

Pneumococcal vaccination in the UK

Fast facts

The routine infant pneumococcal vaccination schedule has recently been reduced from a 2+1 schedule (where babies were immunised at 2, 4 and 12 months) to a 1+1 schedule (babies are immunised at 3 and 12 months).

The changes apply to UK babies born on or after 1 January 2020 and Scottish infants presenting for their first pneumococcal immunisation on or after the 6th April 2020.

Babies are immunised with Prevenar13® (PCV13), while people aged 65 or over and those with predisposing health conditions are usually offered a different vaccine, Pneumovax® (PPV23).

What is pneumococcal meningitis and why vaccinate against it?

Pneumococcal meningitis is a life threatening disease caused by pneumococcal bacteria (*Streptococcus pneumoniae*) that leaves up to half of survivors with long term after effects as severe as deafness, speech and language problems, epilepsy and intellectual impairment.

Before routine vaccination began in 2006, in the UK serious pneumococcal infections killed approximately 50 children under 2 years of age each year. About one third of these deaths were due to meningitis.¹

Across the world, pneumococcal bacteria are becoming increasingly resistant to antibiotics, making pneumococcal meningitis harder to treat. Preventing disease through vaccination is therefore vital.

More information on pneumococcal disease is available at: <https://www.meningitis.org/ meningitis/causes/pnemococcal>

Who is at the highest risk of getting pneumococcal meningitis?

Those at the highest risk of pneumococcal disease are:

- Young children, particularly under age 2
- Older 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 of pneumococcal infection

What pneumococcal vaccines are available in the UK?

Two different pneumococcal vaccines are used in the UK.

Prevenar13® (PCV13) which is routinely given to babies, and Pneumovax® (PPV23) which is given to those aged 65 and over.

These vaccines are also available for people with health conditions that increase their risk from pneumococcal infection.

Protection from pneumococcal disease

There are over 90 strains of pneumococcal bacteria, but the most severe disease is caused by only a handful of these strains.

PCV13 protects against 13 of the most common disease causing strains.

Vaccination with PCV13 not only provides direct protection to the person vaccinated but also stops them from carrying the bacteria in the back of the nose and throat, preventing them from passing it to others.

Children under 2 are more likely to carry pneumococcal bacteria in the back of the nose and throat than any other age group, so vaccinating this group stops the strains covered by the vaccine from circulating in the population. Reduced circulation of the bacteria creates 'population protection' which means even those unvaccinated are protected from disease because they are less likely to come into contact with the bacteria.

Vaccinating children with PCV13 has been very successful at reducing disease in children under the age of 2, but has also successfully reduced disease caused by the 13 strains in the vaccine amongst adults and the elderly.

Despite the success of the vaccine, pneumococcal disease has not gone away. We are now starting to see a rise in disease caused by strains not covered in the vaccine. This means that vaccines which provide wider coverage will soon be needed to ensure that the reductions we have seen in disease are maintained and to bring about further reductions in this serious disease.

As not all causes are vaccine preventable it is important to be aware of the signs and

symptoms of meningitis:
<https://www.meningitis.org/meningitis/check-symptoms>

What is the current infant schedule?

UK babies born on or after 1st January 2020 are routinely vaccinated with PCV13 at 3 and 12 months of age (known as the 1+1 schedule). Babies born before 2020 are routinely vaccinated with PCV13 at 2, 4 and 12 months of age (the 2+1 schedule).

In Scotland, infants presenting for their first pneumococcal immunisation on or after the 6th April 2020 follow the 1+1 schedule and those presenting earlier are immunised on the 2+1 schedule.

Regardless of schedule (1+1 or 2+1), the booster vaccine given at 12 months is essential. Without this booster, a baby's protection against pneumococcal infection will be short-lived. The booster dose is also vital for ensuring that young children do not start acquiring the bacteria, carrying it and passing it to others.

Children who are asplenic, have splenic dysfunction or are severely immune suppressed require additional vaccinations.

For more information see the department of health GreenBook^{i,ii,iii} or call our helpline on: 080 8800 3344.

Why did the schedule change from a 2+1 to a 1+1?

This change was made because the vaccine has been so successful. PCV13 has not only dramatically reduced cases of disease due to the 13 strains covered by the vaccine, but that it has also dramatically reduced the circulation of these strains of bacteria in the wider

population. This means that even those not vaccinated are protected.

Evidence from a clinical trial comparing the 2+1 and 1+1 schedules found that the protection from both schedules was very similar when measured after the booster dose.^{iv} The Joint Committee on Vaccination and Immunisation (JCVI), who advise the government on vaccine decision making, reviewed the available evidence and concluded that the 1+1 schedule should continue to provide individual protection and maintain population protection against pneumococcal disease. They are confident that the risk of exposure to the strains of disease contained in the vaccine has reduced so much that removing a vaccine dose in infancy would not result in a significant increase in cases.

Who else can get this vaccine?

People with the following at risk health conditions should be offered vaccination with PCV13, PPV23 or both depending on their age and the type of condition they have^{ii,iii}:

- having no spleen, due to injury or disease, or a spleen that does not work properly as in sickle cell disorder, and coeliac disease
- chronic respiratory diseases
- chronic disease of the heart, kidney or liver;
- diabetes requiring insulin;

- immunosuppression due to disease or treatment for example, patients receiving cancer therapy, organ transplant or who are HIV positive
- people with or about to have cochlear implantation or other conditions where leakage of cerebrospinal fluid can occur (vaccination must not delay cochlear implantation).

For more information see the department of health GreenBook^{ii,iii} or call our helpline.

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^v.

Is this vaccine safe?

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 much safer way to gain protection than risking exposure to the diseases.

References

ⁱ Ispahani, P., et al., Twenty year surveillance of invasive pneumococcal disease in Nottingham: serogroups responsible and implications for immunisation. *Arch Dis Child*, 2004. 89(8): p. 757-62.

ⁱⁱ GreenBook. *Department of Health. Immunisation against infectious diseases. Chapter 25: Pneumococcal (for infants born on or after 1 January 2020)*
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/857267/GB_Chapter_25_pneumococcal_January_2020.pdf

ⁱⁱⁱ Greenbook. *Department of Health. Immunisation against infectious diseases. Chapter 25: Pneumococcal (for infants born up to and including 31 December 2019)*
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/674074/GB_Chapter_25_Pneumococcal_V7_0.pdf

^{iv} Goldblatt, D., et al., *Pneumococcal conjugate vaccine 13 delivered as one primary and one booster dose (1 + 1) compared with two primary doses and a booster (2 + 1) in UK infants: a multicentre, parallel group randomised controlled trial.* *Lancet Infect Dis*, 2017

^v Vaccination of individuals with uncertain or incomplete immunisation status.
<https://www.gov.uk/government/publications/vaccination-of-individuals-with-uncertain-or-incomplete-immunisation-status>