African Industrial Engineering

Biomedical Engineering Innovations in Diagnostic Devices for Resource-Limited Settings in Equatorial Guinea

Felicia Ndongbiyo[1], **Emilio Mbaebiwa**[2]

[1] National University of Equatorial Guinea (UNGE)

[2] Department of Civil Engineering, National University of Equatorial Guinea (UNGE)

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Correspondence: fndongbiyo@aol.com

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Author notes

Felicia Ndongbiyo is affiliated with National University of Equatorial Guinea (UNGE) and focuses on Engineering research in Africa.

Emilio Mbaebiwa is affiliated with Department of Civil Engineering, National University of Equatorial Guinea (UNGE) and focuses on Engineering research in Africa.

Abstract

This study examines biomedical engineering innovations in diagnostic devices for resource-limited settings in Equatorial Guinea. A mixed-methods approach was employed, combining quantitative data on diagnostic accuracy and qualitative feedback from end-users. Diagnostic devices demonstrated an average accuracy rate of 95% with a 3% confidence interval for error detection in resource-limited conditions. This innovative approach to diagnostic device design shows promise for improving healthcare accessibility in underserved regions. Further studies should explore cost-effectiveness and scalability before full-scale implementation. The maintenance outcome was modelled as $Y\{\} = beta0 + beta1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *African healthcare, Biomedical engineering, Diagnostic devices, Innovation studies, Resource-limited settings, Technological diffusion, User-centred design*