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Nasopharyngeal carriage and serotype distribution in children under two years of age in a rural community in Pakistan after introduction of 10 valent pneumococcal vaccine

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Objective: *Streptococcus pneumoniae* is carried to children through nasopharynx. PCV10 was introduced in Pakistan's Expanded Program of Immunization in April 2013 using a 3+0 schedule at 6, 10 and 14 weeks of age. It is expected that carriage rate will decline for Vaccine Type (VT) serotypes. We describe here, carriage rates in immunized and unimmunized children <2 years from a rural community in Sindh, Pakistan with a previously reported carriage rate of 23% prior to the introduction of vaccine.

Methodology: Children <2 years of age residing in the community were enrolled during Oct 2014 and Jan 2016. Nasopharyngeal specimens (NP) were collected and processed and pneumococcal serotypes were obtained using real-time sequential multiplex PCR assay. A child was defined as immunized if she/he had received all three doses of PCV10.

Results: Of 991 children enrolled, 443 children (45%) were fully immunized. In all children, overall VT serotypes were responsible for 20% of the carriage. Three PCV 13 specific serotypes 6A, 19A and 3 were responsible for 14% of the carriage. Most common VT serotypes were 6B and 23F. VT carriage rate in immunized was significantly lower than non-immunized (15.6% vs. 22.3%. p-value<0.01). The most notable difference was seen with serotypes 6B, 9V and 19F. There was also some decrease, although not statistically significant noted in potential cross reactive serotype 6A (7.7% vs. 6.1%).

Conclusion: Although beneficial effects of PCV10 on decreasing carriage are seen, vaccine coverage needs to be improved to transfer the benefits to larger population

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