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Cost-Effectiveness Evaluation of Public Health Surveillance Systems in Uganda: A Randomized Field Trial

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Abstract

Public health surveillance systems are critical for monitoring infectious diseases in developing countries like Uganda. A randomized field trial was conducted in Uganda, with a sample size of 100 healthcare facilities randomly assigned into two groups: intervention (enhanced surveillance) and control (standard surveillance). The analysis revealed that the enhanced surveillance reduced the detection time for infectious diseases by an average of 25% compared to standard surveillance. The randomized field trial demonstrated cost-effectiveness in public health surveillance systems, with a reduction in operational costs while maintaining or improving disease detection accuracy. Investment in technology and training is recommended to support the enhanced surveillance system for future implementation. Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, African, Surveillance, Systems, Epidemiology, Randomization, ResourceAllocation, HealthEconomics*

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