



Pneumococcal Meningitis – Vaccinations

What is pneumococcal meningitis?

Pneumococcal meningitis is an inflammation of the lining around the brain and spinal cord caused by pneumococcal bacteria (*Streptococcus pneumoniae*). It is among the most life-threatening major forms of meningitis. Between 15 and 20% of those with pneumococcal meningitis will die^[1-2].

Approximately half the survivors of pneumococcal meningitis are left with permanent disability including deafness, intellectual impairment, speech and language problems, paralysis, cerebral palsy, epilepsy and blindness. Even those who appear at first to recover well have a high risk of neuropsychological problems.

Why vaccinate against pneumococcal meningitis?

Before routine vaccination, serious pneumococcal infections killed approximately 50 children younger than 2 years of age in the UK each year and about two thirds of these deaths were due to meningitis^[3].

Streptococcus pneumoniae is becoming increasingly resistant to antibiotics both in the UK and worldwide which means that it is becoming harder to treat. Therefore prevention of the disease by immunisation is becoming more important.

Who is at risk of getting pneumococcal meningitis?

People most likely to get pneumococcal disease are:

- young children, particularly under age 2,
- older people – in adults, the risk begins to increase from around the age of 50 and continues to rise with increasing age,
- people with health conditions that increase their risk from pneumococcal infection.

What pneumococcal vaccines are available?

Two different vaccines are used in the UK, one in the routine childhood immunisation schedule for all babies and the other for everyone over 65. These vaccines are also available to people with particular health conditions that increase their risk from pneumococcal infection.

Keeping your children up to date with their routine immunisations, and having the immunisations you are eligible for is the single most important thing you can do to prevent pneumococcal meningitis

Pneumococcal 'conjugate' vaccine (PCV)

The current vaccine in the childhood immunisation schedule is Prevenar13® (PCV13). It was introduced in spring 2010 as a direct replacement of PCV7 and can protect against severe infection caused by thirteen of the most common strains of pneumococcal bacteria. PCV13 covers the strains that accounted for 74% of all severe pneumococcal disease in young children in England and Wales in 2007/2008^[4]. Conjugate vaccines are effective in babies as young as 2 months of age and trigger a long-lasting immune response.

Conjugate vaccines

Conjugate vaccines are made by linking a tiny fragment from the bacteria's sugar coat, (which a child's immune system cannot respond to), to a protein (which a child can respond to). In this way, the immune system is able to recognise the bacteria that cause serious diseases like meningitis. These conjugate vaccines are effective in babies as young as 2 months of age and trigger a long-lasting immune response.

This vaccine:

- is routinely offered to all babies at 2, 4 and 13 months of age, within the routine childhood immunisation programme,
- is similar to the successful Hib and MenC vaccines, which are also conjugate vaccines,
- provides direct protection to babies and children who are vaccinated.
- prevents carriage of the bacteria, so people who are vaccinated cannot transmit the disease to others who have not been vaccinated. This is called herd immunity and provides indirect protection to those who have not been vaccinated.

The booster vaccine at 13 months of age is not just a top-up. Without this booster, your baby's protection against pneumococcal infection will be short-lived. For convenience, many

GP surgeries can now offer Hib/MenC, Pneumococcal and MMR vaccines all in a single visit after your child's first birthday.

Pneumococcal 'polysaccharide' vaccine (PPV)

This vaccine provides a level of short-term protection against serious pneumococcal disease caused by the top 23 disease-causing types of pneumococcal bacteria (see box opposite). This vaccine is offered to adults over the age of 65 and children over the age of 2 who have health conditions which put them at increased risk from pneumococcal infection. This vaccine will not affect carriage of the bacteria and so cannot create herd immunity

Polysaccharide vaccines

Polysaccharide vaccines are made from the sugar coat of the bacteria. They do not contain a protein and are not effective in children under two years of age. They are also less effective in people with immunodeficiency and children under age five.

What health conditions increase the risk from pneumococcal infection?

Health conditions which increase the risk of infection include^[5]:

- having no spleen, due to injury or disease, or a spleen that does not work properly as in sickle cell disorder, and coeliac disease;
- other immunodeficiency, whether inherited or acquired (e.g. HIV);
- immunosuppression as with cancer therapy or organ transplant;
- chronic disease of the heart, kidney or liver;
- chronic respiratory diseases, including, for example, asthma requiring repeated use of systemic steroids, chronic obstructive pulmonary disease;
- diabetes requiring insulin;
- people with or about to have cochlear implantation or other conditions where leakage of cerebrospinal fluid can occur (but vaccination must not delay cochlear implantation).

