Anaesthesia in developing countries—a risk for patients

The safety of modern surgery and obstetric care owes much to improvements in general and regional anaesthesia, but such safety is not the situation in many developing countries. In 1987, the avoidable anaesthesia-mortality-rate at the University Teaching Hospital in Zambia was one death per 1925 anaesthetic procedures. At that time, the UK Confidential Enquiry for Perioperative Death quoted mortality from anaesthesia as being one per 185,000 anaesthetics. More recently, sub-Saharan Africa has a situation that is deteriorating. A central hospital in Malawi reported an avoidable anaesthesia-mortality-rate of one death per 504 anaesthetics, a district hospital in Zimbabwe reported one death per 482 anaesthetics, and a teaching hospital in Togo reported one death per 133 anaesthetics. Many of these deaths occurred in fit young patients as a result of airway problems or hypovolaemia, and in one series nearly 50% of deaths were in mothers undergoing caesarean section. A teaching hospital in Nigeria reported an avoidable anaesthesia-mortality-rate for caesarean section of one death per 387 anaesthetics.

All studies identify the same issues—few medically qualified anaesthetists, lack of appropriate training and supervision for non-medical anaesthetists, limited monitoring of anaesthesia, and inadequate supplies of drugs and equipment, including blood for transfusion. This theme was explored in a recent supplement to Anaesthesia, the journal of the Association of Anaesthetists of Great Britain and Ireland, but the effect of these deficiencies on public health is seldom discussed.

The third confidential inquiry into maternal deaths in South Africa (2002–04) identified anaesthesia as one of the top four causes of avoidable deaths. Most anaesthesia deaths occurred in level 1 (rural) hospitals and 90% were avoidable. Several deaths occurred with spinal anaesthesia, often advocated as the technique of choice for caesarean section, but which carries risks in inexperienced hands.

A survey of more than 550 health facilities that were expected to offer basic emergency obstetric care in Uganda showed that few had running water, electricity, a functional operating theatre, or midwives. Another survey in Uganda showed that 23% of anaesthetists had the facilities to deliver safe anaesthesia to an adult having major surgery, 13% to deliver safe anaesthesia to a child, and 6% had the facilities to deliver safe anaesthesia to a mother undergoing caesarean section. Furthermore, ten anaesthetists were working without oxygen supplies.

Maternal mortality is around 1000 per 100,000 births in many countries, mainly but not exclusively in sub-Saharan Africa. The main causes for this mortality are haemorrhage, hypertensive disease, or sepsis. These mothers require basic intensive care, fluid management, and circulatory support, the essential work of the anaesthetist. Mothers die not only as a direct result of poor anaesthesia care, but also from the lack of an effective service. A reduction in maternal mortality by 2015 has been set as the fifth Millennium Development Goal—anaesthesia is key to this goal.

So how can we improve this situation? Surgery, obstetrics, and anaesthesia need to work together—they are nothing without each other. Support for good-quality training for non-physician anaesthetists and recruitment of more doctors into anaesthesia is vital, as is retaining them after training. Few anaesthetists can be persuaded to work in rural areas and many prefer to leave the country to pursue better working conditions. Much would be achieved if these health-care workers could be retained in the acute health sector in their country of origin.
Anaesthesia services need to be better recognised within acute health-care budgets. The requirements for safe anaesthesia need not be elaborate—a basic machine, monitoring including a pulse oximeter, airway equipment, and a range of inexpensive drugs—but these requirements must be prioritised.

Finally, effective reliable equipment needs to be produced that can be maintained locally in a functional state and survive in an austere environment. At present, manufacturers design and produce equipment for profitable markets where complexity that requires expert maintenance is not an issue. International guidelines for equipping anaesthesia services in rural hospitals are, therefore, required.

If the world is to make progress towards safer surgery and obstetric care, investment in anaesthesia services is vital. There is much to be done, but the journey is well signposted.

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Leprosy strategy is about control, not eradication

At the end of 2000, WHO declared that leprosy had been eliminated as a global public-health problem. Elimination is defined as a prevalence, per 10 000 population, of less than one patient diagnosed with leprosy and registered for treatment. The global prevalence fell from 5·35 million (12 per 10 000) in 1985 to 597 035 (one per 10 000) at the end of 2000.

Elimination was achieved by implementation of short-course multidrug therapy (dapsone, rifampicin, and clofazimine for 6 or 12 months depending on the type of leprosy), simplified diagnosis without examination of slit-skin smears for acid-fast bacilli, and accessible treatment with drugs in blister packs that are free at the point of delivery. The shortened course of treatment, reduced from more than 5 years with dapsone alone, reduced the prevalence without changing the number of new cases detected annually.1

The 17th International Leprosy Congress (in Hyderabad, India) ended on Feb 4, 2008, with calls to now move from an elimination strategy for leprosy to one of eradication. Is that call the logical progression from elimination and does the evidence support such a change in strategy?

The elimination strategy was focused on a time-bound target and had many non-sustainable elements, including vertical programmes, dedicated staff, ring-fenced funding, special campaigns and action projects, and a high level of political commitment. The current WHO global strategy for leprosy (for 2006–10) aims to sustain activities to control leprosy and to further reduce the disease’s burden by provision of good-quality care integrated within general health services.2

Sustainability is vital to maintain the achievements of elimination. The most recent data3 on trends in case-detection in leprosy show that four countries have still to reach the elimination goal: Brazil, the Democratic Republic of Congo, Mozambique, and Nepal. Case-detection is being sustained in the Americas and