

A simulation modelling evaluating the impact of mobile health interventions on HIV/AIDS service delivery

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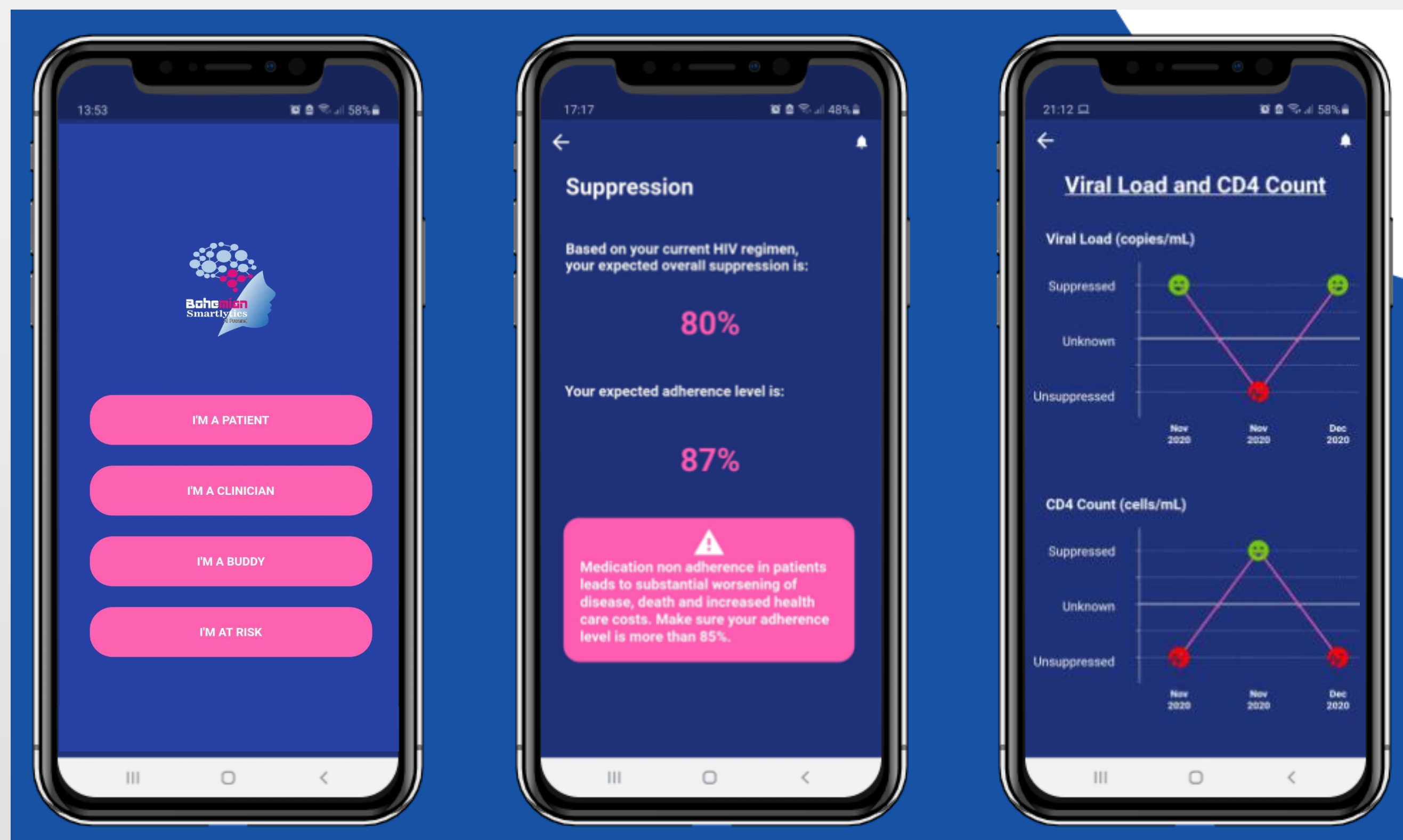
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BACKGROUND

- ❖ **Mobile health (mHealth) technologies** improve patient experience and health outcomes.
- ❖ People living with HIV (PLWH) reported **benefits** in using the **BSmart Chart app (BSCA)** in **self-managing** their care.
- ❖ Current outpatient **face to face consultations** can be reduced with BSCA, particularly patients stable on therapy.

