



# Evaluating the adoption of health systems frameworks in South African district hospitals

*a quasi-experimental analysis, 2000–2026*

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## ABSTRACT

The implementation of structured health systems frameworks in district hospitals is a critical component of health policy reform. However, robust empirical evidence on the rate and determinants of their adoption in resource-constrained settings remains limited. This study aimed to quantify the adoption rate of the WHO Health Systems Framework in district hospitals and to identify the institutional and resource factors that predict successful implementation. A quasi-experimental, difference-in-differences design was employed, using longitudinal administrative data from a nationally representative panel of hospitals. Adoption was measured via a composite index. The primary analysis estimated the model  $Y_{it} = \beta_0 + \beta_1 (Treat_{it} \times Post_{it}) + \gamma X_{it} + \alpha_i + \delta_t + \varepsilon_{it}$ , where  $Y_{it}$  is the adoption score. Inference was based on cluster-robust standard errors at the hospital level. Hospitals exposed to the formal implementation programme showed a statistically significant increase in adoption scores of 18.3 percentage points (95% CI: 12.1, 24.5) compared to control facilities. The availability of dedicated quality improvement staff was the strongest independent predictor of successful adoption. Targeted implementation support significantly accelerates the adoption of systems frameworks in district hospitals. The effect is substantial but contingent on specific institutional enablers. National policy should prioritise funding for dedicated implementation staff within district hospitals. Future frameworks must be co-designed with frontline managers to enhance

contextual fit and sustainability. health systems strengthening, implementation science, difference-in-differences, district health services, health policy evaluation This study provides the first longitudinal, quasi-experimental evidence on the drivers of health systems framework adoption in sub-Saharan Africa, introducing a novel composite index for measuring institutional integration.

**Keywords:** *health systems strengthening, district health services, quasi-experimental study, South Africa, implementation science, health policy evaluation, adoption rate*

**Article Highlights**

- A formal implementation programme increased adoption scores by 18.3 percentage points.
- Dedicated quality improvement staff emerged as the strongest predictor of successful adoption.
- The study introduces a novel composite index for measuring institutional integration.
- Effects are substantial but contingent on specific institutional enablers.

**Policy Implication**

National health policy should prioritise funding for dedicated implementation staff within district hospitals to enable framework adoption.

*This analysis provides the first longitudinal, quasi-experimental evidence on this topic in sub-Saharan Africa.*

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