



A Scoping Review of Clinical Decision Support Tool Implementation for Reducing Inappropriate Genetic Testing at a Tertiary Hospital in East Africa

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Abstract

Inappropriate genetic testing presents a significant challenge in resource-limited settings, leading to unnecessary expenditure and potential patient harm. In East Africa, clinical decision support tools are an emerging strategy to improve genetic test appropriateness, but their implementation and impact are poorly documented. This scoping review aimed to map and synthesise evidence on implementing a clinical decision support tool to reduce inappropriate genetic test orders at the Aga Khan University Hospital in Nairobi. The objectives were to identify reported outcomes, implementation processes, and key barriers and facilitators. A scoping review was conducted following established frameworks. A systematic search was performed across multiple electronic databases and grey literature sources. Studies and reports describing the tool's implementation, design, or evaluation were included. Data were charted and analysed thematically. The review identified a limited but informative body of evidence. A prominent theme was the critical role of stakeholder engagement in tool design. Preliminary implementation reports indicated a reduction in inappropriate test orders. Reported barriers included challenges with clinician workflow integration and variable digital literacy amongst users. The implementation of a clinical decision support tool in this tertiary hospital context shows preliminary promise for improving genetic test appropriateness. The available evidence base remains nascent, highlighting a significant gap in formally published evaluations and long-term outcome data. Future work should prioritise robust, longitudinal evaluation of clinical decision support tools in African clinical genetics settings. Research should also focus on cost-effectiveness analyses and on developing tools tailored to local contexts, disease profiles, and resource constraints. clinical

decision support, genetic testing, appropriateness, implementation science, East Africa, hospital, genetic counselling This review consolidates the early evidence on this specific implementation initiative, clarifying its reported outcomes and contextual challenges. It identifies critical gaps in the literature to guide future research and development in African genetic counselling practice.

Keywords: *clinical decision support systems, inappropriate genetic testing, East Africa, implementation science, health technology assessment, resource-limited settings, tertiary care*

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