



Evaluating the Impact of a Mobile Clinical Decision Support System on Paediatric Antibiotic Prescribing in Maputo's Outpatient Clinics: A Policy Analysis

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Abstract

Inappropriate antibiotic prescribing in paediatric outpatient settings is a major driver of antimicrobial resistance. In Mozambique, prescribers in busy clinics often face challenges accessing current guidelines. This analysis examines the policy implications of introducing a mobile clinical decision support system (CDSS) to address this issue in Maputo's public clinics. This policy analysis aimed to evaluate the impact of a mobile CDSS application on the appropriateness of antibiotic prescriptions for children in Maputo's outpatient clinics. It sought to assess changes in prescribing patterns, identify barriers and facilitators to implementation, and analyse the policy environment for scaling the intervention. A mixed-methods policy analysis was conducted. Quantitative data on antibiotic prescription rates and appropriateness were collected from clinical records before and after CDSS implementation. Qualitative data were gathered via semi-structured interviews with prescribers, health administrators, and policy makers to understand contextual factors. Implementation of the mobile CDSS was associated with an improvement in prescribing appropriateness. The proportion of prescriptions deemed inappropriate according to national guidelines fell substantially post-intervention. Qualitative analysis highlighted the value of point-of-care guidance but also identified challenges, including device maintenance and integration into existing clinical workflows. The mobile CDSS shows potential as a tool for supporting antibiotic stewardship in resource-constrained outpatient settings. Its success, however, depends on addressing systemic barriers related to technology infrastructure and clinical practice norms. Policy makers should consider integrating validated mobile CDSS tools into national antimicrobial resistance action plans. Sustainable implementation requires

investment in device provision and maintenance, alongside training and adjustments to clinical workflows. Further research is needed on long-term cost-effectiveness. antimicrobial stewardship, clinical decision support systems, paediatrics, antibiotic prescribing, Mozambique, health policy This analysis provides evidence on the feasibility and impact of a mobile CDSS for paediatric antibiotic prescribing in a low-resource setting. It offers practical insights for health policy makers considering digital tools for antimicrobial stewardship.

Keywords: *antimicrobial stewardship, clinical decision support systems, paediatric prescribing, Sub-Saharan Africa, policy analysis, outpatient care, mobile health*

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