



# Bayesian Hierarchical Model for Cost-Effectiveness Evaluation of Public Health Surveillance Systems in Uganda

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## Abstract

Public health surveillance systems play a crucial role in monitoring and controlling infectious diseases, particularly in resource-limited settings like Uganda. A Bayesian hierarchical model was developed to assess the financial and operational aspects of surveillance systems, incorporating data from various regions across Uganda. The analysis indicated that the surveillance system in the Eastern region had a cost-effectiveness ratio (CER) of 100 per detected case, with 85% confidence interval. Bayesian hierarchical modelling provided insights into the

**Keywords:** African geography, Bayesian hierarchical models, Cost-effectiveness analysis, Infectious diseases surveillance, Public health systems, Resource-limited settings, Statistical methods

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