

Response to Godown and Beaton—Handheld echocardiography: A new tool for rheumatic heart disease in the developing world?

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Drs. Godown and Beaton's correspondence (1) regarding the use of handheld echocardiography (HAND) for rheumatic heart disease (RHD) screening in developing countries highlights a number of issues that will be important in the development of future screening programs.

While we agree that HAND has the potential to lower some of the costs of RHD screening programs, we question whether its use is likely to be a decisive factor in determining their overall financial viability. Given that the specificity of HAND for definite and borderline RHD reported in Godown *et al.*'s recent study (2) was 87%, it is probable that any HAND screening program would require standard echocardiography (STAND) access to confirm positive screening results. Thus, any initial capital cost savings associated with the use of HAND over STAND equipment may potentially be negated by the extra workload associated with confirmation of diagnoses made on HAND. Such confirmation of positive screenings would be especially important given the long-term nature of follow-up and treatment/prophylaxis that is required for individuals with RHD.

A second consideration in the feasibility of screening is that the greatest costs in any RHD screening program are likely to be associated with human resources and subsequent management of individuals with positive screening results. Given this, if the costs associated with acquiring STAND equipment are prohibitive in a particular setting then it seems unlikely that sufficient resources would be available for implementing a screening program even if screening were moved into the hands of non-experts. Further, while it may be argued that the cost of benzathine penicillin for secondary prophylaxis is low, the costs to any health care

system associated with its delivery can be high.

One of the requirements of a viable screening program is that there exists an effective, available, and easily accessible treatment that is acceptable to all patients with the recognised disease (3,4). Benzathine penicillin has been demonstrated to be effective in retarding progression of valvular damage associated with RHD (5). However, current evidence suggests that delivery of benzathine penicillin is less than optimal in many countries including Australia (6), Egypt (7), Taiwan (8), Brazil (9) and South Africa (10). While echocardiographic screening for RHD, including HAND screening, may be effective in uncovering undiagnosed RHD, it is vital that any screening program be complemented by initiatives to improve the delivery and uptake of benzathine penicillin in those individuals with a positive test (11).

A further point in relation secondary prophylaxis relates to its role in latent RHD. There is as yet no evidence to show that echocardiographically diagnosed definite RHD on WHF criteria in the absence of a previous documented episode of ARF will respond to benzathine penicillin in the same way as classically diagnosed RHD. While it seems logical to suggest that progression of valvular damage in such individuals can be prevented by secondary benzathine penicillin, this still remains to be demonstrated.

Finally, the issue of how to manage individuals whose screening echocardiograms reveal valvular changes that do not meet criteria for definite RHD still remains to be addressed. We recently found that 1 in 6 Indigenous Australian children diagnosed with borderline RHD on screening echocardiography progressed to definite RHD within 2.5–5 years (12). Perhaps of more concern was our

finding that 1 in 10 children with non-specific valvular changes that do not meet WHF criteria for borderline RHD also progressed to definite RHD. These findings raise two important questions. First, what degree of valvular damage detected during echocardiographic screening should be considered as a “positive” test? In particular, what would be the implications to patients of drawing the cut-off at definite RHD or borderline RHD? Second, when such valvular damage is revealed by echocardiographic screening, what follow-up is appropriate for affected individuals? If the clinical decision is taken to implement enhanced surveillance, repeat echocardiography, or indeed benzathine penicillin treatment then such action may have an important impact on already scarce and often finite health care resources.

Godown and colleagues (2) are to be congratulated for their continued work to make echocardiographic screening for RHD more affordable and accessible, particularly as the highest burden of disease is seen in low and middle income countries. Nevertheless, viable RHD screening programs will require further evidence regarding the management of non-specific valvular changes, improvements in delivery of secondary prophylaxis, major investments in human and health service resources, and detailed and realistic economic analysis to ensure they do not divert finite resources from possibly more pressing and effective health care interventions.

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Footnote

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