Beyond Sharing and Shifting

Raising the Bar for Global Rheumatic Heart Disease Control

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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 low- and middle-income countries (LMICs) [1,2]. It is an important cause of heart failure and stroke in LMICs and is responsible for up to 1.4 million deaths annually [1-3]. Despite these sobering figures, RHD is preventable, as evidenced by its virtual eradication in high-income countries, and when present, its complications can be forestalled or mitigated with effective medical and surgical therapies [4-6].

Why, then, has RHD persisted in LMICs? To be sure, RHD is particularly difficult to control for several key reasons. First, its natural history—a chronic disease characterized by 3 distinct clinical phases spaced out over the course of decades—requires longitudinal care across the life span, similar in this regard to congenital disorders and distinct from other prevalent chronic diseases that manifest primarily in mid-to-late adulthood. Second, the presentation and course of each of these phases is highly variable, such that accurate and timely diagnosis can be challenging. Finally, once diagnosed, management of RHD requires interventions that rely heavily on health care providers: provider-administered pharmacotherapy (intramuscular penicillin) to prevent disease progression; a provider-performed diagnostic and monitoring modality (echocardiography) that is highly operator-dependent; and definitive therapy (surgical valve replacement) that requires highly specialized training and coordination across multiple provider types.

The last of these challenges—the provider-dependent nature of RHD management—runs headlong against the pervasive reality of widespread shortages of health workers in LMICs [7]. In turn, this tension suggests that more optimal allocation of tasks across health worker cadres—that is, task sharing—may offer significant gains for the delivery of RHD care worldwide. Taking this proposition as their premise, Abdullahi et al. [8] carry out the first systematic review of the evidence for task sharing in the diagnosis, prevention, and management of RHD in the scientific literature. The upshot of their review is straightforward: despite growing research, including an entire issue dedicated to global RHD control in this journal (*Global Heart* 2013;8(3)), they find no studies that examine the effect of task sharing on clinical outcomes such as enrollment in care, disease progression, and morbidity and mortality. Those that are deemed most relevant address task sharing with respect to RHD screening, but rather than evaluate the impact of task-shared screening (i.e., non-physician-performed echocardiography) on clinical outcomes, these studies for the most part limit their attention to diagnostic accuracy. Because expanded screening for RHD has not been shown to improve outcomes [9,10], the actual value of task-shared echocardiographic diagnosis is thus uncertain.

This "absence of evidence" finding, though discouraging, leaves more room for optimism than its alternative: evidence of absence. To this point, Abdullahi et al. [8] recommend further investigation of task sharing across the full continuum of RHD care, which might include school-based screening for streptococcal pharyngitis, administration of oral or intramuscular penicillin by community health workers (CHWs), surveillance echocardiography of established RHD at the primary health facility, and management of acute rheumatic fever and chronic heart failure by midlevel providers.

As with isolated screening, however, isolated task-sharing interventions will be insufficient if they are not embedded within broader RHD programs that are in turn embedded in adequately resourced health systems founded on universal health coverage [11]. As such, we offer the following 3 principles that we believe should guide the design and evaluation of task-shared RHD care models. The rationale for these principles is that interventions 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.

PRINCIPLE 1: RHEUMATIC HEART DISEASE CARE SHOULD BE INTEGRATED AND COORDINATED WITH BROADER CHRONIC CARE PROGRAMS

Historically, an undesirable consequence of disease-centered task-sharing research has been the implementation of siloed, vertical interventions (e.g., hypertension CHWs, malaria CHWs, human immunodeficiency virus CHWs), rather than integrated, cross-cutting programs that embed disease-specific activities within broader health systems. Even within cardiovascular disease, as of 2017, a systematic review of CHWs-driven interventions found "no studies … that looked at combined cardiovascular risk management" as opposed to management of isolated risk factors [12]. And yet, in the case of RHD, natural complementarities with broader cardiovascular disease management abound, such as the use of echocardiography to diagnose and characterize other forms of heart failure, fluid and volume management, and anticoagulation for nonvalvular atrial fibrillation. Whereas research interventions in a given setting may appropriately

The authors report no relationships that could be construed as a conflict of interest.
This work did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.
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GLOBAL HEART

VOL. 14, NO. 3, 2019
ISSN 2211-8160/$36.00.
https://doi.org/10.1016/j.gheart.2019.04.004

