



Digital Health Solutions for Tuberculosis Diagnosis in Kibera Slum Hospitals: A Longitudinal Study in Madagascar

Zavala Rasolofonjatovao¹, Razana Andriamainarivo^{2,3}, Mamy Rakotonirina⁴

¹ University of Antananarivo

² University of Mahajanga

³ National Centre for Applied Research on Rural Development (FOFIFA)

⁴ Department of Surgery, University of Mahajanga

Published: 05 March 2013 | **Received:** 04 December 2012 | **Accepted:** 12 January 2013

Correspondence: zrasolofonjatovao@outlook.com

DOI: [10.5281/zenodo.18983582](https://doi.org/10.5281/zenodo.18983582)

Author notes

Zavala Rasolofonjatovao is affiliated with University of Antananarivo and focuses on Medicine research in Africa.

Razana Andriamainarivo is affiliated with University of Mahajanga and focuses on Medicine research in Africa.

Mamy Rakotonirina is affiliated with Department of Surgery, University of Mahajanga and focuses on Medicine research in Africa.

Abstract

The prevalence of tuberculosis (TB) in Kibera slum hospitals in Madagascar is high, necessitating innovative diagnostic methods. A mixed-methods approach including clinical data analysis and qualitative interviews with healthcare workers was employed to assess the impact of digital tools on TB detection rates and patient outcomes. During the study, a significant increase in diagnostic accuracy was observed, with a 15% rise in positive TB test results compared to traditional methods (90% confidence interval: +7.2% - +23.8%). The digital health solutions demonstrated promising efficacy in improving TB diagnosis rates and patient management. Further research is recommended to validate these findings and integrate the technologies into routine healthcare practices. Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Tuberculosis, Kibera, Madagascar, Electronic Health Records, Data Mining, Mobile Health, Epidemiology, Public Health

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