



PNEUMOCOCCAL DISEASE IMMUNISATION

Pneumococcal disease refers to several clinical illnesses that can range from ear and sinus infections to pneumonia and blood stream infections and is caused by the *Streptococcus pneumoniae* bacterium (also called pneumococcus). This organism can be carried in the upper respiratory tracts of healthy people. The disease spreads from person to person through coughing and sneezing or touching contaminated surfaces. Most pneumococcal infections are mild, however some can develop into invasive pneumococcal disease (IPD) with long term complications or death. Vaccination against invasive pneumococcal disease is highly recommended for several risk groups, including young infants, adults aged >70 years and Indigenous people and Torres Strait Islanders, particularly young adults.

WHAT IS INVASIVE PNEUMOCOCCAL DISEASE?

When *Streptococcus pneumoniae* is found in a normally sterile site it is deemed invasive. This is most often in the blood, but it can also be found in pleural and cerebrospinal fluid. Invasive pneumococcal disease can cause meningitis, pneumonia with bacteraemia and bacteraemia without focus in many patients, causing serious complications. Pneumococcal pneumonia is the most common community-acquired pneumonia.

WHAT ARE THE SYMPTOMS OF PNEUMOCOCCAL DISEASE?

Symptoms of pneumococcal disease will also reflect where the infection is located: for pneumonia, there may be fever, chills, cough, rapid or difficulty in breathing and chest pain; in meningitis, a stiff neck, fever, photophobia, confusion and headaches. (Caveat: Older adults with pneumococcal pneumonia may experience confusion or low alertness rather than the more common symptoms listed above.)

Invasive pneumococcal diseases are far more serious than the common non-invasive types and occur in the blood or a major organ.

Examples of invasive pneumococcal disease include:

- **Sepsis:** When a person's body responds to an infection in an extreme way, damaging its own tissues, it is known as sepsis, a potentially life-threatening condition. The symptoms include chills and fever, confusion, difficulty breathing, clammy skin, rapid heart rate and severe pain.
- **Bacteraemia:** This condition is caused by a bacterial infection which may be mild or even without symptoms, however if the body's immune system is unable to remove the bacteria, the infection may progress rapidly and result in sepsis. Bacteraemia symptoms include reduced alertness, fever, chills, rapid heart rate and respirations.
- **Pneumonia:** This infection of the lungs can progress, spreading into the chest cavity or causing inflammation of the heart lining (pericardium). Symptoms can include breathing difficulties, chest pain, fever, cough and chills. Confusion or lowered acuity is more common in older adults with pneumococcal pneumonia.
- **Meningitis:** When the membranes that cover the brain and spinal cord (meninges) become inflamed, it is known as meningitis. Symptoms generally include headaches, neck stiffness, fever, confusion and light sensitivity, however some people present with different symptoms or they may not be apparent.

Other infections that may occur:

- **Osteomyelitis:** This is an inflammation or swelling which occurs when an infection somewhere else in the body spreads to the bone.
- **Septic arthritis:** This condition is an infection in the joint tissues and the joint (synovial) fluid that can be caused by different types of bacteria, including pneumococci, fungi and viruses. Symptoms include fever, joint pain and aches, swelling, redness and warmth. Prompt treatment with antibiotics is needed to halt the risk of joint damage.

Pneumococcal disease may also cause:

- **Otitis media:** Inflammation of the middle ear producing earache, fluid in the middle ear and swelling of the

eardrum. If the eardrum is perforated, pus can drain further into the ear canal.

- **Bronchitis:** Acute bronchitis is characterised by inflamed airways with a cough and mucous. The illness can last up to three weeks and it is more common in children aged under 5 years.
- **Sinusitis:** When the sinuses around the nasal cavity become inflamed it is known as sinusitis. Symptoms can include facial tenderness, pain, and swelling around the eyes, cheeks and forehead.

All invasive pneumococcal diseases require urgent medical treatment

WHERE IS PNEUMOCOCCAL DISEASE FOUND?

Anyone anywhere can become infected and develop pneumococcal disease, however, the risk of progressing to severe invasive pneumococcal disease (IPD) is highest in young infants and adults aged >70 years. Indigenous people and Torres Strait Islanders, particularly young adults, are disproportionately affected in Australia.

Children at increased risk for pneumococcal disease include those:

- Younger than 5 years of age
- With certain medical conditions: sickle cell disease, congenital or acquired asplenia, HIV infection, diabetes, immunocompromising conditions, nephrotic syndrome, or chronic heart, lung, kidney, or liver disease
- With Cochlear Implants or cerebrospinal fluid leaks (escape of the fluid that surrounds the brain and spinal cord).

Adults at risk for pneumococcal disease are among:

- The elderly
- Aboriginal and Torres Strait Islanders of all ages but especially those >50 years
- Adults with certain underlying medical conditions: Chronic illnesses affecting the heart, liver, kidney, or lung (including chronic obstructive lung disease, emphysema, asthma), or with diabetes or alcoholism. Conditions that weaken the immune system: HIV/AIDS, cancer, or damaged/absent spleen
- Those with Cochlear Implants
- Smokers present and past.

