

# Raising Cardiovascular Health in Low Resource Settings: Challenges and Road Maps Ahead



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In this issue of *Global Heart* Dominique Vervoort discusses cardiac surgery as a neglected component of cardiovascular care in low and middle income countries (LMIC) [1]. Every year, 1 million babies are born with congenital heart defects in LMICs, of which 70% will require medical or surgical care within a year. Many LMICs, even larger ones, lack cardiac centers and surgeons, completely impeding any efforts to provide cardiac surgical care. Centers that do exist are subject to dysfunctional equipment or lack of disposables. Without, surgery cannot take place, calling for effective supply chains to cover this rate-limiting factor. Health is a basic human right and its constituents should be no less. Having access to interventions able to save the lives of millions and prevent disability for millions more around the world, while being cost effective and having a dramatic socioeconomic potential, should not be reserved to those born in specific parts of the world. In the 21st century, everyone deserves to live their life to its fullest potential.

And access to quality care not only remains an issue for surgery. Even affordable effective medical treatment is a challenge. Widespread access to good quality antihypertensive medicines is a critical component for reducing premature cardiovascular disease (CVD) mortality. Julie Redfern and colleagues show that more than a quarter of some commonly prescribed antihypertensive medicines available in Nigeria may be of substandard quality. Enhanced quality assurance processes in LMICs are needed to support optimum management [2]. Strategies are needed to improve access and use of effective risk reduction therapies. Polypills, fixed dose combinations of blood pressure lowering drug(s), statin, with or without aspirin, improve the use of these recommended drugs in patients with or at high risk of CVD. However, their effective use appears limited not only by availability but also lack of knowledge among those that prescribe. Abdul Salam Mohammad and his team demonstrate that in a market where polypill use is licensed, e.g., India, their availability and use is still very low [3]. Lack of prescription of polypills was the predominant barrier to polypill use, and therefore making polypills with drugs that are more acceptable and at different strengths available, in conjunction with broader prescriber education and training may improve their use. The number of subjects at high risk in LMICs is on the increase with certain countries showing particularly alarming trends. Juan P. González-

Rivas et al. provide data on Venezuela, a country troubled in various ways, from the Venezuelan Study of Cardio-Metabolic Health [4]. Among 2,900 participants two-thirds presented with intermediate to poor Cardiovascular Health Score.

While ischemic heart disease and its risk factors become epidemic in LMICs, more traditional causes of cardiovascular disease persist. Rheumatic heart disease (RHD) remains a major global public health challenge, affecting an estimated 30 to 70 million people worldwide, most of whom live in LMICs. It is an important cause of heart failure and stroke in LMICs and is responsible for up to 1.4 million deaths annually. This is probably an underestimate as shown by Maartje Jacobs and her group who wrote a systematic review on atrial fibrillation (AF) from studies in African populations and conclude that the prevalence of stroke risk factors shows a large variation between studies, as well as within clustered sub-populations. AF in Africa is under-reported in published reports. The study types and populations are highly heterogeneous, making it difficult to draw a definitive conclusion on AF prevalence [5] in Africa. Scott S. Lee and Rajesh Vedanthan discuss the reasons why too little progress is made in combatting RHD and state that “the continuing challenge of RHD is not one of understanding how to prevent and treat it—but rather, a failure of widespread implementation of effective prevention and treatment” [6]. Task-shared RHD care models are needed that should be designed with implementation in mind. This requires that interventions (1) have the potential to truly improve health rather than merely change proximal outcomes and (2) complement rather than undermine the broader health systems in which they are situated. Leila Hussein Abdullahi and coworkers systematically reviewed the state of the evidence for the use of task sharing in the diagnosis, prevention, and management of RHD [7]. They concluded that the RHD community should prioritize new research related to primary prevention, nonechocardiography-based approaches to secondary prevention, and improving access to and quality of cardiac surgery in limited-resource settings. Greater efforts should be made to develop multi- and interdisciplinary study teams that include expertise in health services and implementation science methods.

Severe valve disease, which requires intervention, remains strongly associated with mortality in patients with

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RHD. Percutaneous mitral commissurotomy (PMC) is the procedure of choice for the treatment of patients with isolated or predominantly rheumatic mitral stenosis. This procedure has been performed under sedation to avoid the potential effects of general anesthesia on intracardiac pressure. However, there are limited data on sedation during PMC, especially using easily available medications in LMICs. Marta Eugenia Alcici and her team describe a simple model of conscious sedation which promotes anxiolysis, analgesia and comfort for the procedure without serious hemodynamic effects, which can be a reasonable choice in developing countries [8].

Socio-economic inequalities are major drivers for inequities in cardiovascular health in LMICs but also in more affluent societies. A report by Randi E. Foraker and his coworkers using data on African Americans participating in the Jackson Heart study shows an improvement in cardiovascular health (CVH) score with increasing Socio-Economic-Status (SES). Overall, the results indicate that those with higher levels of individual- and neighborhood-level SES have better CVH score. Specifically, they demonstrated an increase in CVH score with the additive effects of higher individual- and neighborhood-level SES [9]. In an accompanying editorial Global Heart Editor Nathan Wong concludes that the evidence from the Jackson Heart study is a useful advance into helping us understand disparities in SES and CV disease incidence in socioeconomically disadvantaged populations, but prospective investigations to examine whether changes in SES or interventions to improve SES may impact on changes in CV health, and whether this, in turn, translates into reduced CVD outcomes, would be ideal [10].

At the right end of the distribution of risk are those that require invasive procedures to prevent major damage to the myocardium in the presence of acute coronary syndrome (ACS). This is not where prevention ends. Instead, these patients are likely to individually benefit the most from both drug treatment and lifestyle advice to reduce the risk of subsequent events. In a randomized controlled trial, Byung Sik Kim and coworkers from South Korea show that aversive advice during a PCI procedure is effective at smoking cessation in patients with ACS [11]. A physician's attention and involvement during the PCI procedure improves the rate of smoking cessation in patients with ACS.

Global Heart is the official Journal of the World Heart Federation (WHF) and we welcome the publication of the WHF Road Map for Heart Failure in the current issue. This landmark document marks the consolidated consensus of a broad group of heart failure experts globally and introduces three important new features including: 1), An ideal pathway

of care; 2), Roadblocks along this pathway; and, 3), Possible solutions [12,13]. Emphasis is not only on the evidence but particularly in implementation of current knowledge also in low-resource settings. The ideal pathway of care offers a pathway of care that is the foundation from which to assess barriers that are context specific. The roadblocks and potential solutions to patient care are offered based on key stages of the patient care pathway. They have been accumulated from previous WHF Roadmaps, built upon the experience of the core writing group and based on consensus and feedback from a wider survey process. Evidence based solutions to specific roadblocks are offered in tables within the document. The barriers to care are based on the highest rated barriers from the WHF Survey on the Heart Failure Roadmap and from 146 experts.

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