

Guest editor, Liesl Zühlke

Department of Paediatrics, Red Cross War Memorial Children's Hospital and University of Cape Town, Cape Town, South Africa

Department of Medicine, Groote Schuur Hospital, Cape Town, South Africa

President of the Paediatric Cardiac Society of South Africa

Challenges and opportunities in paediatric cardiac services: Time for action

The 6th World Congress of Paediatric Cardiology and Cardiac Surgery recently held in Cape Town attracted over 3 000 registered delegates, the vast majority of which were scientific attendees. This congress, hosted by the South African Heart Association and organised by the Paediatric Cardiac Society of South Africa, highlighted the needs of children and adults with highly complex congenital cardiac lesions as well as those with acquired preventable disease such as rheumatic heart disease and non-communicable cardiovascular diseases with their origins in childhood. The scientific programme addressed the most recent advances in paediatric cardiac disease and reflected new developments in treatment, diagnosis and management while constantly reminding delegates of inadequacies, inequalities and health system concerns affecting patient care.

This issue reflects some of the most relevant themes and key messages embedded within the conference. The health systems track was included in the conference as the importance of policy, planning and health management is pivotal to the prevention and treatment of heart disease and non-communicable diseases in poorer nations. The lack of infrastructure and inadequate human resources has contributed significantly to the failure of establishing well-coordinated cardiac services across Africa. Despite many advances in the field of paediatric cardiac services in South Africa, we remain critically understaffed with increasing waiting lists and inadequate numbers of operations per year for our population.⁽¹⁾ A recent audit revealed that the number of paediatric cardiologists in the public service increased by only one since 2010 (personal communication Paediatric Cardiac Society of South Africa) while no significant increase had occurred in the number of children being operated each year. Rwanda has astonished the western world with its extraordinary health outcome successes in the recent past and it remains the only sub-Saharan country on track to achieve the majority of the millennium development goals. The honourable minister of Health of Rwanda, Dr Agnes Binagwaho, a paediatrician and honorary lecturer at Harvard University has, together with a multidisciplinary team, including colleagues in public, private, governmental and non-governmental organisations, authored a paper "Uniting to address paediatric heart disease in Africa: Advocacy from Rwanda". This highly relevant publication reminds us of the responsibility that we, as members of the global health community, now face to guarantee that equitable and effective approaches to addressing paediatric cardiac diseases are a key part of efforts to fulfil the promise of the fourth Millennium Development Goal.

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Rheumatic Heart disease (RHD) was estimated by the Global Burden of Disease study released in 2012 to affect at least 36 million people worldwide.⁽²⁾ This disease continues to be prevalent in developing and emerging economies and is a predominant killer of children, adolescents and young adults. A major investment in Group A Streptococcus (GAS) vaccine research by the New Zealand and Australian governments was announced during the conference by Prof Jonathan Carapetis and Diana Lennon. This funding will fast-track the development of a vaccine which has been in research for several decades. The first step in vaccine development is a clearer understanding of the GAS bacterium and its role in GAS pharyngitis. This issue includes a comprehensive overview of GAS pharyngitis in Africa that links new data emerging from Africa in this field to aid vaccine development.



At the moment the most common acquired heart disease of childhood in the developed world is the auto-immune condition Kawasaki Disease (KD). Although cases are being diagnosed in developing countries, concerns are growing that this entity may be misdiagnosed with devastating implications and sequelae while cases of refractory KD are also emerging. Comitis et al use three case presentations to eloquently highlight key lessons on missed and severe KD and clarify the rationale behind second and third-line treatment.

An exciting first during the conference was the live transmissions from units in South Africa and Europe. In this issue, two articles focus on catheter interventions that have advanced the field of congenital heart disease (CHD) in the recent past. The first is a review on trans-catheter pulmonary valve replacements by Brown et al. This article also emphasises the fact that CHD should now be regarded as a disease of the life course, rather than just affecting childhood. It is estimated that the overall prevalence of CHD in the adult population is in the region of 3 000 per million.⁽³⁾ Also featured are images from the interventional closure of a coronary cameral fistula with a discussion of the importance of echocardiography at the time of intervention.



The birth prevalence of CHD is thought to be the same the world over at about 8:1 000 live births, with critical congenital heart disease (CCHD) occurring in approximately 2:1 000 live births. Despite antenatal screening for CHD in certain centres in developing countries and in developed countries, children with CCHD are still being discharged from hospital undiagnosed. Within the past decade, evidence has accumulated to suggest that pulse oximetry screening for CCHD may diagnose these lesions timeously with earlier life-saving intervention. However, the feasibility of instituting pulse oximetry screening in developing countries or countries such as South Africa and India with regions of high and low infant mortality rates has to be carefully considered. Data demonstrating that pulse oximetry screening is sensitive, specific and cost-effective are presented as well as the arguments regarding implementation on a wider scale. No doubt neonatal screening programmes will continue to be implemented in countries with sufficient resources, especially considering the increased life expectancy for children diagnosed even with CCHD. A recent Lancet editorial describes pulse oximetry screening as a "new milestone in the history of congenital heart disease."⁽⁴⁾

Paediatric cardiology and cardiac surgery has made enormous strides in the past decades. The emphasis has changed from mortality to morbidity while patient-centred approaches are the new standards of care. The vast majority of children diagnosed with CHD will live into adulthood with a growing population of adults with CHD. Yet undeniably the majority of the world's children with heart disease still do not have access to life-changing diagnostic, medical and surgical management.⁽⁵⁾ We need to grasp the opportunity to significantly impact paediatric cardiac services by implementing a focused research agenda and developing widespread collaborative models. In addition, we all need to take up the challenge to improve cardiac services by addressing key health systems issues, considering innovative and cost-effective strategies and mobilising multi and inter-sectorial action.

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