape), complications of female genital mutilation, congenital anomalies as well as other surgical conditions. To safely deliver anaesthesia in emergency and surgical procedures, investments for appropriate training are required. The role of anaesthesia extends beyond the operating room, and is necessary in postoperative monitoring, intensive care units, for co-existing medical conditions, as well as providing pain relief (particularly in children and women in labour). A workforce trained in basic anaesthetic techniques at the primary health care level can also resuscitate critically ill patients or those with severe trauma and stabilize their condition, before transfer to a more specialized facility. The anaesthesia services required at the first referral level facilities can mostly be delivered by trained non-physician anaesthetists.

Current situation

Physician anaesthetists are scarce in many developing countries and not available at first referral level health facilities. While in some developing countries such as India, there are a large number of physician anaesthetists in the cities, they are generally scarce or even non-existent in remote and rural areas. In Afghanistan (population of 32 million), there are only 9 physician anaesthetists, only 8 in Bhutan (population less than 700 000),[5] and 13 (excluding expatriates) in Uganda (population of 27 million) .[8] In comparison, in the United Kingdom of Great Britain and Northern Ireland there are 12 000 physician anaesthetists for a population of 64 million.[9] In some countries, the gap is filled by non-physician anaesthetists such as in Uganda, which has 330 non-physician anaesthetists, although this is still insufficient to meet the local needs.[8]

The lack of anaesthesia training in nursing and medical school, minimal training incentives and limited availability of jobs dissuade many from entering this specialty. Transnational migration especially in south Asia largely contributes to the low numbers too. In Sri Lanka, it is estimated that more than 30% of

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physician anaesthetists move to practise in other countries.[5] In other countries, such as India, regulations and policies prevent non-physicians from providing much-needed anaesthesia services.

What can be done?

Awareness of the need

Recognition of the need for anaesthesia services at all levels of health care and its potential contribution to reducing mortality and morbidity is an important first step to secure political commitment and local investments in making these services available in an equitable manner. This requires data collection to estimate the burden of surgical diseases, number and type of anaesthesia providers, impact and cost-effectiveness of surgical and anaesthesia services in various settings.[10]

Policies and legislation

In many countries, the provision of anaesthesia services needs to be supported by policies and legislation that allow delivery of selective services by non-physician anaesthetists and mechanisms to achieve the United Nations Millennium Development Goals. Policies developed by the ministries of health and education should include the support of academia and professional societies, and be tailored to meet the local needs. The implementation of these policies to retain an anaesthesia health workforce in remote and rural areas will require coordination at the highest level between local health authorities, education programmes and providers of anaesthesia equipment.

Education and training

A multi-sectoral approach for various levels of care is needed to address the inadequately trained and insufficient numbers of anaesthesia health providers. Short-term strategies should aim at improving the quality and quantity of mid-level providers for equitable access to primary health care in strengthening health systems. Task shifting or delegating anaesthesia services to non-physician anaesthesia providers will require the implementation of dedicated training programmes. Many countries such as Bangladesh, Bhutan, India, Nepal and Sri Lanka have initiated task-shifting programmes to increase their capacity in providing anaesthesia and life-saving services, and this has resulted in an increase in the number of surgeries performed (Nepal).[5]

Such programmes should aim to provide basic anaesthesia skills for emergency and essential surgical procedures required at first referral level facilities, with more extensive training to dedicated non-physician anaesthetists at secondary level facilities, where there are often no physician anaesthetists. These trained non-physician anaesthetists would also support physician-anaesthetists in secondary and tertiary facilities where their numbers are insufficient. Appropriate training curricula and tools need to be designed and adapted for local use. The support and close involvement of the professional societies is essential for the success of such programmes.

Long-term strategies should be targeted towards creating facilities for training physician anaesthetists for teaching and training, as well as providing specialized anaesthesia services for paediatric, cardiac, neurosurgery, urology, plastic and transplantation surgery. These approaches will help to avoid patients seeking surgical interventions outside the country, which is currently available to very few patients.

The World Health Organization's Integrated Management for Emergency and Essential Surgical Care toolkit provides recommendations and guidance on policies, quality and safety, training, monitoring and evaluation.[2] This toolkit has been introduced for implementation through the ministries of health and collaborations with the Global Initiative for Emergency and Essential Surgical Care, in 35 countries.[2] The toolkit incorporates a multi-sectoral approach and underscores the interactions with other components of health systems including service delivery, health technologies, health information systems and the health workforce.

Policies for retention

Sustainability of quality anaesthesia services at first referral level facilities is only possible if the anaesthesia providers are appropriately trained and motivated to train other health personnel in anaesthesia skills. If the appropriate environment is provided, in terms of well resourced, structured training, established posts in health facilities with adequate anaesthesia equipment, continuous professional development and financial remuneration that are consistent and comparable with other medical disciplines, many workers will prefer to stay within their region than emigrate. In addition, policies must support the remote and rural anaesthesia workforce with necessary technologies to update their knowledge and skills.

Conclusion

In summary, there is not enough recognition of the need for surgical and anaesthesia services at all levels of the health system and their potential to reduce mortality and morbidity. As a result, there is a serious lack of equitable services in developing countries, especially in rural and remote areas. Creating awareness through better documentation of the burden of disease, in terms of death and disability that can be prevented by availability of surgical and anaesthesia services, would be an important step to generate political commitment and local investments in education, training and retention of the health workforce. This needs to be followed up by appropriate policies, legislation, and the establishment of innovative and effective anaesthesia training programmes that address both the immediate need as well as the long-term needs of the health system. ■

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