



Innovative Diagnostic Devices in Eritrea's Resource-Limited Settings: A Biomedical Engineering Perspective

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Abstract

Eritrea faces significant challenges in accessing advanced diagnostic devices due to resource limitations. In vitro diagnostics were designed, tested, and evaluated using a sample of 150 patients with known conditions. The novel diagnostic devices demonstrated an accuracy rate of 92% (CI: 87-96%) in identifying common diseases such as malaria and tuberculosis. The developed diagnostics showed high performance in resource-limited settings, offering a cost-effective alternative to traditional methods. Further clinical trials are recommended to validate these devices across different patient populations. Eritrea, diagnostic devices, biomedical engineering, resource-limited settings The maintenance outcome was modelled as $Y \{ \} = \beta_0 + \beta_1 X \{ \} + u_i + \text{varepsilon} \{ \}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: African, Biomedical, Engineering, Innovations, Point-of-Care, Diagnostic, Resources

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