Evaluating the Impact of a Sepsis Clinical Decision Support Algorithm on In-Hospital Mortality in Lagos Emergency Departments: A 2016 Cohort Study

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Abstract

Sepsis remains a leading cause of in-hospital mortality in Nigeria, with delays in recognition and treatment contributing to adverse outcomes. The integration of clinical decision support systems into emergency care has been suggested as a method to improve protocol adherence. This study evaluated the impact of implementing an electronic clinical decision support algorithm for sepsis on in-hospital mortality rates within the emergency departments of public hospitals in Lagos, Nigeria. A retrospective cohort study was conducted using patient admission data. The cohort comprised adult patients presenting with suspected sepsis. Outcomes for patients managed after the algorithm's implementation were compared with a historical control group managed via standard clinical assessment. The primary outcome was all-cause in-hospital mortality. Data were analysed using multivariate logistic regression to adjust for confounding variables. Implementation of the sepsis algorithm was associated with a statistically significant reduction in in-hospital mortality. The adjusted odds ratio for mortality in the intervention group was 0.72 (95% CI 0.58–0.89) compared to the control group, representing an absolute risk reduction of 4.8%. The introduction of a clinical decision support algorithm for sepsis management in Lagos emergency departments was associated with a significant decrease in in-hospital mortality. This supports the potential utility of such tools in resource-constrained settings. Health policymakers and hospital administrators should consider the phased rollout of validated clinical decision support algorithms for sepsis in emergency care. Further research should investigate the long-term sustainability of this effect and the algorithm's impact on other clinical processes. Sepsis, Clinical Decision Support Systems, Emergency Service, Hospital, Mortality, Nigeria, Health Information Technology This study provides empirical evidence from a major Nigerian urban centre on the potential of a digital health intervention to improve sepsis outcomes in a resource-constrained emergency care setting.

Keywords: *Sepsis, Clinical Decision Support Systems, In-Hospital Mortality, Emergency Medicine, Sub-Saharan Africa, Cohort Study, Nigeria*

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