Impact of pneumococcal vaccine on hospital admission with lower respiratory infection in children resident in South Auckland, New Zealand

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Summary: These researchers analysed admission rates to any New Zealand hospital from August 2001 through July 2011 for all lower respiratory infection (LRI) including pneumonia for children aged <2 years resident in Counties Manukau District Health Board (CMDHB), to determine the impact of the pneumococcal conjugate vaccine 7 valent (PCV7), introduced in June 2008. There was a gradual decline over time in rates of pneumonia admissions (incidence risk ratio [IRR] for a change of 1 year 0.96; p=0.0001) and of an additional step down in rates of pneumonia admissions after vaccine introduction (IRR pre- to post-PCV 1.51; p=0.0001). There was evidence of a significant decline in pneumonia admissions post-PCV introduction for Pacific children (IRR 1.70; p<0.0001) and other ethnicities (IRR 1.93; p=0.003), but not for Māori children (IRR 1.05; p=0.76). No such evidence of a general change over time or change from pre- to post-vaccine introduction could be demonstrated for bronchiolitis. Māori and Pacific children are at increased risk of admission with LRI compared to European children (relative risk [RR] 4.6 and 5.0, respectively) as are those living in Decile 9 or 10 regions compared with those from other deciles (RR 1.43).

Comment: There are a number of things to highlight in this paper – the importance of monitoring outcomes by ethnicity after introducing an intervention (this study showing that Māori did not receive as great a benefit as non-Māori children from the vaccine); that ethnic disparities in respiratory infection admissions are 4–5 times higher for Māori and Pacifica children in South Auckland; and that ongoing effort to address the wider health determinants, such as poverty, is required.