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A Meta-Analysis of Centralised Surgical Scheduling on Theatre Throughput and Backlog Reduction in a Zambian Teaching Hospital, 2001

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Abstract

Surgical backlogs present a persistent challenge in resource-limited healthcare systems, contributing to prolonged patient waiting times. Prior to the intervention, the University Teaching Hospital in Lusaka, Zambia, operated a decentralised scheduling system, which was linked to inefficiencies in theatre use and an accumulating list of patients awaiting procedures. This meta-analysis aimed to synthesise existing evidence to quantify the effect of implementing a centralised surgical scheduling system on theatre throughput and surgical backlog reduction at the specified teaching hospital. A systematic literature search was conducted across multiple electronic databases to identify relevant studies, reports, and internal hospital audits. Studies were included if they reported quantitative data on theatre throughput or surgical backlog before and after the centralised scheduling intervention. Data were extracted and pooled using a random-effects model to calculate overall effect sizes. The pooled analysis indicated a significant improvement in theatre utilisation following centralisation. A key finding was a mean increase in weekly theatre sessions. A consistent theme across studies was a measurable reduction in the patient waiting list, though the magnitude of backlog reduction varied. The implementation of a centralised surgical scheduling system was associated with improved operational efficiency in the hospital’s theatre suite. This suggests that managerial interventions in scheduling can be an effective strategy for enhancing surgical capacity in similar teaching hospital contexts. Hospital administrators in comparable settings should consider adopting centralised scheduling systems. Future research should focus on the long-term sustainability of these gains and the specific system features that maximise efficiency. surgical backlog, operating theatre management, scheduling systems, resource-limited settings, health systems research, Zambia This meta-analysis provides a consolidated evidence base on the impact of a specific health management intervention in a Zambian context, informing policy and operational decisions.

Keywords: *Surgical backlog, Theatre throughput, Centralised scheduling, Resource-limited settings, Sub-Saharan Africa, Operating theatre management, Healthcare systems strengthening*

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