OBJECTIVES

- ❖ We evaluate **the impact of mHealth** intervention on **key metrics** relevant to the delivery of HIV services.
- ❖ The study is conducted in collaboration with **Faith Alive Foundation (FAF)**, Jos, Nigeria using BSCA.



METHODOLOGY

- ❖ **SmartHIV Manager**, a **web-based interactive** planning platform for the management of HIV services is used to test the impact of BSCA.
- ❖ SmartHIV Manager **mimics** an HIV service in a **virtual computing environment**, capturing individual patient's movement from diagnosis to monitoring.
- ❖ Easy-to-understand **dashboards** are generated, covering all the key areas of concern, such as **activity, budgeting, resource planning, and monitoring and evaluation.**



EXPERIMENTATION

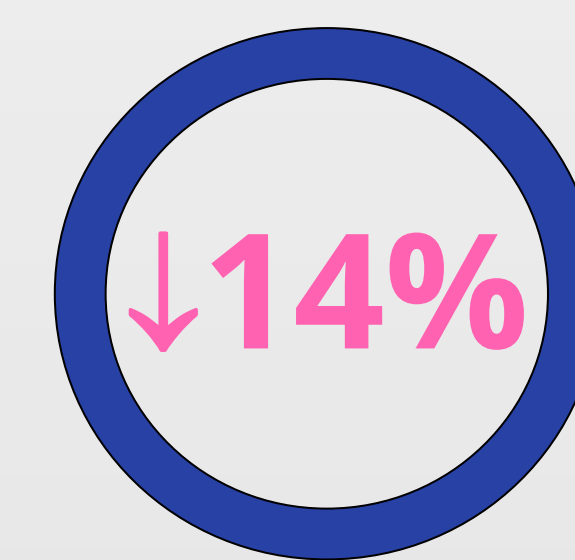
We identified 17 possible combination of scenarios, with a particular interest in:

- Offering an android mobile device free of charge** to four different groups of stable patient population (from 20% to 50%).
- Reducing** clinic visits amongst stable patients who are offered a mobile phone and the BSCA by 30%, 40%, 50%, and 75%.

For example, **the worst case scenario** (i.e. based on expenditure & visits) assumes 50% of stable patients provided a mobile phone at no cost, and 30% visits on average of 2 per year (as opposed to 4 visits).

RESULTS

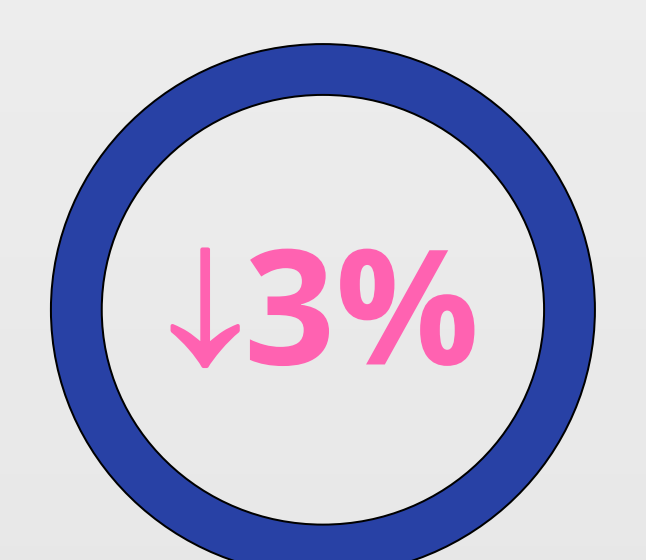
- The model was run for a period of 5 years (Jan 2022 – Dec 2026).
- **Worst case scenario result:** FAF hospital is expected to see **14% reduction** in visits; **9 fewer doctors** to operate the service, with a **3% savings** in total cost, after accounting for BSCA expenses and phone acquisition.