What protection is offered to people with 'at risk' health conditions?

People with at risk health conditions should be offered vaccination with PCV13, PPV23 or both depending on their age and the type of condition they have.

In general the following applies to people with "at risk" health conditions who are up to date

with their routine immunisations:

- Babies should be immunised according to the routine schedule followed by one dose of PPV23 after their second birthday,
- Children diagnosed between 1 to 5 years of age:
 - at risk conditions (excluding asplenia, splenic dysfunction and the immunocompromised) should have one dose of PPV23 after their second birthday
 - those with asplenia, splenic dysfunction and the immunocompromised should have one dose of PCV13 and one dose of PPV23 after their second birthday (at least two months after immunisation with PCV13)
- People diagnosed beyond 5 years of age:
 - at risk conditions (but not severely immunocompromised*) should have one dose of PPV23
 - those who are severely immunocompromised* should have one dose of PCV13 and one dose of PPV23 at least two months after immunisation with PCV13

“At risk” people with an incomplete or unknown immunisation history, absent or damaged spleen, who are HIV positive, receive bone marrow transplants or have chronic renal disease should seek specialist advice as recommendations in these cases can differ or they may need to be re-immunised at regular intervals.

Children who get severe pneumococcal disease

Any child under age 5 years who gets pneumococcal meningitis or other severe pneumococcal disease will be followed up by their GP or paediatrician, to check whether they have an ‘at-risk’ health condition^[6]. These children should be offered PCV even if they have already had it. In some cases, they will be offered PPV also.

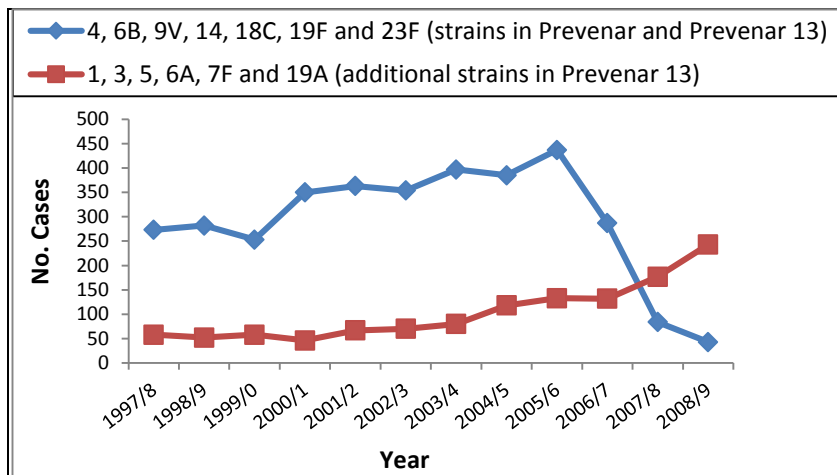
What can I do if my child has missed their routine immunisations?

ALL children who are under the age of 2 and have missed their immunisations are entitled to receive PCV13 and are entitled to receive other routine immunisations up to age 10.

Why was it necessary for PCV13 to replace PCV7?

There are over 90 strains of pneumococcal bacteria, but most severe disease is caused by only a handful of these strains. PCV7 was very successful at preventing the seven strains of pneumococcal infection it covered — 959 cases of serious illness and 53 deaths were prevented in the first two and a half years after introduction^[7]. However, before PCV7 was introduced, cases of pneumococcal disease caused by vaccine and non-vaccine types were on the rise, and after PCV7 was introduced, non-vaccine types continued to rise (see graph). Therefore, the vaccine was upgraded to include an additional six bacterial strains and provide broader protection to children.

Incidence of severe pneumococcal disease caused by strains in Prevenar® and Prevenar13® from 1997 to 2009.



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Is this vaccine safe for my child?

Vaccine safety is carefully established in clinical trials before being introduced and by close monitoring throughout their use. Experience of using this vaccine in the UK and other countries has shown this vaccine to have an excellent safety record. Clinical trial data from studies involving more than 7000 children indicate that PCV13 has a similar safety profile to PCV7.

For serious life threatening diseases such as meningitis and septicaemia, acquiring immunity through immunisation is a far safer way to protect babies and young children than risking exposure to the diseases.

Where can I go for further information and support?

Freefone helpline UK 080 88 00 33 44 Ireland 1800 41 33 444

email helpline@meningitis.org

Visit our website www.meningitis.org

References

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