# Quick answers to frequent pneumococcal vaccine questions

The Immunisation Advisory Centre

### Which vaccines protect against pneumococcal disease?

Prevenar 13® and Pneumovax®23 protect against disease caused by *Streptococcus pneumoniae* bacteria, pneumococcal disease, but they are made differently. The key differences between the vaccines are shown in table 1.

**Table 1. Key differences between pneumococcal conjugate and polysaccharide vaccines**

| Conjugate vaccines | Polysaccharide vaccine |
|---|---|
| Prevenar 13 (PCV13) | Pneumovax23 (23PPV) |
| » 13-valent protects against 13 pneumococcal serotypes | » 23-valent, protects against 23 pneumococcal serotypes |
| » Polysaccharide (sugar) molecules from the outside of pneumococcal bacteria have been attached (conjugated) to a protein to make them better at stimulating the immune system. | » Polysaccharide (sugar) molecules from the outside of pneumococcal bacteria only. |
| » Conjugate vaccines can be used for all ages, including infants and children under 2 years of age.<br>▪ All age groups can respond to this type of vaccine. | » Polysaccharide vaccines can only be used for children aged 2 years or older and adults.<br>▪ Children aged under 2 years have an immature immune system that does not generate a strong protective response to polysaccharide only vaccines.<br>▪ Older children and adults can respond to Pneumovax23, but not as well as they do to the conjugate vaccine. |
| » Protection from the conjugate vaccines lasts longer than that from the polysaccharide vaccine.<br>▪ Children aged five years or younger when immunised are likely to have 3–5 years of protection.<br>▪ Older children, adolescents and adults are likely to have at least five years of protection after immunisation. | » Protection from polysaccharide vaccines is shorter than from conjugate vaccines.<br>▪ Children aged five years or younger when immunised are likely to have 2–3 years of protection.<br>▪ Older children, adolescents and adults are likely to have between 3–5 years of protection after immunisation. |
| » Conjugate vaccines generate long term memory cells allowing rapid boosting of immunity with booster doses up to many years later. | » Polysaccharide vaccines do not generate long term memory cells, there is nothing to boost when the same vaccine is received again years later.<br>» Repeat polysaccharide vaccine doses generate fewer circulating antibodies than previous doses. |
| » Conjugate vaccines are more expensive than polysaccharide vaccines. | »Polysaccharide vaccines are less expensive than conjugate vaccines. |

### Why are both PCV13 and 23PPV recommended for those with a high-risk of pneumococcal disease?

PCV13 is recommended because the immune response to PCV13 is better and expected to last longer against the 12 serotypes covered by both PCV13 and 23PPV vaccines.

23PPV is recommended to broaden protection against 11 pneumococcal serotypes that are not covered by PCV13.

### Why should PCV13 be given before 23PPV?

Immunisation with a pneumococcal polysaccharide vaccine (23PPV) can decrease an individual's immune response to subsequent pneumococcal immunisations. Giving PCV13 at least 8 weeks before 23PPV allows the individual to maximise their response to the pneumococcal conjugate vaccine (PCV13) before broadening their protection.

### What if an individual has already had 23PPV but no PCV13?

Individuals who have previously received 23PPV can safely receive PCV13.

When 23PPV has been administered to a child aged 2 years to under 18 years, administer PCV13 at least 8 weeks after the 23PPV. In adults, administer PCV13 at least 12 months after the 23PPV.

### Non-funded pneumococcal vaccine recommendations

Doctors may recommend PCV13 and/or 23PPV for people with a medical condition that is not listed on the Pharmaceutical Schedule, but the vaccines will not be free. Prevenar 13 and Pneumovax23 can be purchased from Healthcare Logistics for individuals who are not eligible to receive funded vaccine.

### Who is eligible for funded pneumococcal vaccines?

#### Routine Immunisation Schedule

A two-dose primary course plus booster dose of PCV13 is funded for all children at the 6 weeks, 5 months and 12 months of age immunisation visits, and for age-appropriate catch-up immunisation for all children aged under 5 years.

#### Special groups

PCV13 and 23PPV are funded for children and adults with a medical condition that increases their risk of invasive pneumococcal disease AND is listed on the Pharmaceutical Schedule.

**Prevenar 13**

» A three-dose primary course plus a booster dose is funded for eligible children at the 6 weeks, 3 months, 5 months and 12 months of age, and for age-appropriate catch-up immunisation for eligible children aged under 5 years.

» (Re-)immunisation of eligible children aged 5 years or older and adults.

