

radically), thus matching staffing levels with agreed norms and to redress imbalances between rural and urban areas and between different levels within the system (Roberts J, Merlin, personal communication).

Strategies to address these requirements must take account of the time needed to build and deploy a workforce, including the social and political acceptance for any changes in categories of staff and roles,<sup>4</sup> while also managing the pressure to expand service delivery quickly, especially in transitional contexts. Furthermore, health-financing policies need to ensure an increased availability of health staff who are sufficiently compensated to allow them to work without resorting to alternative income sources. In view of the large proportion of the health budget needed for human resources, an absolute increase in the funds available to the health sector in fragile states is a prerequisite for a meaningful strategy to develop human resources.

Equally important, however, is the need to start looking at the long-term vision as early as possible in these countries, even in an emergency or humanitarian-crisis. Although it may be too early in some cases for the development of a national plan for human resources, some groundwork can still be done through, for example, the avoidance of fragmented training initiatives and overinflated incentive payments to staff. Harmonising staff training and setting incentive payments at agreed

levels among agencies and with government health departments can help support a long-term vision and process. Additionally, staffing needs and performance measures should be assessed to inform policy processes at a later stage. Agencies working in emergency and transition contexts therefore need to adopt a twin approach that not only supports the short-term requirements for human resources, but also looks to the long-term and a human-resource framework that meets the needs of the health sector in the future.

Without a more strategic approach, we will continue to see human-resources gaps in fragile states, which will undermine not only other investments in the health sector but also the achievement of the Millennium Development Goals at the global level.

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## Africa's neglected surgical workforce crisis

Funding priorities in Africa typically favour infectious diseases, and surgery and perioperative care have been neglected, even though essential surgical care at district hospitals is more cost effective than some other highly prioritised interventions, such as antiretroviral therapy for HIV.<sup>1</sup> Recent focus on the workforce needed for male circumcision to prevent HIV transmission is an exception.<sup>2</sup> Injuries create the greatest surgical burden, followed by cancers, congenital anomalies, and complications of childbirth.<sup>3</sup>

Few surgical procedures are done in Africa compared with the numbers in high-income countries, but precise information on the exact unmet need is lacking.<sup>4</sup> Although workforce limitations contribute to this shortfall, detailed estimates of surgical and anaesthesia staff for the continent and individual countries are unavailable or outdated.<sup>5</sup>

The numbers of physicians and nurses in each country are available, but how they relate to care of patients is unclear. Some registered physicians have emigrated, others have moved away from care into administration, and others are expatriates from high-income countries. Few countries have done surveys of the surgical workforce.

In Uganda, there are only about 75 Ugandan general surgeons and ten physician anaesthetists for a population of 27 million people. As is common in Africa, most surgery is done in rural district hospitals by general doctors. Anaesthesia is provided by one of 350 anaesthetic officers who have 18 months of training to complement a high-school qualification.<sup>6</sup>

Uganda has about 20 orthopaedic surgeons, three cardiothoracic surgeons, three paediatric surgeons, six neurosurgeons, three plastic-reconstructive surgeons,

The printed journal includes an image merely for illustration

and three urologists. Although there is an orthopaedic-surgery training programme in Uganda, most of the other specialist surgeons obtained their additional training abroad—mainly in India, China, and South Africa. There are about 39 paediatric surgeons for sub-Saharan Africa, and a group of countries comprising 50 million people has only ten neurosurgeons.<sup>7</sup> Subspecialty training centres in Africa have been planned through regional surgical associations; however, support for these programmes is limited.

Postgraduate surgery and anaesthesia training in Uganda and elsewhere in the region struggle to recruit trainees; medical students are increasingly drawn to positions with international organisations that focus on infectious diseases.<sup>8</sup> Many other factors make the choice of a career in surgery or anaesthesia especially unattractive, including occupational exposure to infectious diseases, poor working conditions and infrastructure, inadequate compensation, and length of training. In Uganda, a further problem for the 90% rural population is that most of the physician surgeons and anaesthetists are concentrated in Kampala.

For years, shortage of surgical staff in Africa has been partly addressed through international organisations and outreach programmes run by local or expatriate surgeons. Although not formally done in Uganda, some countries, including Mozambique, Tanzania, Malawi, and the Democratic Republic of the Congo, have trained non-physicians in surgical procedures, such as abscess drainage, hernia repair, and caesarean section. Compared with physician programmes, in rural areas these programmes are cost effective, have favourable outcomes, and have better recruitment and retention of staff.<sup>9</sup> In countries where this practice has not been formally adopted, there are concerns about quality of care, adequate support and supervision in the absence of comprehensive referral systems, and effect on professional prestige. Some people who participate in task-shifting have concerns about career development.

Targeted guidelines have established workforce standards and skills necessary to treat trauma and obstetric emergencies, the most common surgical emergencies in rural populations. However, other emergencies, such as appendicitis and bowel obstruction, and more chronic disorders, such as hernias, surgical infections, goitres, and several forms of cancer, also need to be addressed.

There is a need to integrate surgical and anaesthetic training programmes so health personnel, particularly

in rural areas, can treat the full range of diseases appropriate to that level of care. The WHO programme Integrated Management for Essential and Emergency Surgical Care, including Surgical Care at the District Hospital, is now being implemented with ministries of health, academia, professional societies, and non-governmental organisations to strengthen capacities of district hospitals in low-income countries through the Global Initiative for Emergency and Essential Surgical Care.<sup>10</sup> Additionally, the Bellagio Essential Surgery Group will focus on training initiatives to improve access to surgical care in Africa during its next meeting in 2008.<sup>11</sup> Finally, academic collaborations between high-income and low-income countries will also be necessary to meet the needs of the global surgical workforce.<sup>12</sup>

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