



# Biomedical Innovations for Diagnostics in Tanzanian Resource-Limited Settings

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## Abstract

Recent advancements in biomedical engineering have led to the development of portable diagnostic devices that can be used in resource-limited settings such as those found in Tanzania. A systematic review of existing literature was conducted to assess the efficacy and scalability of biomedical engineering solutions in resource-limited settings. The findings indicate that while diagnostic devices have shown promise in preliminary trials, there is a need for further research on their reliability under various environmental conditions. Despite challenges, the potential benefits of these innovations suggest they could significantly improve healthcare access and quality in Tanzanian clinics. Recommendations include targeted funding initiatives to support device development and deployment, as well as capacity-building programmes for local health professionals. The maintenance outcome was modelled as  $Y = \beta_0 + \beta_1 X + u + \epsilon$ , with robustness checked using heteroskedasticity-consistent errors.

**Keywords:** *Sub-Saharan, diagnostics, portable, engineering, innovation, resourcefulness, accessibility*

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