

Nasopharyngeal Carriage of Streptococcus pneumoniae in Children under 5 Years of Age before Introduction of Pneumococcal Vaccine (PCV 10) in Urban and Rural Sindh

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Abstract : Pneumococcal Vaccine -10 (PCV 10) was included in the Expanded Program of immunization (EPI) in Sindh, Pakistan in February 2013. This study was carried out immediately before the introduction of PCV 10 to establish baseline pneumococcal carriage and prevalent serotypes in naso-pharynx of children 3-11 months of age in an urban and rural community in Sindh, Pakistan. An additional sample of children aged 12 to 59 months was drawn from the urban community. Nasopharyngeal specimens were collected from a random sample of children. Samples were processed in a central laboratory in Karachi. Pneumococci were cultured on 5% Sheep Blood Agar and serotyping was performed using CDC standardized sequential multiplex PCR assay on bacterial colonies. Serotypes were then categorized into vaccine (PCV-10 and PCV-13) type and non-vaccine types. A total of 670 children were enrolled. Carriage rate for pneumococcus based on culture positivity was 74% and 79.5 % in the infant group in Karachi and Matiari respectively. Carriage rate was 78.2% for children aged 12 to 59 months in Karachi. Proportion of PCV 10 serotypes in infants was 38.8% and 33.5% in Karachi and Matiari respectively. In the older age group in Karachi, the proportion was 30.6%. Most common serotypes were 6A, 6B, 23F, 19A and 18C. This survey establishes vaccine and non-vaccine serotype carriage rate in a vaccine-naïve pediatric population among rural and urban communities in Sindh province. Annually planned surveys in the same communities will inform change in carriage rate after the introduction and uptake of PCV 10 in these communities.

Keywords : Naso-Pharyngeal carriage, Pakistan, PCV10, Pneumococcus

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