Indoor Residual Spraying's Role in Mitigating Malaria Epidemics Through Rural Mozambique's Vector Control Strategies

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Abstract

This study addresses a current research gap in Physics concerning Prevention of Childhood Malaria Through Indoor Residual Spraying Programs in Rural Mozambique: Impact on Mosquito-Borne Illness Rates in Mozambique. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A structured analytical approach was used, integrating formal modelling with domain evidence. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Prevention of Childhood Malaria Through Indoor Residual Spraying Programs in Rural Mozambique: Impact on Mosquito-Borne Illness Rates, Mozambique, Africa, Physics, theoretical This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sub-Saharan, GIS, entomology, vector-borne, control methodologies, spatial analysis, epidemiology*

ABSTRACT-ONLY PUBLICATION

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