Reduction in the no. of visits

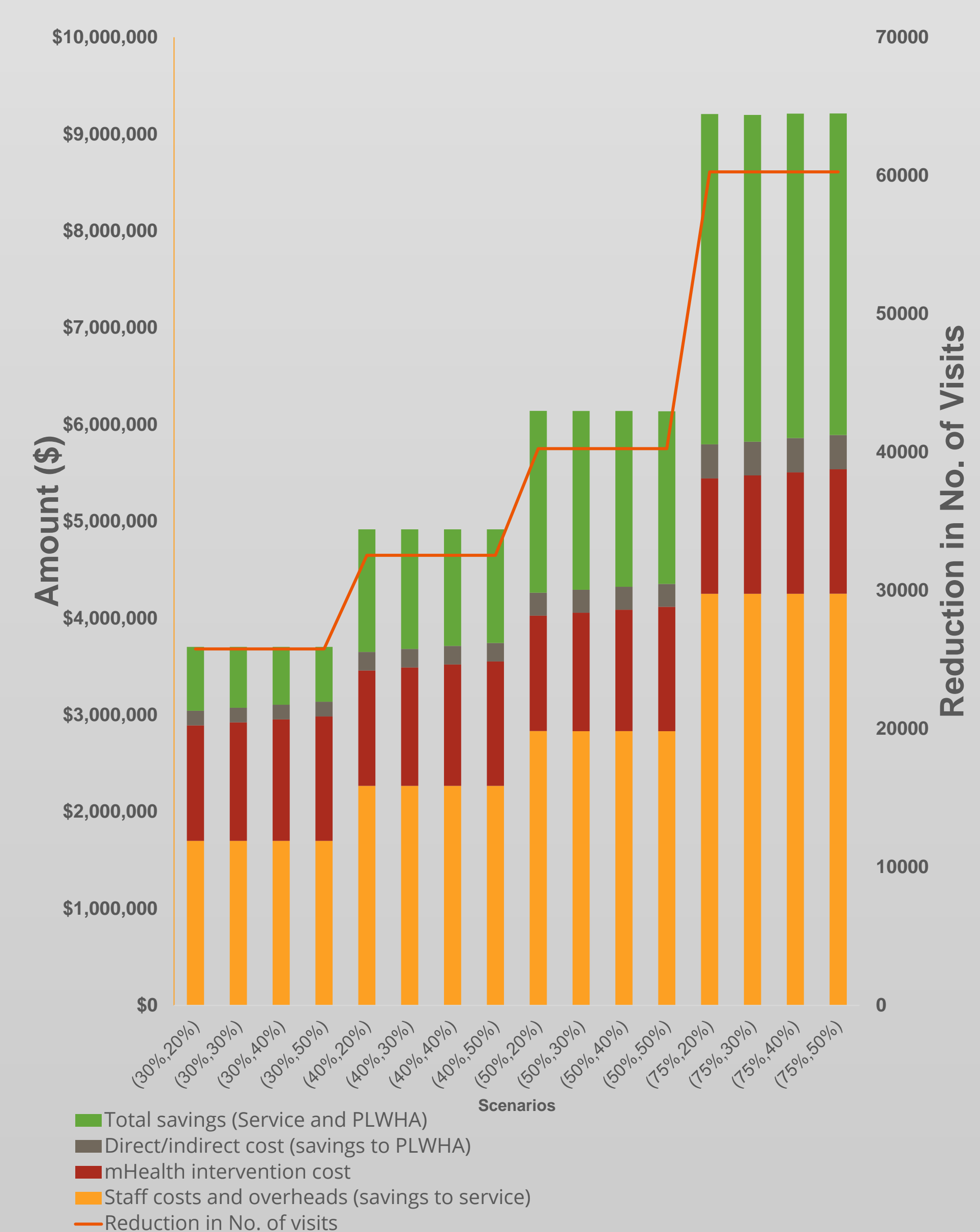


Reduction in the no. of doctors



Reduction in total costs

- The **service is currently operating at 161%** of available doctor's capacity (i.e., available doctors against the required number), thus releasing pressure for staff to provide high-quality care.



Cost and operational metrics for all scenarios. The first bracket is the % of stable patients with reduced no of visits. The second is the % of PLWH offered a smartphone.

CONCLUSION

The **impact of implementing BSCA**, with its unique features, as an intervention for a single centre is evaluated. Reduction in unnecessary visits could pave the way for a **better, safer patient care** and the most **needed attention** for non-stable patients, where additional efforts can be invested to support adherence to medication, comorbidity management and retention in care.