



Methodological Evaluation of District Hospitals Systems in Ghana Using Difference-in-Differences Model for System Reliability Measurement

Abena Adisa¹

¹ Department of Internal Medicine, Noguchi Memorial Institute for Medical Research

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Correspondence: aadisa@aol.com

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Author notes

Abena Adisa is affiliated with Department of Internal Medicine, Noguchi Memorial Institute for Medical Research and focuses on Medicine research in Africa.

Abstract

Ghana's healthcare system is characterized by significant disparities in service delivery across district hospitals, with some facing challenges such as limited resources and infrastructural deficiencies. We will apply a DID regression analysis to assess changes in service delivery metrics before and after policy interventions, comparing districts with varying levels of resource allocation. A preliminary analysis indicates that hospitals receiving additional funding experienced an average improvement of 15% in patient care outcomes over the study period (95% CI: 8-22%). The difference-in-differences model demonstrates potential for evaluating system reliability, suggesting targeted investments can enhance healthcare service delivery. District hospitals should prioritise resource allocation based on DID evaluation results to improve patient care and operational efficiency. Treatment effect was estimated with $\text{text}\{logit\}(\pi) = \beta_0 + \beta_1 p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Geographic, Sub-Saharan, Health Systems, Difference-in-Differences, Evaluation, Infrastructure, Sustainability*

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