

Bridging gaps in health system efficiency: Insights from the Thanzi La Onse project

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Malawi is at a critical point in its journey towards achieving the Sustainable Development Goals (SDGs). With concerted efforts aimed at combatting infectious diseases like HIV/AIDS and tuberculosis (TB), Malawi has made significant strides in improving healthcare delivery and system resilience. However, challenges such as medical supply chain constraints hinder full achievement of SDG targets. Our research used the Thanzi la Onse (TLO) epidemiological model to highlight the connection between disease management and health system resilience, emphasising the critical role of medical supplies in achieving sustainable health outcomes.

The TLO model integrates sophisticated disease modelling with real-world constraints in health system capacity and availability of medical supplies. Its projections for Malawi paint a promising picture: with continuous access to essential medicines, HIV and TB incidences could plummet by 2035. Specifically, HIV cases could drop to 22 per 100,000 person-years, from 190 in 2020, and TB cases to 60 per 100,000

person-years, from 149. These gains could prevent over 4 million disability-adjusted life years, aligning with global health targets set by UNAIDS and WHO. However, the model also highlights the severe impact of inadequate stocks of key medicines and diagnostics, which could lead to treatment delays and tens of thousands of preventable deaths annually.

We analysed data from Malawi's Harmonised Health Facility Assessment which highlighted the complexities of maintaining suitable medical supplies across health facilities. We identified several critical influences on supply chain robustness, including: level of care provided, ownership (private or public), proximity to administrative hubs, and the presence of trained personnel. For instance, hospitals and privately-owned facilities (both for profit and not-for-profit) are significantly more likely to maintain adequate stocks compared to government-run primary healthcare centres. Additionally, facilities equipped with essential technologies like computers and those managed by qualified pharmacists, have better supply chain reliability.

These insights highlight the urgent need for targeted interventions to strengthen health systems and improve supply chain management. Improving the supply of essential medicines through strategic investments could support disease management efforts and also enhance overall healthcare service utilisation. By addressing the causes of breakdown in the drug supply system, policymakers can alleviate supply disparities and improve health outcomes. Moreover, integrating these findings into national health strategies can create a more resilient healthcare infrastructure capable of withstanding future health emergencies.

Our research has used the TLO model combined with detailed data analysis to understand Malawi's healthcare landscape, providing key evidence for informed policymaking and transformative healthcare reform.

Read both full papers in The Lancet Global Health: [Mangal et al](#) and [Mohan et al](#)

Read more about the [Thanzi La Onse Model](#).

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