Unveiling Viral Co-infections in Paediatric Pertussis: A Retrospective Study from Sabah, Malaysia

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1. Introduction

Bordetella pertussis (the bacterium that causes whooping cough) remains a significant and under-diagnosed public health threat, especially in pediatric populations in Southeast Asia. This study, conducted at the Sabah Women and Children Hospital, aimed to address this gap by identifying the prevalence and patterns of ***B. pertussis*** co-infections and their clinical impact on children. Our findings are crucial for improving diagnostic and treatment strategies.

2. Methods

Methods
Retrospective analysis
1,469 respiratory samples from pediatric patients in Collected from May 2020 to June 2025.
Diagnostic Testing-
Qiagen QIAstat-Dx Respiratory Panel (QIAstat-Dx RP), a rapid syndromic test that simultaneously detects ***B. pertussis*** and 22 other respiratory pathogens.

3. Result & Discussion

Finding	Data
Prevalence of B. pertussis	3.9% (48/1,469) of cases
Viral Co-infection Rate	81.3% (39/48) of **B. pertussis** cases
Most Common Co-infecting Viruses	Enterovirus/Rhinovirus (23/39)
	RSV (23/39)
	Adenovirus (6/39)
Predominant Patient Age	Infants < 1 year old (70.8%, 34/48)
Clinical Severity: Oxygen Support	100% (48/48) required oxygen support
Clinical Severity: ICU Admission	58.3% (28/48) admitted to the ICU
Absence of Bacterial Co-infections	No co-infections with **L. pneumophilia** or **M. pneumoniae** were observed

•High Co-infection Prevalence:
Our study reveals that viral co-infections are highly prevalent among pediatric ***B. pertussis*** cases in Sabah. This dual burden of infection can complicate diagnosis and treatment.
•Severe Disease Association:
•Co-infections, particularly in infants are strongly associated with severe outcomes, including the need for **oxygen support (100%)** and **ICU admission (58.3%)**.
•Importance of Syndromic Testing:
•The use of rapid, syndromic tests like the **QIAstat-Dx RP** is critical. This approach allows for **early, accurate diagnosis** of both ***B. pertussis*** and co-infecting pathogens, enabling targeted treatment and improved patient management.
•Impact: Our findings underscore the urgent need for robust surveillance and diagnostic protocols to mitigate the severe impact of ***B. pertussis*** and its co-infections on high-risk pediatric populations in the region.

4.Conclusion

These findings highlight the important of having robust and rapid syndromic testing to allow early diagnostic, intervention and targeted treatments in order to mitigate the dual burden of *B. pertussis* and respiratory viral infections in high-risk populations.

5. Acknowledgement

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6. References

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