

Respiratory virus surveillance in hospitalized children less than two-years of age in Kenema, Sierra Leone during the COVID-19 pandemic (October 2020- October 2021)

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Abstract

Background Globally, viral pathogens are the leading cause of acute respiratory infection in children under-five years. We aim to describe the epidemiology of viral respiratory pathogens in hospitalized children under-two years of age in Eastern Province of Sierra Leone, during the second year of the SARS-CoV-2 pandemic. Methods We conducted a prospective study of children hospitalized with respiratory symptoms between October 2020 and October 2021. We collected demographic and clinical characteristics and calculated each participant's respiratory symptom severity. Nose and throat swabs were collected at enrollment. Total nucleic acid was purified and tested for multiple respiratory viruses. Statistical analysis was performed using R version 4.2.0 software. Results 502 children less than two-years of age were enrolled. 376 (75%) had at least one respiratory virus detected. The most common viruses isolated were HRV/EV (28.2%), RSV (19.5%) and PIV (13.1%). Influenza and SARS-CoV-2 were identified in only 9.2% and 3.9% of children, respectively. Viral co-detection was common. Human metapneumovirus and RSV had more than two-fold higher odds of requiring O2 therapy while hospitalized. Conclusion Viral pathogen prevalence was high (75%) in our study population. Despite this, 100% of children received antibiotics, underscoring a need to expand laboratory diagnostic capacity and to revisit clinical guidelines implementation in these children. Continuous surveillance and serologic studies among more diverse age groups, with greater geographic breadth, are needed in Sierra Leone to better characterize the long-term impact of COVID-19 on respiratory virus prevalence and to better characterize the seasonality of respiratory viruses in Sierra Leone.

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