EE167

COST EFFECTIVENESS OF A DIGITAL HEALTH INTERVENTION FOR SCREENING AND MANAGING HYPERTENSION AT PRIMARY CARE LEVEL IN KENYA: A MICROSIMULATION MODEL

James Odhiambo Oguta, Penny Breeze, Wael Mohamed, Catherine Akoth, Elvis Wambiya, Peter J Dodd.

Background

Kenyan Context

In Kenya, cardiovascular diseases (CVDs) are the leading causes of NCD related deaths and disability.

Kenya has low hypertension screening, diagnosis, treatment uptake and blood pressure control levels.

The Gap: Lack of long-term economic evidence for digital health solutions.

Empower Health

A multicomponent technology-enabled intervention piloted in Kenya to support the screening and management of hypertension patients at primary health care level.

It is clinically effective at reducing blood pressure levels.

This study modelled the long-term cost-effectiveness of EMPOWER HEALTH intervention compared to usual care.

Methods

Model Overview

Model Type: Microsimulation model in R software

Cohort: 100,000 individuals sampled from the 2015 Kenya STEPS survey

Time Horizon: 50 years

Comparison: EMPOWER HEALTH vs. Usual Care

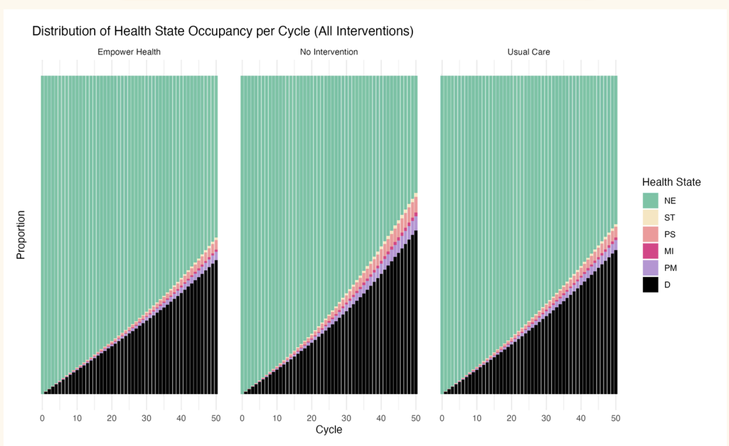
Treatment effect: 12-month SBP reduction estimated using IPTW

Outcomes: CVD Events (MI, Stroke), Deaths, Costs (Health System Perspective), DALYs

Sensistivity Analysis: 1000 PSA runs

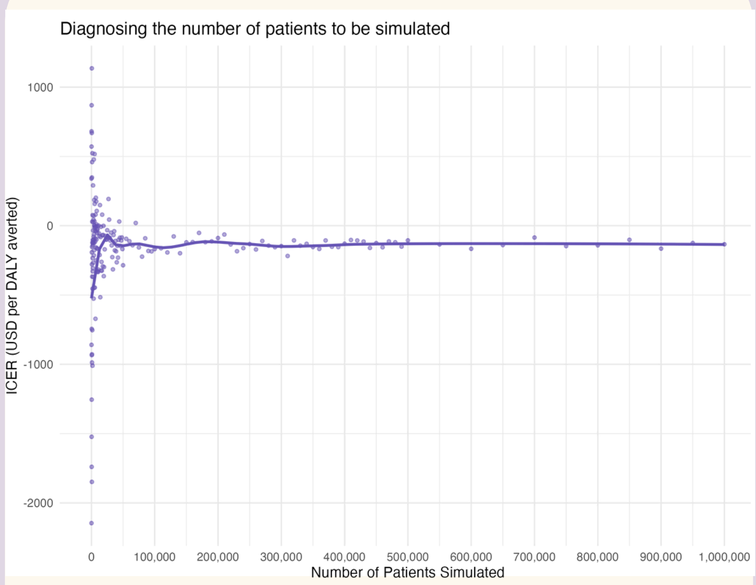
Results

Health State Occupancy



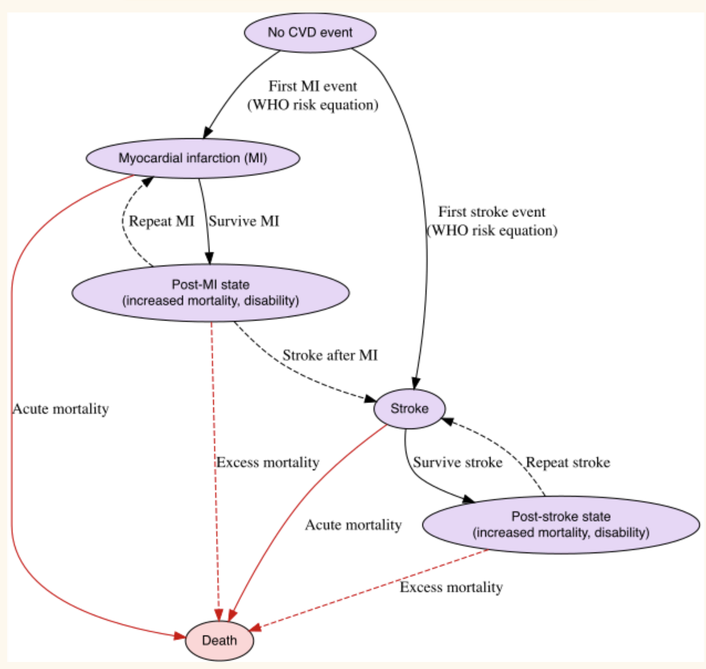
After 50 cycles, Empower Health achieved the highest event-free survival (50.8%) and lowest mortality (42.1%), compared to Usual Care (46.6% event-free; 45.2% mortality) and No Intervention (36.8% event-free; 51.4% mortality).

