

Editor's choice February 2016

CME: Cardiology

Cardiovascular disease (CVD) accounts for approximately 30% of deaths worldwide, with 80% of this burden in developing countries. The epidemiological transition occurring in sub-Saharan Africa (SSA) has the consequence of economic and social transformation, resulting in dramatic shifts in disease spectrum from communicable diseases and malnutrition to CVD and cancer. South Africa (SA) is faced with the challenge of four colliding epidemics: (i) poor child and maternal health; (ii) high rates of interpersonal violence; (iii) infectious diseases, including HIV/AIDS and tuberculosis; and (iv) non-communicable diseases, including CVD. This outstanding series of articles, spread across three issues of *SAMJ/CME*, represents the collaborative effort of primary health/family physicians and cardiologists from around the country. The authors have synthesised and presented the most current, evidence-based and practical approaches to management of common CVDs. The articles in this issue focus on infective endocarditis and suspected pericardial disease.

Towards universal access to safe and affordable surgical and anaesthetic care

In my June 2015 Editor's Choice, I informed the *SAMJ* readership of the Lancet Commission on Global Surgery (LCoGS) and the key role played by Prof. Martin Smith, Academic Head of Surgery at the University of the Witwatersrand, Johannesburg, as one of the 31 Bellagio Commissioners when in February 2015 the LCoGS held a Bellagio summit, sponsored by the Rockefeller Foundation, to discuss strategies for improving access to surgery worldwide.^[1]

According to the LCoGS report,^[2,3] five billion people in the world (and 93% in SSA) cannot obtain basic surgical care. At least 5% of the global burden of disease in low- and middle-income countries (LMICs) is potentially avoidable by scaling up a basic surgical package, and (e.g. in SA) by addressing the unequal distribution of surgical services, operating theatres and intensive care units.

The South African Surgical Outcomes Study,^[4] a 7-day prospective observational cohort study contributed to by surgeons from across the country, sought to investigate perioperative mortality and need for critical care admission in patients ≥ 16 years of age undergoing inpatient non-cardiac surgery between 19 and 26 May 2014 at 50 public sector, government-funded hospitals. While this extensive survey painted a relatively happy picture for SA, there is no room for complacency – a future scale-up to meet projected 2030 requirements is necessary. Moreover, most patients in SA's public sector hospitals require urgent and emergency surgery, which is strongly associated with high mortality and unplanned critical care admissions.

Scale-up of basic surgical services is crucial to health system strengthening, given the large burden of surgical conditions and the crosscutting nature of surgery. The LCoGS, according to modelling in 88 LMICs with a population >1 million, proposed that countries should achieve 5 000 major operations per 100 000 population per year to meet populations' needs.^[5] The extreme scarcity and unequal distribution of surgical services and operating theatres was acknowledged.^[6]

Four types of interventions (especially relevant to SA) are needed: competent initial surgical care for injury victims; handling of obstetric complications; timely and competent surgical management of various abdominal and extra-abdominal emergency and life-threatening conditions; and elective care of simple surgical conditions such as hernias, clubfoot, cataract, hydroceles and otitis.

Scale-up of basic surgical services in LMICs is an essential component of health system development and the movement towards universal health coverage, towards which SA currently strives.^[7]

The National Forum on Surgery and Anaesthesia: an indispensable part of achieving universal health coverage was held at the University of the Witwatersrand under Martin Smith's chairmanship on 7 - 8 December 2015^[8,9] to host the SA launch of the LCoGS. This conference brought together surgical and anaesthetic specialists, health policy makers, public health and health system experts to discuss and debate essential surgical care and anaesthesia as part of universal health coverage, expanding access to safe, high-quality, affordable surgery and anaesthesia in SA, particularly in rural and under-served areas, appropriate workforce training and education, health system strengthening including infrastructure development, financing essential surgical and anaesthetic care, and building linkages across disciplines.

To honour this ground-breaking conference, this issue of *SAMJ* features a wealth of surgical research articles, with a Guest Editorial entitled 'Collaboration is key to strengthening surgical research capacity in Sub-Saharan Africa'^[10] by Richard Spence and a number of his young surgical colleagues from around the world that amplifies their research into **South African surgical registrar perceptions of the research project component of training**.^[11]

GlobalSurg-1 was a multicentre, international, prospective cohort study conducted to address the global lack of surgical outcomes data. Six SA hospitals participated ('A multicentre evaluation of emergency abdominal surgery in South Africa: Results from the GlobalSurg-1 South Africa study'^[12]). It was hypothesised that the location of surgery was an independent risk factor for an adverse outcome following emergency intraperitoneal surgery, and the hypothesis was unfortunately confirmed: hospital 5 was associated with a 76-fold increased odds of in-hospital death and 58-fold increased odds of a major in-hospital complication, and hospital 3 was associated with a 3-fold increased odds of any in-hospital complication. The unhappy conclusion is that in SA the hospital in which emergency intraperitoneal surgery is undertaken is of itself an independent risk factor for an adverse outcome.

