

## **A Comparative Study of The Sir Model and Arima Model for Forecasting Covid-19 Death Cases – Pre and Post Pick Program**

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### **ABSTRACT**

In the year 2020, a significant risk to public health was discovered. The new severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) epidemic began in December 2019 in Wuhan City, Hubei Province, China, and spread to the rest of the world. According to the World Health Organization, this disease is known as COVID-19. The goal is to understand the trend of COVID-19 death cases rising or falling in Malaysia utilizing the SIR and ARIMA models and choose the best model for forecasting COVID-19 death cases. This study uses the susceptible-Infected-Recovered (SIR) model and ARIMA model to predict the number of death cases in Malaysia. The prediction data has been divided into three classes: prediction before the vaccination program has started, prediction after the first and second dose, and prediction after the booster dose. The RMSE value will be compared to get the best model. ARIMA is the best model since it has the lowest RMSE = 3.1099 on ARIMA (4,1,3). The models are compared, and further recommendation is proposed.

**Keywords:** SIR Model, ARIMA Model, COVID-19, Vaccine, Malaysia