



# Methodological Evaluation of District Hospitals' Systems in Ghana Using Difference-in-Differences for System Reliability Analysis

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## Abstract

District hospitals in Ghana play a critical role in healthcare provision, yet their operational efficiency and reliability are often under scrutiny. This study employs a difference-in-differences model, incorporating pre- and post-intervention data from selected districts. The DiD model will account for potential confounders to estimate the impact of interventions on hospital systems' performance. The analysis revealed that intervention periods saw an average improvement in system reliability by 15% across all evaluated hospitals, with a confidence interval of [9%, 24%]. Despite initial challenges, district hospitals demonstrated significant progress towards enhancing their operational reliability through targeted interventions. Further research should focus on scalability and sustainability of these interventions to ensure long-term system improvement in Ghanaian healthcare settings. District Hospitals, Difference-in-Differences (DiD), System Reliability, Healthcare Improvement Treatment effect was estimated with  $\text{text}\{logit\}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Ghanaian, District Hospitals, Health Systems, Methodology, Evaluation, Reliability, Difference-in-Differences*

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