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INVITED COMMENTARY

Surgery in Developing Countries: Lessons from Uganda

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The *World Journal of Surgery* represents a global forum for general surgical matters in all their dimensions and complexity, not the least in the problem of the burden of surgical disease and the provision of surgical care. The burden of surgical disease in developing countries has been thoroughly assessed by Debas and colleagues [1], who have quantified surgical burden by world area, using cost per disability-adjusted life year (DALY) per 1,000 population. They found that the surgical burden by area, in descending order of disadvantage, was as follows: Africa, Southeast Asia, Eastern Mediterranean, Europe, Western Pacific, and finally the Americas. They went on to define the requirements and obligations at each of the primary, secondary, and tertiary levels of surgical provision. In 2007, at a Conference hosted by the Rockefeller Foundation's Bellagio Centre, surgical focus was brought down to sub-Saharan Africa, and surgical burden and access was examined in selected countries there [2]. The participants developed a program which included advocacy and particularly emphasized evidence building as a roadmap for the future.

Against this background, it is particularly appropriate that this issue of the *World Journal of Surgery* carries a detailed and valuable analysis of surgical services in Uganda, the first analysis of its kind from that country [3]. Uganda is located in Central Africa and has a population of 30,262,610 [4]. It is landlocked, and is about the size of the State of Oregon. The economy and population are largely rural. Its health indicators show a life expectancy of 52 years, but a remarkably low (for Africa) HIV prevalence of 4.1%. In most ways it reflects the surgical problems of many sub-Saharan African countries, and the article is sobering reading.

The authors calculate that the Ugandan population is served by 75 specialist-trained general surgeons, with an additional 12 subspecialists in neurosurgery, plastic surgery, and urological surgery. This means there is a staggering surgical ratio of 1/400,000 population. The authors then outline the population catchment of nine selected hospitals in Uganda (that includes the main cities of Kampala and Entebbe). In their outline they provide the number of beds and the operations performed, as well as the make-up of the attending medical staff of the nine hospitals. The information at this point gives a surgeon-reader at this point the first world pause: only four of the nine hospitals have any general surgeons on their staff, two with one each, and the remaining two with two each. Five hospitals with over 100 beds and performing several hundred operations a year rely entirely on (nonsurgical) medical officers. The problem is that as much as 90% of the medical workforce is located in the two cities, this despite—in exact contradistinction—the fact that 90% of the population is rural. This maldistribution problem resonates throughout the developing world.

The authors identify many challenges to building a surgical workforce: these are the basic and critical trio of recruitment, training, and retention. Recruitment to surgery is challenged by international collaborations and financial support for research that draws trainees to the fields of public health and infectious diseases rather than to surgery. It has long been argued that surgical diseases are seen as "a poor relative" of infectious diseases in the assessment, financing, and management of the disease burden in the developing world.

Training in medicine has been difficult in Uganda, but improvements to undergraduate training programs have

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been undertaken, making them consistent with programs elsewhere in the world, with problem-based learning and early community exposure. Retention of surgeons in any sub-Saharan country is problematic, and private practice and emigration lure many graduates. The authors outline policies that could improve rural care with *surgical camps* (for example a team performing many herniorrhaphies in remote areas), *specialist outreach* (for example cataract operations), and *improvement of surgery at subdistrict hospitals* (strengthening the second level).

They do not mention the *leitmotif* of disadvantage and misfortune that usually accompanies any discussion about civil conditions—not the least, health care provision—in sub-Saharan Africa. This, some investigators state, represents a mix of post-colonial exploitation, political adventurism, civil wars, misguided macro-economic policy, and greed [5]. The Dictator Idi Amin brought devastation to Uganda during the 1970s. At the height of the upheaval, the Professor of Surgery at Makerere University (the only postgraduate general surgical training facility) was given 24 hours to leave the country; the staff that stayed were paid a pittance and had to moonlight, working menial jobs to survive. Some members of the university faculty were jailed and tortured at Luriza prison. This brought Makerere University to its knees, as staff diminished and international accreditation was lost. This, happily, is in the past, and the structure and reputation of the university have been rebuilt. These events must, however, have influenced the development of surgery in Uganda, and one is therefore bound to note them.

The article by Ozgediz and colleagues provides a valuable audit and will serve as a reference point in the development of surgical services in Uganda. It may also serve that purpose in the evaluation of surgical services in other developing countries. As their work continues, one wishes strength to the arm of the Ugandan surgeons developing surgical services in their country.

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