Intussusception in the developing world

Intussusception should not be underestimated. Even in developed countries it is associated with significant morbidity and mortality, as is highlighted by Carapinha *et al.*^[13] Because management may be either non-operative pneumatic reduction (PR) or operative, the challenge lies in triaging patients correctly into those who will respond to PR, thus avoiding intestinal resection, and those who must be taken directly for laparotomy. The outcomes following the introduction of updated management guidelines at Johannesburg's CHBAH in an attempt to increase the success of PR are outlined. Absolute contraindications to PR included peritonitis, free intraperitoneal air, established obstruction, haemodynamic instability or multiorgan failure, and failure of the procedure mandated open surgical exploration. Key to success of PR is a low duration of symptoms (DOS), ideally <2 days. The average DOS before presentation in the CHBAH series was 3.0 (standard deviation 2.2) days, typical of developing countries but comparing poorly with the developed world, where cases present within hours of development of symptoms. Unsurprisingly, the CHBAH intestinal resection rate was 81.5% in

patients undergoing exploration – high compared with other series. A good history of the exact time of onset of symptoms is key, as the longer the DOS, the more physiologically unwell the patient will be.

Paediatric burn injuries

In sub-Saharan Africa the mortality rate for burn victims under 5 years of age is 1 in 9, v. 1 in 152 in high-income countries. Burns are one of the top five causes of fatal urban injuries in SA children, according to the 2010 *Bulletin of the World Health Organization*,^[14] with the majority of deaths occurring in children <6 years of age; approximately 1 300 of our children die annually as a result of burns.

The Johnson and Johnson Paediatric Burns Unit at Chris Hani Baragwanath Academic Hospital (CHBAH) in Johannesburg opened in 1995 and admits approximately 450 patients per year. Since 2009, this dedicated burns unit has run a programme in which intensivists and a dedicated burns surgeon are part of the multidisciplinary management team. The experience of this specialised unit is described by Jugmohan *et al.*^[15] (**'Mortality in paediatric burns victims: A retrospective review from 2009 to 2012 in a single centre'**). The vast majority of admissions (76.5%) were a consequence of hot-water burns, with flame burns the second leading cause (21.8%). The steady success of the unit is depicted in Fig. 4 in the article, reproduced below.

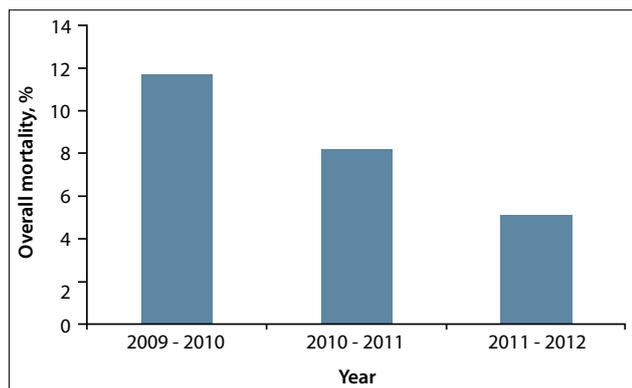


Fig. 4. Trends in mortality.

Against this background of the obviously high burden of burn injuries in SA, requiring surgeons skilled in burn care, the survey by Allorto *et al.*^[16] (**'Burn surgeons in South Africa: A rare species'**) reveals that there are few dedicated burn surgeons and few properly equipped units or centres such as that at CHBAH. The current workforce resources are inadequate, with the major deficit being lack of training and the resource-restricted environment. Forty-seven percent of survey respondents were not training registrars at the hospital or institution at which they worked. The remaining respondents (53%) trained registrars with rotations varying from 1 month (18%) to 6 months (23%). The majority opinion (72%) was that a medical officer was skilled enough to work in the field of burns and that specialist training was not necessary!

Transplantation in SA

SA nephrologists report on a summit that Moosa *et al.*^[17] (**'An effective approach to chronic kidney disease in South Africa'**) claim marks the first step in a process that, it is hoped, will ultimately culminate in universal access to renal replacement treatment for all South Africans.

Transplantation is the answer ... especially as the outcomes of the first 10 years of kidney and pancreas transplantation compare favourably with international survival data. In their article on the

first 10 years of kidney and pancreas transplantation at Wits Donald Gordon Medical Centre, Fabian *et al.*^[18] report overall 10-year recipient and graft survival rates of 80.4% and 66.8%, respectively, for kidney-alone transplantation.

There is no shortage of *potential* organ donors in SA, as a visit to any busy trauma unit will testify – translating these into *actual* donors is where our challenge lies. Our current transplant rate of 4.7 per million population is woefully inadequate to meet needs and below the rates of other middle-income countries. The summit recommended that deceased donation be prioritised ... surely requiring the introduction of a 'deemed consent' system, also known as the 'opt-out' system, to which a number of countries (e.g. Chile) already subscribe. The aim is to increase the number of organs and tissues available for transplant, reducing the number of people who die while waiting for a suitable organ to become available. In Wales, legislation for organ donation opt-out was proposed (*'if you have not registered a decision to opt-in or opt-out of organ donation, you will be treated as having no objection to being an organ donor. This is called deemed consent'*) and became law on 1 December 2015,^[19] with the Scottish government poised to follow.

COP21

The COP21 report is at hand ... while SA faces unprecedented drought and North and South America and the UK unprecedented rains and floods. While there was no enforcement of the goals and inadequate funding for developing nations to cope with the climate crisis, climate activists seem to agree that COP21 marked at least the beginning of the end of the fossil fuel era.^[20]

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