

## Targeted investment needed to end rheumatic heart disease in Africa



Over the past decade, we have witnessed the reinvigoration of research and advocacy to combat rheumatic heart disease, with much of this work led from the African continent. Among those achievements have been a substantial increase in epidemiological data to quantify the burden of rheumatic heart disease, largely led through echocardiographic surveillance studies, and registry-based studies that have highlighted the impact of rheumatic heart disease and the gaps that exist in the continuum of care, in particular for those living in the African Union (AU).<sup>1,2</sup> Above all, this work has shown that the burden is great and the gaps in prevention, diagnosis, and care are wide.

As a result, tackling rheumatic heart disease might seem like a complex and challenging task, with countries faced with questions of what to do first, or which investment will lead to the greatest gains. The study by Matthew Coates and colleagues in *The Lancet Global Health* adds critical, potentially transformative, new information.<sup>3</sup>

The authors use a cohort state transitional model to estimate and compare the impact of scaling up primary prevention, secondary prevention, and tertiary services to combat rheumatic heart disease. The authors conclude that scale up of all three approaches could avert 74 000 AU deaths from rheumatic heart disease in the next decade—a number that is probably underestimated due to overall underestimation of rheumatic heart disease mortality in the region. Benefit–cost ratios and time-to-impact were most favourable for the scale-up of secondary prevention and tertiary services, with the benefits outweighing the costs this decade.

We found this study to be a powerful call to action. To make a difference, the focus should be on finding people living with rheumatic heart disease, initiating secondary prevention to prevent progression, and ensuring access to interventional services for individuals who have progressed to advanced rheumatic heart disease. Improving access to secondary prevention is achievable, but will take investment in improved diagnostics, namely ultrasound, at the community level. Only a small fraction of people living with rheumatic heart disease receive a timely diagnosis, and most individuals miss

the period when secondary prophylaxis can be effective at preventing disease progression.<sup>2</sup> Education and capacity building for frontline providers is also critical, and might best be achieved through integrated non-communicable disease clinics, such as the PEN-Plus programme, tested by Partners in Health in Rwanda.<sup>4</sup>

Scaling up tertiary services in the AU is also achievable, but will require multisector investment. Many countries are moving in this direction, but substantial upfront investment is needed to establish and maintain programmes, including direct funding for training, infrastructure development, and direct patient care costs. One viable option might be for a coordinated investment by the AU for regional centres of excellence for cardiac surgery and catheter interventions that target rheumatic heart disease and congenital heart disease.

Coates and colleagues conclude that a primary prevention strategy is not the best first investment because it has a low benefit–cost ratio. However, in this model, the assumptions around pharyngitis are perhaps the most fungible. Epidemiological data on superficial group A streptococcal infection are nearly non-existent from the AU. The assumptions used in the model, including a very low 10% contribution of group A streptococcus to sore throats on the continent, is low compared with published data.<sup>5,6</sup> Furthermore, the authors assume a lower, less optimistic, pharyngitis treatment coverage compared with other cost-effectiveness analyses, lowering the potential impact of this intervention.<sup>7</sup> Additionally, the model includes a formal health-care evaluation with provider charge for each sore throat, which is not practical or feasible in this setting. To truly understand the benefit–cost ratio for primary prevention, further research is needed to improve our epidemiological understanding of group A streptococcal burden and to test alternative models of sore throat care, and ultimately to continue development of an effective group A streptococcal vaccine, ensuring good coverage in the highest risk populations, including the AU.

Ultimately, all WHO member states signed a 2018 RHD Resolution, calling for reprioritisation of rheumatic

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heart disease on the global agenda, yet very little national action has occurred. In part, this lack of action has been driven by a lack of certainty on where to invest. The detailed analyses by Coates and colleagues now provide a starting point. Begin with investment in secondary prevention and tertiary services, where we know that the economic benefits will be higher than the costs, and tens of thousands of lives will be saved in the AU over the next decade.

We declare no competing interests.

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