**Question:** Should PPV23 vaccination of pregnant women be used for prevention of pneumococcal disease in infants too young to be immunized with PCV7?

**Conclusion:** Very low quality evidence in support of administering PPV23 during pregnancy for prevention of pneumococcal disease in infants too young to be immunized with PCV7

<table>
<thead>
<tr>
<th>Quality assessment</th>
<th>Reduction of pneumococcal disease in infants</th>
<th>Risk of serious deleterious outcome for the foetus</th>
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<tbody>
<tr>
<td>No of studies</td>
<td>Design</td>
<td>Limitations</td>
</tr>
<tr>
<td>4</td>
<td>randomised trial¹</td>
<td>no serious limitations</td>
</tr>
<tr>
<td>3</td>
<td>randomised trial²</td>
<td>no serious limitations</td>
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</tbody>
</table>

¹ Cochrane review published in 2006. Review included randomized controlled trials in pregnant women comparing pneumococcal vaccine with placebo, another vaccine to prevent neonatal infections, or doing nothing. Three trials with a total of 280 participants were included (Munoz 2001; O'Dempsey 1996; Shahid 1995). Total of 131 vaccinated and 149 unvaccinated women. Insufficient evidence that pneumococcal vaccination during pregnancy reduces the risk of neonatal infection (O'Dempsey et al RR 0.51 (95% CI 0.18-1.41). Additional RCT by Quiambao et al. among pregnant women to evaluate the prevaccination distribution and transplacental transfer of anti-pneumococcal antibodies.

² One study found insufficient evidence to show that maternal pneumococcal vaccination reduces the babies’ nasal carriage of pneumococci during the first months of life, but found a statistically significant decrease in colonization by 16 months of age (RR 3.3, 95% CI 1.1-9.8). There were inconsistent results with respect to maternal antibody levels. Munoz et al. showed higher maternal antibody concentrations in cord blood of vaccinees regardless of bacterial serotype, while O'Dempsey et al. showed higher antibody levels only for serotype 14. Additional RCT of pregnant women by Quiambao et al. evaluated the prevaccination distribution of anti-pneumococcal antibodies and transplacental transfer. Cord blood levels assumed to be protective against invasive disease were found in 66% of vaccinated group and 10% of control group. A study by Lehman et al. found that immunization of mothers whose babies were 1-17 months of age reduced pneumonia in the babies during the next 1-5 months (p=.003) presumably through increased concentrations of antibodies in breast milk.

³ Most studies looked at colonization or at immune response, not at disease outcomes.

⁴ See footnote 2

⁵ No adverse consequences of vaccination have been reported among newborns whose mothers were inadvertently vaccinated during pregnancy. RCT conducted by Lehman et al in Papua New Guinea found no significant differences in number of miscarriages, congenital abnormalities, still births or neonatal or post-neonatal mortality between offspring of women in the vaccine and the placebo groups during the 3 years of follow up.

⁶ Only 187 pregnant women received the vaccine in the most appropriately designed study.

**Bibliography:**


