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caacious and cost-effective regimens and replacement products for prophylaxis.

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## Rheumatic Heart Disease Detected by Echocardiographic Screening

**TO THE EDITOR:** Clinicians with access to echocardiography in regions in which rheumatic fever is endemic have been aware for decades that echocardiography is more sensitive and specific than auscultation in detecting acute carditis.<sup>1-3</sup> In New Zealand, an echocardiographic finding of left-sided regurgitation is accepted as evidence of carditis, and this has been formalized in recently published guidelines.<sup>4</sup>

On the basis of current knowledge, we agree with Dr. Marijon and colleagues (Aug. 2 issue)<sup>5</sup> that morphologic valve changes, in addition to Doppler regurgitation, are necessary to define rheumatic heart disease in a setting in which most subjects are asymptomatic. More studies are needed to further define the minimal valvular morphologic characteristics of subclinical rheumatic heart disease. To this end, it would be helpful if the authors could describe in detail the specific criteria they used to determine “restricted leaflet mobility, focal or generalized valvular thickening, and abnormal subvalvular thickening.”

It is also important to follow the natural history of isolated pathologic regurgitation detected by echocardiographic screening, such as that reported by Marijon et al. in 66 children in Mozambique.<sup>4</sup> This will assist clinicians who must decide whether to commence prophylaxis with penicillin G benzathine in such patients.

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**THE AUTHORS REPLY:** Echocardiography has been shown to be helpful in detecting rheumatic heart disease in its early stages. Its use as screening provides the opportunity to initiate secondary antibiotic prophylaxis in case of “significant lesions,” as currently recommended by the World Health Organization expert committee.<sup>1</sup> The follow-up of children with subclinical rheumatic heart disease should be instrumental in assessing the best strategy for prevention.

With regard to echocardiographic criteria for subclinical rheumatic features, the boundary between physiologic valve regurgitation and authentic but minimal rheumatic lesions remains difficult to discern in some cases.<sup>2</sup> The study of both Doppler and morphologic criteria enhances the specificity of echocardiography in this setting. Morphologic criteria in our study were based on the assessment of leaflet morphology, showing a typical marked thickening of the margins; leaflet mobility, with abnormal motion due to the posterior leaflet tip restriction; and subvalvular apparatus, displaying prominent thickening (most often just below the valve) and shortening of

chordal structures. Using these criteria, we were able to document an excellent level of interobserver agreement for the detection of early rheumatic valve disease.

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## Rheumatic Heart Disease in Developing Countries

**TO THE EDITOR:** In his Perspective article on rheumatic heart disease in developing countries, Carapetis (Aug. 2 issue)<sup>1</sup> correctly notes the important contribution of improved living conditions to the decline in the incidence of acute rheumatic fever over recent decades in wealthy countries. However, he does not acknowledge the contribution of the very substantial decrease in the prevalence of highly rheumatogenic *emm* types of group A streptococci as causative agents of acute pharyngitis.

Our surveillance studies of pediatric pharyngitis group A isolates in the United States and Canada from 2000 through 2005 showed a striking disappearance of *emm* types 14, 18, 19, and 29 or a marked decrease of *emm* types 3, 5, and 6. These have been the most important rheumatogenic types from the 1960s (when rheumatic fever was prevalent) to the present decade (when rheumatic fever is quite rare).<sup>2</sup> The basis for this marked decline in circulating rheumatogenic types is not clear, but it is very likely to be independent of the changes in living conditions.

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**THE AUTHOR REPLIES:** It may well be that changes in the virulence of circulating group A streptococci have accounted for much of the decline in the incidence of rheumatic fever since the late 1960s

in the United States. However, approximately 95% of the reduction in the rate of death due to rheumatic fever during the 20th century in the United States occurred before 1960,<sup>1</sup> probably because of reduced group A streptococcal transmission resulting from an improved housing infrastructure.

I agree with the concept of “rheumatogenic” group A streptococci, but studies in areas where rheumatic fever is common have not shown associations with classic rheumatogenic *emm* types.<sup>2,3</sup> In these settings, rheumatogenic strains, regardless of the *emm* type, are probably always circulating — hence the endemic rather than epidemic disease pattern.<sup>4</sup> In populations in which dozens of streptococcal strains are present at any one time,<sup>5</sup> dramatic reductions in overall transmission rates will be necessary before we can expect to see a waning of particular rheumatogenic strains.

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