

The Path to Sustainable Cardiac Surgery in Rwanda: Analysis of costs for consumables used during cardiac surgery for a nongovernmental organization

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Background:

Until local healthcare infrastructure is strengthened, cardiac surgical care in low- and middle-income countries is often provided by non-governmental organizations by way of visiting healthcare teams. This is generally considered to be a cost-effective alternative to transporting patients to high income countries for surgical care, but the costs of cardiac surgery consumables under this model are poorly understood. Our objective was to identify the per-patient cost of cardiac surgery consumables used in single and double valve replacements performed by a non-governmental organization in Rwanda.

Methods:

Financial data from 2020 were collected from Team Heart, a non-governmental organization that supports cardiac surgical care in Rwanda. A comprehensive list of consumables was generated, including surgical, perfusion, anesthesia, and inpatient supplies and medications. Acknowledging the variability in perioperative needs, the quantities of consumables were calculated from an average of six patients who underwent single or double-valve replacement in 2020. Total costs were calculated by multiplying purchasing price by average quantity per patient. Costs absorbed by the local hospital were excluded from the calculations.

Results:

The total cost per patient was estimated at \$9,450. Surgical supplies comprised the majority of costs (\$6,140 per patient), with the most substantial cost being that of replacement valves (\$3,500 per valve), followed by surgical supplies (\$1,590 per patient).

Conclusions:

This preliminary analysis identifies a cost of just over \$9,000 per patient for consumables used in cardiac valve surgery in Rwanda, which is lower than the estimated costs of transporting patients to centers in high income countries. This work highlights the relative cost effectiveness of cardiac surgical care in low- and middle- income countries under this model and will be instrumental in guiding the allocation of local and international resources in the future.

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