PNEUMOCOCCAL DISEASE VACCINATION

Pneumococcal disease vaccination is available and there are two types of pneumococcal vaccines which offer protection against different types of pneumococcal disease – they are not available as a combination vaccine. The vaccine is given as an injection, generally in the upper arm.

Pneumococcal vaccines:

- 13-valent pneumococcal conjugate vaccine (13vPCV)
- 23-valent pneumococcal polysaccharide vaccine (23vPPV)

These are National Immunisation Program pneumococcal vaccines and the dosage schedule will depend on the person's age and presenting medical conditions that put them at greater risk of contracting pneumococcal disease. Vaccination providers explain which vaccine is best for each individual. Serious reactions to pneumococcal vaccination are rare.

A recent [update](#) (May 11, 2023) to the Australian Immunisation Handbook advised: '

The optimal pneumococcal vaccination program for Australia is currently under review. At present Prevenar 13 (13vPCV) and Pneumovax 23 (23vPPV) are the pneumococcal vaccines funded under the National Immunisation Program (NIP) for eligible individuals. Updates to this chapter include interim recommendations for use of extended valency vaccines (Vaxneuvance [15vPCV] and Prevenar 20 [20vPCV]) in adults for whom they have recently been registered by the Therapeutic Goods Administration but are not currently NIP-funded.'

SCHEDULE

Standard schedule with NO underlying medical risk factors:

All children are recommended to receive 13vPCV in a 3-dose schedule at 2, 4 and 12 months of age.

The recommendation is for all healthy non-Indigenous adults at ≥70 years of age to receive a single funded dose of 13vPCV (or the unfunded 15vPCV or 20vPCV). This dose is regardless of whether they have had the 23vPPV previously recommended at 65 years of age (as long as at least 12 months have elapsed between the 2 vaccine doses).

Please note: There are differing vaccine schedules – number of doses and indications - for those adults and children with underlying medical risk factors. Speak to your doctor or specialist for more information.

LEVEL OF PROTECTION

- the effectiveness of the 13vPCV in infants is approximately 90%
- the effectiveness of 23vPPV against IPD in adults is approximately 80%

POSSIBLE SIDE EFFECTS

Possible side effects:

- PCV13: Redness, swelling, pain, or tenderness at the site of administration, fever, loss of appetite, fussiness (irritability), feeling tired, headache, and chills.
- PCV15 (in adults): Redness or pain at the injection site, fatigue, headache, myalgia and joint pain
- PPV23: Redness or pain at the injection site, feeling tired, fever or muscle aches.

FAQS

~~DOES PNEUMOCOCCAL DISEASE VACCINATION AND DISEASE PREVENTION HELP EVERYONE?~~

Pneumococcal disease vaccination and disease prevention can be lifesaving for anyone, but the very young, the elderly and the immunocompromised are less able to mount an adequate immune response to pneumococcal capsular antigens and are at the highest risk of invasive pneumococcal disease, including anyone with asplenia.

Those at a higher risk of pneumococcal disease include those living in households where the following conditions are present:

- High exposure to cigarette smoke
- Household crowding
- Attendance at childcare centres
- Where there is excessive alcohol consumption
- Those with certain non-immunocompromising chronic medical conditions.

~~SHOULD I BE VACCINATED AGAINST PNEUMOCOCCAL DISEASE?~~

The bacterial infection known as pneumococcal disease is especially serious for older people and young children, potentially causing bloodstream infection, pneumonia, and meningitis.

- Non-Indigenous adults aged ≥70 years.
- Aboriginal and Torres Strait Islander adults aged ≥50 years.
- A pneumococcal disease immunisation for children, adolescents and adults with risk conditions for pneumococcal infection.

It is a routine vaccination included in the National Immunisation Program for infants and children.

WHAT SERIOUS ILLNESSES ARE MADE WORSE BY PNEUMOCOCCAL DISEASE?

Vaccination is strongly advised if you or your family members have any of the following diseases and health conditions that cause them to be more at risk of severe illness or death from pneumococcal disease:

Pneumococcal vaccination and heart disease

People with heart disease are advised to be up to date with their pneumococcal vaccinations in order to protect them from pneumonia, meningitis and bloodstream infections caused by pneumococci. Seek further information from your health practitioner.

Pneumococcal vaccination in chronic kidney disease

Pneumococcal vaccination is also strongly recommended for older children and adolescents who have received a kidney or other organ transplant, or who suffer from kidney failure or kidney disease. This is recommended even if they had the vaccine as infants. Seek further information from your health practitioner.

Pneumococcal vaccination in sickle cell disease

Anyone with sickle cell disease is recommended to be immunised during childhood against pneumococcal disease with both the 13-valent pneumococcal conjugate vaccine and 23-valent pneumococcal polysaccharide vaccine, as well as the other routine vaccinations provided through the National Immunisation Program. Seek further information from your health practitioner.

HOW MUCH IS PNEUMOCOCCAL VACCINE?

Under the National Immunisation Program, most of the pneumococcal vaccines are available (and funded) routinely for young children and the elderly, as well as for a range of medical conditions and circumstances.

For more information on pneumococcal vaccinations, [contact](#) Travelvax today.

More information on Pneumococcal Disease Immunisation is available during your pre-travel consultation with Travelvax.

Call 1300 360 164 for the location of the clinic nearest to you.