Recordis™ for Rheumatic Heart Disease

RECORDIS
Cardiac Sensor System

SCG-Based Cardiac Signal Analysis for RHD Research

The Problem

Rheumatic heart disease (RHD) remains one of the leading causes of acquired heart disease in children and young adults worldwide. An estimated 50 million people are affected and approximately 400,000 die each year. The burden falls disproportionately on low- and middle-income countries, as well as Indigenous and underserved communities in higher-income nations [1].

RHD often begins with untreated streptococcal pharyngitis — a common childhood illness. In a subset of patients, this triggers an immune-mediated inflammatory response that progressively damages the heart valves, typically the mitral valves. The process can unfold silently over years with no obvious symptoms [1]. By the time clinical presentation occurs, valve damage is often advanced, treatment is more complex, surgical risk is higher, and costs rise substantially [2].

For health systems, this creates a predictable pattern: late identification, higher intervention costs, and worse outcomes. Economically, downstream costs of advanced RHD — including repeated hospitalizations and surgical valve intervention — far exceed the cost of earlier identification and secondary prophylaxis [3].

Current identification relies primarily on echocardiography — effective but specialist-dependent, requiring trained staff, dedicated equipment, and clinic infrastructure. It is not scalable for community-level screening, particularly in rural and resource-limited regions where RHD is most prevalent. Health systems in these settings cannot scale imaging fast enough to meet population demand.

Recordis Cardiac Signal Analysis

Recordis is a seismocardiography system that captures cardiac mechanical signals — including timing and amplitude markers linked to valve function — through a non-invasive sensor placed on the base of the sternum. Recordings take under 60 seconds, require minimal operator training, and are processed by an independent algorithm that removes traditional operator variability.

These characteristics — portability, speed, operator independence, and no requirement for imaging infrastructure — make Recordis a strong candidate for investigating scalable cardiac signal analysis in community screening contexts where echocardiography is impractical.

Recordis has shown the potential to monitor cardiac cycle markers in patients with aortic stenosis following transcatheter aortic valve implantation (TAVI), demonstrating expected changes compared to known echocardiographic findings [4]. The research question now is: *can the SCG-derived markers capture cardiac cycle changes associated with RHD — and can those measurements support clinicians in identifying individuals who would benefit from echocardiographic follow-up.*

The Evidence

RHD-specific validation using Recordis is currently at the exploratory stage. No completed dataset exists yet. What does exist is a credible research framework and a platform with published validation in related cardiac measurement contexts.

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Investigational Use Only Under FDA Review

Commercial validation being planned in rural Canada. Studies exploring cardiac data applications in chronic disease prevention, triage optimization, and resource allocation efficiency.

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Evidence Component	Recordis cardiac timing assessment	Recordis AS discrimination	RHD screening collaboration	RHD-specific SCG validation
Status	Published. SCG-derived timing intervals correlated with established echocardiographic methods post-TAVI [4]	Presented at SCAI 2026. AUC 0.94 for discrimination between severe AS and non-AS patients using SCG-derived amplitude markers	Active. Recordis integration into an established international RHD screening program in Southeast Asia, with echocardiographic core lab analysis in Quebec	Forthcoming. Study will correlate SCG-derived markers with echocardiographic findings in RHD populations to determine whether valve-related mechanical changes are detectable in the SCG signal

The published AS timing data demonstrate that Recordis captures clinically meaningful valve-related mechanical information. The RHD collaboration will determine whether this extends to the specific characteristic of rheumatic disease.

Clinical Relevance

For Clinicians & Global Health Researchers: RHD disproportionately affects populations with the least access to echocardiographic screening. Recordis requires no imaging infrastructure, no trained sonographer, and produces standardized output in under 60 seconds. If validated for RHD, this could provide a scalable front-line data capture method for community screening programs — generating cardiac signal data that clinicians could use to prioritize patients for echocardiographic follow-up.

For Researchers & PIs: The current RHD collaboration integrates Recordis into an established multi-country screening program with gold-standard echo comparison via an independent core lab. If your research involves RHD screening, cardiac valve assessment in underserved populations, or scalable point-of-care measurement in resource-limited settings, this collaboration model may be relevant to your work.

For Industry & Global Health Organizations: RHD screening at population scale requires measurement technologies that can deploy without imaging infrastructure. Recordis produces structured cardiac signal data that is standardized, repeatable, and suitable for distributed deployment — a potential infrastructure layer for programs where echocardiographic screening is not feasible.

Ongoing Validation

Recordis integration into the international RHD screening program is underway. The study will correlate SCG-derived markers captured by Recordis with echocardiographic findings across RHD populations, with all echocardiograms analyzed by an independent core lab in Quebec. Results will determine whether SCG can contribute to scalable RHD identification strategies.

We are actively seeking research collaborators — particularly groups working in RHD screening, community cardiac health, or scalable point-of-care measurement in resource-limited settings. If your institution or program could benefit from integrating standardized, portable cardiac signal analysis into your research, contact us at the booth or through the QR code below.

References

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3. Elmusharaf, K.; Poix, S.; Scaria, E.B.; Saherwala, M.; Bystrom, M.; Hammerich, A.; Mohamud, A.K.; El Berri, H.; Hag, E. The economic burden of rheumatic heart disease in the Eastern Mediterranean Region. BMJ Glob Health 2025, 10, doi:10.1136/bmjgh-2024-018277.

4. Singh J, et al. JACC Adv. 2025;4:101664.

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