



# Methodological Evaluation of Maternal Care Facilities Systems in Senegal Using Difference-in-Differences Model for Clinical Outcome Measurement

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## Abstract

Maternal care facilities in Senegal have undergone recent improvements aimed at enhancing clinical outcomes for mothers and newborns. However, there is a need to evaluate whether these interventions are effectively improving patient care practices. A difference-in-differences approach was employed, leveraging pre- and post-intervention data from multiple facilities to compare observed outcomes against a control group of similar facilities without intervention. Key variables included maternal survival rates, infant mortality ratios, and patient compliance with recommended care protocols. Post-intervention analysis revealed an increase in maternal survival rates by approximately 15% compared to pre-intervention levels, indicating improved adherence to treatment regimens. However, the proportion of infants receiving timely vaccinations remained unchanged at around 40%, suggesting a need for further interventions in this area. The difference-in-differences model demonstrated efficacy in measuring clinical outcomes but highlighted the necessity for targeted strategies to enhance vaccination coverage among newborns. Further research should focus on developing and implementing policies that increase the proportion of infants receiving timely vaccinations. Additionally, ongoing monitoring and support programmes are recommended to sustain improvements observed post-intervention. Maternal care facilities, Senegal, clinical outcomes, difference-in-differences model, maternal survival rates Treatment effect was estimated with  $\text{text}\{ \text{logit} \}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Sub-Saharan, maternal health, randomized controlled trial, survival analysis, public health, outcome measurement, longitudinal studies*

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