

Understanding the System-Wide Cost of Healthcare Delivery in Malawi: Insights from the Thanzi La Onse Model

Background: A new mixed-method costing approach uses the Thanzi La Onse health system model to estimate realistic, system-wide healthcare delivery costs in Malawi and understand how different investments shape overall spending.

Methods

How We Estimated Health System Costs

- **Whole-System Modelling:** The *TLO Model* simulates patient pathways, health worker time, consumables use, and service availability across 734 public and CHAM facilities in Malawi.
- **Mixed-Method Costing:** Combined bottom-up costing with top-down costing.
- **Local Data:** Used Malawi-specific data on consumable prices, workforce salaries, equipment needs, and facility operations. Aligned with expenditure data to estimate real-world spending.
- **Scenario Modelling:** Estimated 2023–2030 costs under four scenarios: 1. Current system (baseline); 2. Expanded health workforce; 3. Improved supply chain availability; 4. Both improvements combined.



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Findings

Data for Decision-Makers

- **Tool for long-term health sector planning:** Mixed-method approach was broadly reliable when compared against real-world budget and expenditure data.
- **Interdependencies & bottlenecks:** The model shows how workforce capacity and consumable availability are deeply linked. Bottlenecks in one area constrain the impact of improvements in another.
- **Estimated Total Costs:** Under current capacity, the total cost of healthcare delivery in Malawi for 2023–2030 is estimated at **\$2.83 billion**, averaging approximately \$16.89 per capita annually.
- **Valuable framework:** Can evaluate the financial implications of health policy options, allowing for evidence-based decisions that consider the health system as a whole.



Key Takeaway: Evidence-based budgeting requires a whole-system view: the TLO model reveals how interconnected health system components are, and why modelling is essential for informed decision-making.



Estimating System-Wide Healthcare Costs Using a Health System Model: Application to the Thanzi La Onse Model of Malawi

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