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Biometric Access Control in Nairobi Hospitals: A Longitudinal Study on Hospitalized Patients

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Abstract

Biometric access control systems are increasingly being implemented in healthcare settings to enhance security and patient safety. A longitudinal study design was employed with data collected over a two-year period from ten randomly selected Nairobi hospitals. Patient and staff adherence to protocols will be assessed through surveys and observational checks. Biometric systems showed an initial accuracy rate of 95% in patient identification, but this dropped to 87% after the first year due to user fatigue and system malfunctions. Staff compliance rates averaged at 70%, with variability across different hospitals. Despite initial success, ongoing issues with user engagement and technical reliability necessitate further improvements to ensure optimal performance of biometric access control systems in hospital settings. Implementing regular maintenance schedules and staff training programmes can improve system accuracy and compliance. More research is needed into the long-term usability of these systems. Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Biometric Access Control, Sub-Saharan Africa, Health Informatics, Longitudinal Study, Patient Safety, Geographic Information Systems, Data Analytics*

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