

THE IMPACT OF PNEUMOCOCCAL CONJUGATE VACCINE INTRODUCTION IN NEPAL: A SIX-YEAR PAEDIATRIC SURVEILLANCE STUDY

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Background

S. pneumoniae is a major cause of bacterial pneumonia and an important cause of invasive bacterial disease (IBD) in children under-five years of age in Nepal. Pneumococcal conjugate vaccine, PCV10, was introduced in 2015 with a 2+1 schedule.

Methods

We assessed the programmatic impact of PCV10 introduction using surveillance for nasopharyngeal (NP) colonisation, pneumonia and IBD. NP swabs from pneumonia inpatients and from healthy children, blood cultures from inpatients with suspected IBD, and chest x-rays from inpatient pneumonia cases were obtained over a 6-year period (2014-2019).

Results

The proportion of pneumonia cases with radiographic endpoint-consolidation (likely bacterial) was 34% lower (95%CI 19-46%) in 2018 compared with the pre-vaccine period (2014-2015). Vaccine serotype (VT) carriage in children under 2-years of age with pneumonia in 2019 was 78% lower (95%CI 30-93%) than in the pre-vaccine period.

Among healthy 6-23 month old children (urban and rural cohorts), VT-carriage declined 74% (95%CI 43-82%) by 2019. An increase in PCV13-additional-serotype carriage was seen in 2018 among rural-children (prevalence-ratio 1.65, 95%CI 1.17-2.32), but not urban-children.

Serotype 1 remains the dominant serotype detected in cases of invasive pneumococcal disease.

Conclusion

A decrease in prevalence of endpoint-consolidation-pneumonia and a decrease in vaccine-serotype circulation have been observed post PCV introduction in Nepal.