

Completion Report Executive Summary

Anti-Malaria Home Proofing August 2020

Investee	Med Biotech Laboratories (MBL)
Main implementation country	Uganda
Additional implementation countries	n/a
Funding amount agreed	\$230,000 grant
Funding amount disbursed	\$230,000
Co-funding	\$230,000 (Grand Challenges Canada)
Expected implementation period	3 year trial from March 2017
Actual implementation period	6 months
Expected PYI at year 10 (forecasted)	208,000
Expected PYI at year 10 (revised after completion)	0

Innovation

With over 400,000 attributable deaths in 2016, malaria is one of the leading killers worldwide, but the two leading solutions – insecticide-treated nets and indoor residual spraying – have issues around either adoption or cost-effectiveness. Med Biotech Laboratories (MBL) set out to malaria-proof traditional Ugandan huts – where a plaster of soil, dung and ash is traditionally used to decorate walls and other surfaces – by incorporating insecticide into the mix to provide a cost-effective alternative to residual indoor spraying. MBL conducted laboratory tests with promising results.

Goal of investment

Test the acceptability, safety and efficacy of MBL’s anti-malaria decoration in Uganda by:

- assessing household acceptability of the concept
- testing the safety of the product for household inhabitants and for smearers
- testing the effectiveness of the smears in killing mosquitoes
- assess, via a randomized controlled trial, the impact on malaria infections, anemia, and mosquito density in the home

Investment rationale

- Malaria disproportionately impacts GIF’s target beneficiaries and this intervention provided the potential to i) generate comparable prevention to current methods ii) be cost-effective, iii) be more behaviourally suited to Ugandan context.
- There is a wide range of potential applications in addition to home proofing for malaria, such as paint to fight other insect-borne diseases, and MBL possessed a strong team of local Ugandan researchers.

Results

- Households accepted the concept.
- This method was less effective at killing mosquitoes than the standard spraying procedure, so the trial was ended.
- A change in the study design from household-level to village-level randomization meant that the survey was not powered to detect impact on malaria, anemia, or mosquito density.
- Safety tests for smearers were not informative due to lack of baseline measurement.
- Unanticipated positive outcomes included the first known test of a new rapid diagnostic test, establishment of a new research site, and research finding high levels of asymptomatic malaria in newborns

Key learnings

- Even small-scale studies need to closely align project objectives with measurement strategy.
- Close monitoring of implementation is essential.
- An ancillary finding was that high levels of asymptomatic malaria are prevalent among infants. This is a potentially important finding for epidemiology and malaria control.

Route to Scale

Given the lack of efficacy, the question of scale-up does not arise. However, a number of international research partnerships were forged by MBL which may lead to new research opportunities and areas of collaboration for future impact.