

Impact of 10-valent Pneumococcal Conjugate Vaccination On Pneumococcal Carriage in Pneumonia Cases

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INTRODUCTION

- Pneumococcal pneumonia is an important cause of childhood morbidity and mortality in South Asia.
- We assessed the impact of 10-valent pneumococcal conjugate vaccine (PCV10) on serotype-specific nasopharyngeal (NP) carriage in children admitted to hospital with pneumonia.
- PCV10 was introduced in Kathmandu in August 2015 at 6 weeks, 10 weeks, and 9 months of age.

RESULTS

- Between March 2014 and December 2016, 960 children with suspected pneumonia were enrolled at Patan Hospital. Of these, 905 had a final diagnosis of pneumonia: 600 (66%) were 2 months to <2 years, 216 (24%) were 2 to <5 years and 89 (10%) were 5 to <14 years.
- 326 (36%) children were enrolled before the introduction of PCV10 and 579 (64%) were enrolled after PCV10 introduction.
- Overall pneumococcal NP carriage prevalence in children with hospitalized pneumonia was 42% (136/326) in the pre-PCV10 period and 32% (184/579) in the post-PCV10 period ($p=0.003$).
- In the pre-PCV10 period VT NP carriage was 19% (61/326) compared with 13% (76/579) in the post-PCV10 period ($p=0.024$).
- In children 2 months to <2 years:
 - NP pneumococcal carriage of any serotype decreased from 39% (83/213) to 31% (119/387) following the introduction of PCV10 ($p=0.042$)
 - VT NP carriage also decreased from 17% (36/213) to 12% (45/387) following the introduction of PCV10 ($p=0.072$).

CONCLUSION

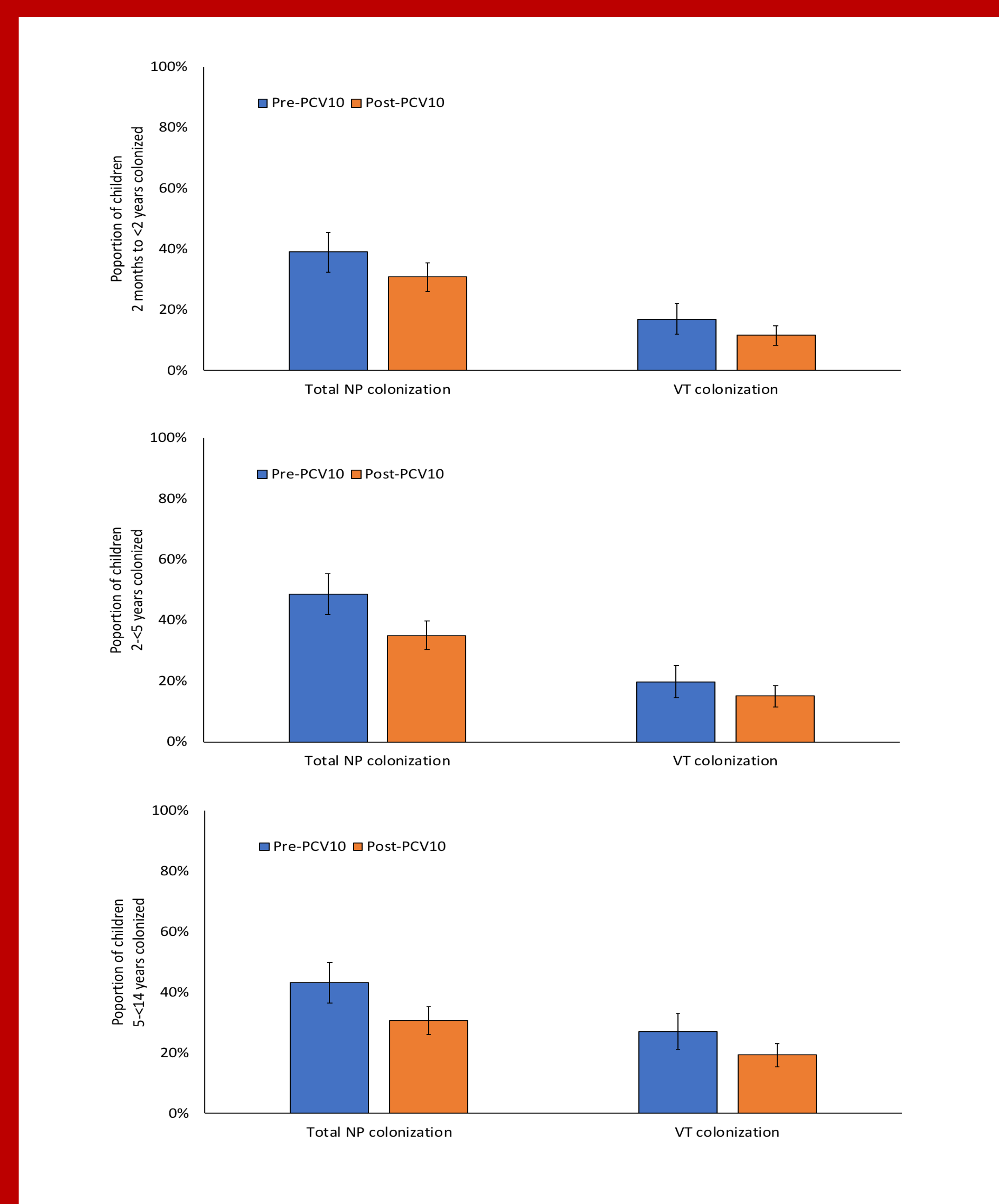
- A reduction in overall NP and VT pneumococcal NP carriage was observed in children 2 month to <2 years (those targeted for immunization in this period) admitted to Patan Hospital with pneumonia after the introduction of PCV10.
- However, similar reductions were also observed in older children. Year-to-year variability in NP colonization might account for observed changes.
- Continued monitoring of changes in serotype-specific carriage prevalence will be an important for measuring PCV impact in Nepal.

METHODS

- We enrolled children aged 2 months to <14 years at Patan Hospital with suspected pneumonia on admission from March 2014 to December 2016.
- A NP swab was taken to assess pneumococcal carriage.
- Pneumococci were isolated and then serotyped using the Quellung reaction onsite at Patan Hospital. Quality control was conducted at University of Oxford.
- March 2014 to August 2015 was considered the pre-PCV10 period and September 2015 to December 2016 the post-PCV10 period.
- We compared the vaccine-type specific prevalence of NP pneumococcal carriage before and after the introduction of PCV10.

FIGURE

Change in prevalence of total and vaccine-type pneumococcal NP colonization by age group following introduction of PCV10 in Nepal



This work is made possible with support from Gavi, the Vaccine Alliance