



# A Theoretical Framework for Assessing the Impact of Surgical Mentorship on Essential Surgery Volume and Outcomes in Northern Ghana: A Five-Year Retrospective Analysis

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## Abstract

Surgical mentorship programmes are deployed in low-resource settings to address shortages in surgical capacity. District hospitals in Northern Ghana face challenges in providing essential surgical care. The theoretical understanding of how mentorship influences surgical volume and outcomes over the medium term requires a structured analytical framework. This article proposes a theoretical framework to assess the impact of a surgical mentorship programme on the volume and outcomes of essential surgeries in district hospitals in Northern Ghana. Its objective is to provide a structured model for retrospective analysis, identifying key variables and their interrelationships. The framework was developed through a synthesis of established implementation science and health systems theories. It integrates constructs from the Consolidated Framework for Implementation Research and Donabedian's structure-process-outcome model to map the mentorship programme's mechanisms of effect on surgical service delivery. Key insights: As a theoretical article, this section presents conceptual insights. The framework posits that mentorship impacts outcomes primarily through enhanced surgical confidence and technical skill, hypothesising a positive correlation with procedure volume. A key theme is the critical moderating role of institutional support and resource availability. The proposed theoretical framework offers a structured, multi-level approach for analysing the complex impact of surgical mentorship. It provides a foundation for guiding future retrospective evaluations and informing the design of more context-sensitive mentorship interventions. Future research should apply this framework in empirical studies to test its utility. Programme planners should use the framework to identify and strengthen moderating factors, such as institutional support, to maximise the sustainability of mentorship benefits. Surgical mentorship, Theoretical framework, Essential surgery, Health systems strengthening, District hospitals, Northern Ghana This article contributes a novel theoretical framework for assessing surgical mentorship programmes, integrating implementation science with health systems theory to analyse their impact on surgical volume and outcomes in low-resource settings.

**Keywords:** *Surgical mentorship, Essential surgery, Global surgery, Sub-Saharan Africa, Retrospective analysis, Health systems strengthening, Surgical outcomes*



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