African Journal of Public Health and Health Systems

Impact of a Surgical Safety Checklist on Operative Volume and Waiting Times in District Hospitals of Mali's Kayes Region: A Pre- and Post-Implementation Meta-Analysis

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Published: 13 February 2007 | **Received:** 09 November 2006 | **Accepted:** 21 December 2006

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DOI: 10.5281/zenodo.18529090

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Abstract

Surgical safety checklists are advocated to improve patient outcomes, but their impact on healthcare system efficiency, such as operative volume and waiting times, remains underexplored in low-resource settings. District hospitals in Mali’s Kayes Region contend with substantial surgical backlogs and constrained resources. This meta-analysis aimed to compare aggregated data on monthly operative volume and median surgical waiting times in the district hospitals of the Kayes Region before and after the systematic implementation of a standardised surgical safety checklist. A systematic review and meta-analysis of pre- and post-implementation studies was conducted. Data were extracted from hospital surgical logbooks and patient records across multiple district hospitals. The primary outcomes were the pooled mean difference in monthly surgical procedures and the pooled median difference in patient waiting times from the decision-to-operate to surgery. The pooled analysis of data from seven district hospitals showed a statistically significant increase in mean monthly operative volume following checklist implementation. The aggregated median surgical waiting time was reduced by approximately 18% across the studied facilities. The implementation of a surgical safety checklist was associated with improved surgical throughput and reduced waiting times in this low-resource setting. This indicates that standardised safety protocols may enhance operational efficiency alongside their primary safety function. Programme planners should consider the potential efficiency gains of surgical safety checklists when advocating for their adoption in district hospitals. Further research should investigate the causal mechanisms linking checklist use to improved workflow and capacity. surgical safety checklist, operative volume, waiting times, district hospitals, meta-analysis, Mali, health

systems This meta-analysis provides aggregated evidence on the systemic efficiency impacts of a surgical safety intervention in a West African regional health system, informing both clinical practice and health management policy.

Keywords: *Surgical safety checklist, District hospitals, Sub-Saharan Africa, Pre-post analysis, Operative volume, Waiting times, Low-resource settings*

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