

# Assessing the Impact of COVID-19 on Epidemiological Changes of Severe Paediatric Respiratory Syncytial Virus (RSV) Infections in Malaysia

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## Abstract

**Introduction** Tropical seasonality of respiratory syncytial virus (RSV) is one of the leading causes of hospitalization and mortality among children with respiratory tract infections. The non-pharmaceutical preventive measures implemented worldwide against Covid-19 may have also reduced the transmission of RSV, hence altering its epidemiological seasonality. However, with easing of Covid-19 restrictions, studies reported a drastic rebound of cases due to poor protective immunity from long-term reduced exposure to RSV. Thus, this is the first study to evaluate the changes of RSV epidemiology before, during and after Covid-19 pandemic in Malaysia. **Methods** We analyzed collated data from 2017 to 2022, involving 4084 children aged <12 years who were admitted for severe respiratory infections requiring non-invasive ventilation (NIV). **Results** Generally, we reported significant inverse relationship between RSV and Covid-19 infections during the pandemic (2020-2021) ( $p < 0.05$ ). In 2020, RSV positivity rate declined sharply to 8.3% and 5.9%, respectively in the 2 prominent seasons. Time series analysis showed a tremendous decrease in cases compared to the expected values, with the first season (98.3%, CI 95%) and second season (95.7%, CI 95%). However, with the lifting of the restriction order in 2022, RSV infections rose sharply with a positivity rate of 36.3% which was higher than before Covid-19 pandemic. **Conclusion** This study provides evidence of increasing RSV cases after Covid-19 pandemic due to immunity debt. Hence, the healthcare system must be prepared to deal with future RSV outbreaks with appropriate implementation of prophylaxis and public health measures.

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