

**TIME SERIES FORECASTING MODELS FOR NEW
SEROLOGICALLY CONFIRMED HIV CASES IN THE PHILIPPINES**

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ABSTRACT

Prediction of new HIV incidence is imperative for assessing future healthcare and public health programs, budget, and commodities procurement. Exponential smoothing, ARIMA, SARIMA, and Poisson autoregression are compared in predicting the monthly new HIV cases in the Philippines. SARIMA yield higher predictive accuracy among the four methods. Diebold-Mariano test indicates that exponential smoothing methods and ARIMA model with the autoregressive and moving average components are comparable. MAPE for out-sample data points ranges from 7 to 11%.

Keywords: HIV, forecasting, exponential smoothing, ARIMA, SARIMA, Poisson autoregression