

## Pneumococcal carriage and serotype distribution in children from urban and rural Nepal prior to pneumococcal conjugate vaccine implementation

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## INTRODUCTION

- Assessment of Pneumococcal nasopharyngeal carriage prevalence is an important method for monitoring pneumococcal conjugate vaccine (PCV) programs.
- We aimed to measure the prevalence and serotype distribution of pneumococcal carriage in young children from urban and rural Nepal, prior to nationwide introduction of the 10-valent pneumococcal conjugate vaccine (PCV10).

## METHODS

- Between April 2014 and April 2015, we recruited children in good health as determined by medical history and clinical judgement of the investigator, from both urban Kathmandu among children age 6-24 months and 25-60 months and from a rural community around Okhaldhunga in 6-24 months old.
- A single nasopharyngeal swab was collected from each child, processed according to WHO guidelines and serotyped by Quellung reaction.
- PCV10 vaccine was introduced in a phase-wise manner starting in the Western development region on 18<sup>th</sup> January 2015 and reaching the whole country by September 2015.

## RESULTS

- Pneumococcal carriage prevalence was 1141/1751 (65%, 95% CI 62.8-67.2%) among children aged 6-24 months in the Urban Group and 500/600 (83.3%, 95% CI 77.4-89.2%) in the Rural Group ( $p < 0.0001$ ).
- The proportion of serotyped pneumococcal isolates that were PCV10 serotypes was significantly higher in the rural group compared with the urban group ( $p = 0.0005$ )
  - Urban Group (6-24 months): 31.2% (338/1082; 95% CI 28.5-34.1%)
  - Rural Group (6-24 months): 40.7% (178/437; 95% CI 36.1-45.5%)

## Pre-PCV10 serotype-specific pneumococcal carriage distribution in urban and rural Nepalese children, 6-24 months of age

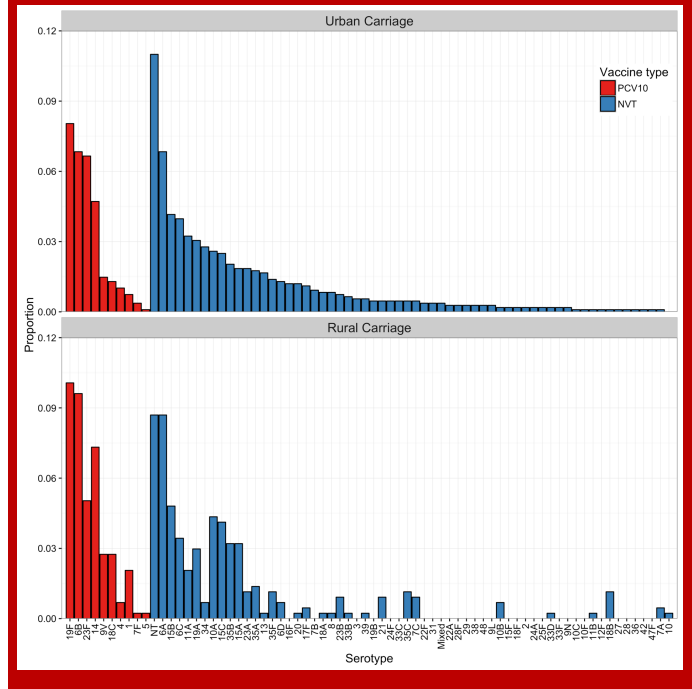


Figure 1. Serotype-specific pneumococcal carriage distribution in urban and rural Nepalese children prior to PCV10 introduction.

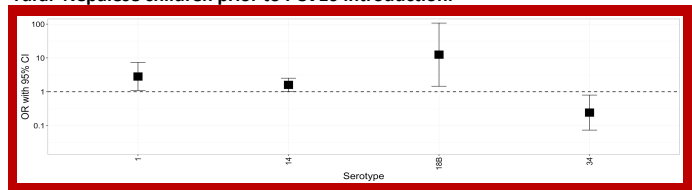


Figure 2. Odds ratios with 95% CIs of serotypes that were significantly more likely (serotypes 1, 14, and 18B) or less likely (serotype 34) to be detected in the rural cohort.

## CONCLUSION

- Rural Nepalese children have higher pneumococcal carriage prevalence and greater proportion of PCV10 serotypes in nasopharyngeal specimens than their urban counterparts.
- There is a substantial carriage and vaccine type carriage so there is ample opportunity to monitor the impact of the PCV program on the community circulation of pneumococcal strains.

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