» The number of doses are determined by age at first presentation for (re-)immunisation.

**Pneumovax23**

» The number of doses are determined by age at first presentation for immunisation.

» Up to two doses if aged 2 years to under 18 years, or

» Up to three doses if aged 18 years or older.

The conditions listed in table 2 on the next page indicate when health professionals should refer to the *Immunisation Handbook* or *Pharmaceutical Schedule* for specific PCV13 and 23PPV eligibility criteria and vaccine administration details.

Continued ...

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## Who is eligible for funded pneumococcal vaccines? continued

**Table 2. High risk conditions eligible for additional pneumococcal protection**
Refer to the *Immunisation Handbook* or *Pharmaceutical Schedule* for specific PCV13 and 23PPV eligibility criteria and vaccine administration details

| Children aged under 18 years | Children aged 5 years to under 18 years |
|---|---|
| » Cardiac disease with cyanosis or failure<br>» Cerebrospinal fluid leak<br>» Chronic pulmonary disease, including asthma treated with high-dose corticosteroid therapy<br>» Cochlear implant<br>» Corticosteroid therapy for more than two weeks and who are on an equivalent daily dosage of prednisone of 2 mg/kg per day or greater, or children who weigh more than 10 kg on a total daily dosage of 20 mg or greater<br>» Diabetes<br>» Down syndrome<br>» Functional asplenia<br>» HIV-positive<br>» Immunosuppressive therapy<br>» Intracranial shunt<br>» Nephrotic syndrome<br>» Pre-or post-splenectomy<br>» Pre-term infant born before 28 weeks gestation<br>» Primary immune deficiency<br>» Post-haematopoietic stem cell transplantation<br>» Pre- or post-solid organ transplantation<br>» Radiation therapy<br>» Renal failure | » The conditions listed for *Children aged under 18 years*, and<br>» Complement deficiency (acquired or inherited)<br>» Post-chemotherapy<br>» Renal dialysis |
| | **Children aged 5 years or older, and adults** |
| | » Cochlear implant<br>» Complement deficiency (acquired or inherited)<br>» Functional asplenia<br>» HIV-positive<br>» Post-haematopoietic stem cell transplantation<br>» Pre- or post-chemotherapy<br>» Pre- or post-splenectomy<br>» Pre- or post-solid organ transplantation<br>» Primary immunodeficiency<br>» Renal dialysis |

| **Table 3. Doses of PCV13 (Prevenar 13)** | |
|---|---|
| **Aged 6 weeks to under 7 months** | » Two PCV13 doses (at 6 weeks and 5 months or catch-up before their first birthday with at least 8 weeks between the doses), or<br>» High risk groups: Three PCV13 doses (at 6 weeks, 3 months and 5 months or catch-up before their first birthday with at least 4 weeks between each dose).<br>» One booster dose of PCV13 at 12 months of age. |
| **Aged 7 months to under 12 months** | » Two doses PCV13 (catch-up before their first birthday with at least 8 weeks between the doses).<br>» One booster dose PCV13 at 12 months of age (preferably at least 8 weeks after the second dose but can be 4 weeks if this brings the child in line with the Schedule). |
| **Aged 12 months to under 5 years** | » Two doses PCV13 at least 8 weeks apart. |
| **Special groups children aged 5 years or older and adults** | » One dose PCV13. |
| **Healthy adults aged 65 years or older** | » One dose PCV13. |

| **Table 4. Doses of 23PPV (Pneumovax 23)** | |
|---|---|
| **Special groups children aged 2 years to under 18 years** | » One dose 23PPV, at least 8 weeks after PCV13.<br>» Final 23PPV dose at least 5 years later if still at high-risk. |
| **Special groups adults aged 18 years to under 60 years** | » One dose 23PPV, at least 8 weeks after PCV13.<br>» Second 23PPV dose at least 5 years later if still at high-risk.<br>» Final* 23PPV at least 5 years after second dose or at age 65 years, whichever is later. |
| **Special groups adults aged 60 years or older** | » One dose 23PPV, at least 8 weeks after PCV13.<br>» Second 23PPV dose at least 5 years later.<br>» Final* 23PPV dose can be considered at least 5 years after second dose. |
| **Healthy adults aged 65 years or older** | » One dose 23PPV, if PCV13 has been given wait at least 8 weeks to give 23PPV.<br>» Revaccination with 23PPV following the first dose is not routinely recommended. |
| *A maximum of three 23PPV doses is recommended in a lifetime. | |