**Title: The Economic Impact of Rheumatic Heart Disease (RHD) on the Health System of South Africa. A Cost of Illness Study.**

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**Background**

RHD is a disease of poverty that is neglected in developing countries. The consequences of RHD are increasingly becoming huge economic burden to the health system and consecutively the government. Despite RHD being preventable, most of the RHD related deaths happen in children and working age adults where the economic burden of premature death is high. Several strategies have been suggested to advance the escalation of disease severity in order to avoid medical cost including cost of surgery. However, lack of adequate evidence regarding the cost of treating RHD has hindered the needed decisions and interventions to prevent RHD related death.

**Aims and Objectives**

The main objective of this study was to evaluate the utilization of resources and quantify the annual average total cost related to RHD in a tertiary hospital in the Western Cape, South Africa.

**Methods**

A mixture of ingredients and step-down costing approaches were used to estimate the annual cost of RHD care from health system perspective. All costs were estimated in 2017 (base year) South African Rand (ZAR) and 3% discount rate in order to allow depreciation and opportunity cost. Data on service utilization rates were collected using a randomly selected sample of 100 patient medical records from the Global Rheumatic Heart Disease Registry (the REMEDY study), a registry of individuals living with RHD. Patient-level clinical data, including, prices and quantities of medications and laboratory tests, were collected from Groote Schuur Hospital (GSH). Step-down costing was used to estimate provider time costs and all other facility costs such as overheads. REMEDY and GSH data were aggregated to estimate the total annual costs of RHD care at GSH and the average annual per-patient cost among REMEDY participants. One-way univariate sensitivity analysis was conducted to deal with uncertainty.

**Results**

The total cost of RHD care at GSH was estimated at $2, 238, 294 (ZAR 27 million) in 2017, with surgery costs accounting for 65% of total costs. Per-patient average annual costs, which included outpatient care, medical and intensive care unit (ICU) care, catheterisation lab procedures, and heart valve surgery, was estimated at $4, 311 (ZAR 52, 000) per-patient annually. The cost of medications and consumables related to catheterisation and heart valve surgery were the main cost drivers.

**Conclusions**

Scaling up of primary and secondary prevention programs at primary health centres reduces future burden on tertiary services. There is high need of resource allocation efforts related to RHD at tertiary centres, and the study provides cost estimates for future studies of intervention cost-effectiveness.