ICER Stabilization curve

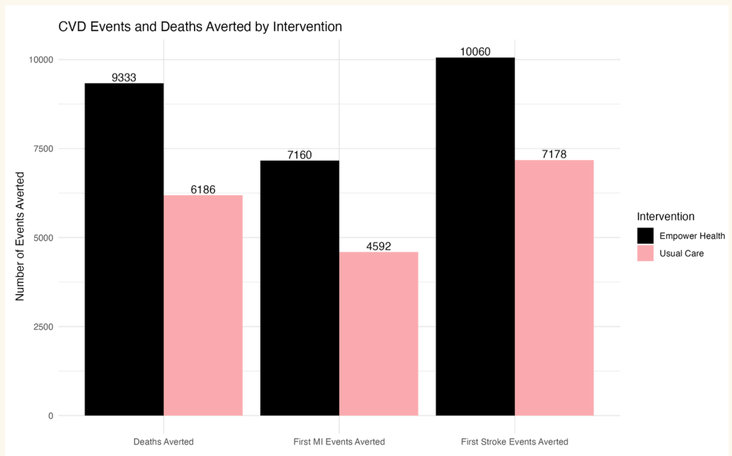


ICER stabilizes after the first 50000 patients.

Model Structure

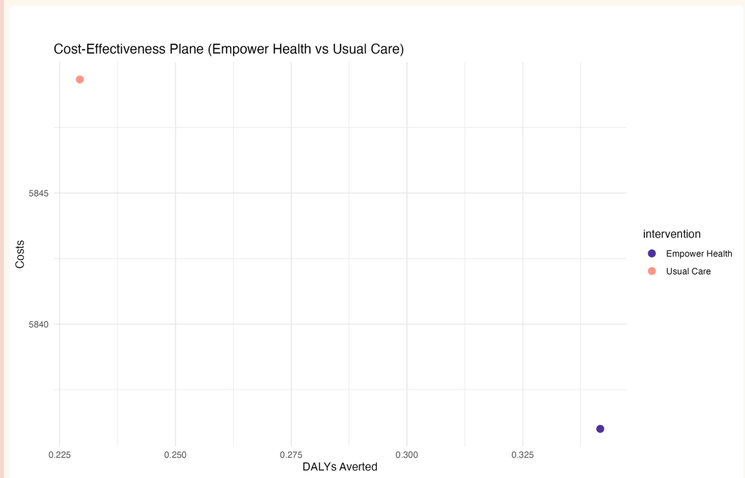


Events Averted



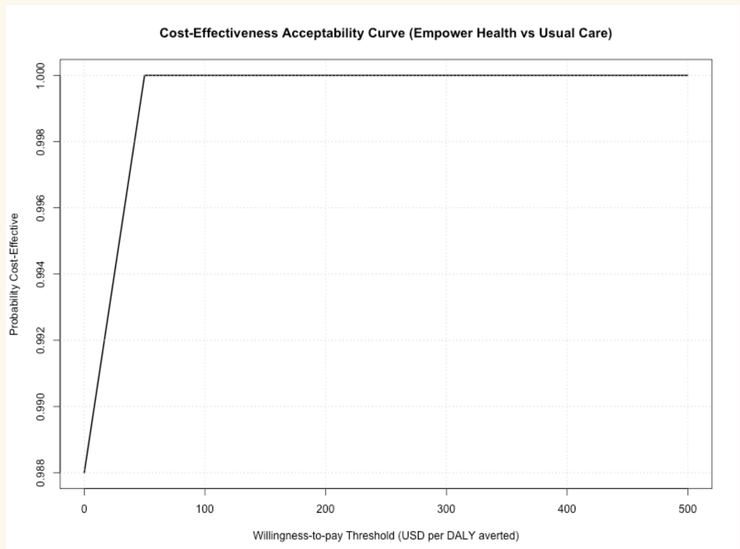
Empower health averts more deaths, MI and Stroke events compared to usual care.

Cost Effectiveness Plane



Empower Health was more effective and less costly than usual care, with an ICER of –US$118.5 per DALY averted, confirming that the intervention dominates usual care.

CEAC



Empower Health attains 100% probability of cost effectiveness at WTP less than USD 100/DALY averted.

Conclusion

EMPOWER HEALTH is a DOMINANT strategy. This digital health intervention is projected to yield better health outcomes and reduce costs compared to usual care, representing a highly cost-effective investment for scaling up in Kenya.

[Note: Stakeholder-engaged model validation and calibration are ongoing.]

This study was funded by Wellcome Trust