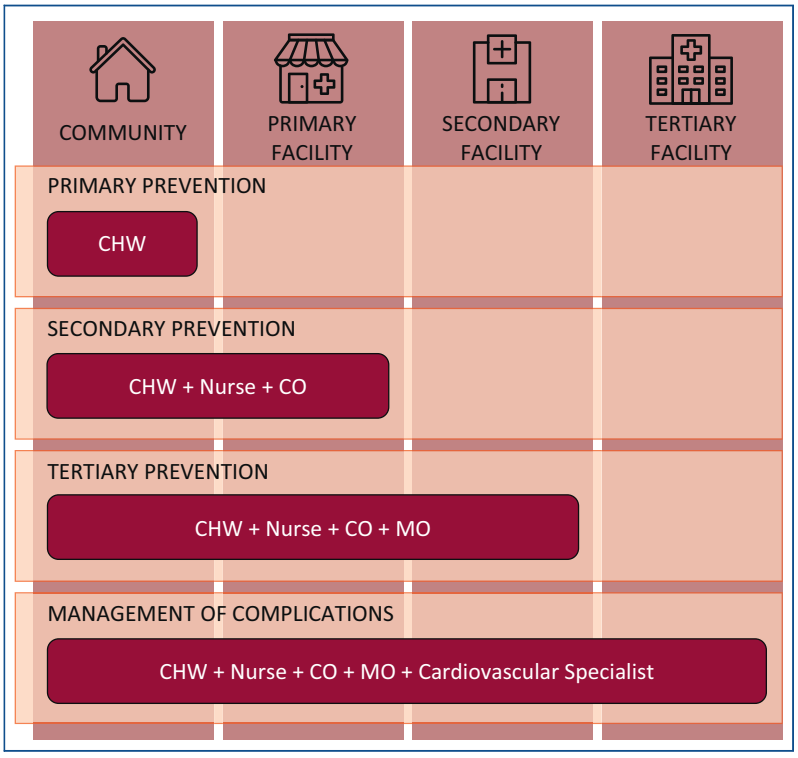

FIGURE 1. Simple schematic of a team-based model for rheumatic heart disease management. CHW, community health worker; CO, clinical officer; MO, medical officer.

focus on single-disease outcomes, their design should fit within existing programs and structures or allow for integration into a more comprehensive approach to chronic disease management.

PRINCIPLE 2: TASK-SHARING INTERVENTIONS SHOULD BE DESIGNED AND EVALUATED EN BLOC RATHER THAN PIECEMEAL

The corollary of horizontal, interdisease integration is vertical, intradisease integration. That is, RHD task-sharing models should address the entire continuum of care, rather than tasks in isolation. In real-world clinical practice, tasks across the entire care cascade are interdependent and have both positive and negative spillovers. Thus, creating and evaluating package interventions carries more real-world applicability and consequently is more useful for implementation research and program planning. If single task-sharing interventions are studied, they should be embedded in broader RHD programs, with the broader program, as opposed to a programmatic vacuum, serving as the counterfactual.

PRINCIPLE 3: MOVE FROM TASK SHARING TO TEAM-BASED CARE

The advantage of the term "task sharing" over "task shifting" is that the former implies coordination and teamwork. We feel, however, that there is an opportunity to move even beyond task sharing to "team-based care," emphasizing interdependencies between cadres and delineating processes that link tasks and team members together (Fig. 1). With this approach, transfers of care between team members and linkages across the entire care cascade are as important as the tasks themselves. In short, the driving principle is coordinated and comprehensive care, and task sharing merely serves as a means toward achieving optimal coordination of effort, responsibility, and accountability among team members.

In summary, RHD presents unique challenges among chronic diseases by virtue of its early-life onset; episodic, multisystem clinical course; and human resource-intensive management. Whereas the disease's natural history is a fixed constraint, team-based care has the potential to alleviate key human resource bottlenecks and improve coordination and accountability across the entire care cascade. Although there have been important advances in this regard in the recent past [13-18], the reality is that there remains a substantive know-do gap that needs to be filled; as noted by leadership at the U.S. National Heart, Lung, and Blood Institute, "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" [19]. More implementation research is thus warranted [20,21]. However, instead of piecemeal studies that examine isolated shifted tasks, we believe there will be greater population health return on investment from interventions that are vertically and horizontally integrated and situated within the context of team-based care [22]. This will inevitably require greater resources, but the scale and complexity of RHD, and the potential for positive health system spillovers, warrant such efforts. In short, researchers, program implementers, and policy makers can transform current challenges into an opportunity to create and evaluate ambitious, "moonshot" initiatives that improve the lives of the millions of people worldwide who are affected by RHD, fundamentally strengthen health systems, and resolutely advance the cause of health care as a universal human right.

ACKNOWLEDGMENT

The authors would like to thank Julia Dickhaus for assistance with the Figure.

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