

Pneumococcal disease

Pneumococcal disease refers to a range of illnesses that affect various parts of the body and are caused by infection with the bacterium *Streptococcus pneumoniae*, commonly known as the pneumococcus.

Illnesses range from mild infections, such as ear infection, to pneumonia and life-threatening infections of the bloodstream and central nervous system, such as meningitis. Vaccination can substantially reduce the risk of infection, especially in young children.

Pneumococcal disease is deadly

Pneumococcal disease is a leading cause of serious illness and death among Australian children under five years of age. The rates are highest in Indigenous children, especially in central Australia.

Pneumococcal disease is also an important cause of pneumonia in adults 65 years of age or older; the elderly are especially at risk of death from this disease. It is estimated to kill around one million people worldwide every year.

While pneumococcal disease can occur at any time, infections seem to be more common during winter and spring. Young children, the elderly and people with impaired immune systems are among the most susceptible.

A range of infections

Streptococcus pneumoniae can cause a range of illnesses depending on which part of the body is infected, for example:

- **Sinusitis** – infection of the sinuses (air-filled cavities in the face). Symptoms include aching face, blocked nose, yellow-green nasal mucus and headache.
- **Otitis media** – middle ear infection. Symptoms include painful ear, hearing loss, high temperature, nausea and vomiting.
- **Bacteraemia** – bacteria invade the blood. Symptoms include fever, headache and muscular aches and pains. This is a very serious condition.
- **Septic arthritis** – joint infection. Symptoms include joint pain, swelling and reduced mobility of the joint.
- **Osteomyelitis** – bone infection. Symptoms include bone pain, reduced mobility of the affected part and fever.
- **Pneumonia** – lung inflammation. Symptoms include fever, cough, chest pains and breathing problems, such as shortness of breath.
- **Meningitis** – inflammation of the membranes (meninges) that enclose the brain and spinal cord. Symptoms may include high fever, headache, stiff neck, nausea and vomiting, and sometimes coma. Pneumococcal meningitis is extremely serious and has a high mortality rate.

People at increased risk

Certain groups are at increased risk of infection, including:

- Children aged under two years
- Children under five years with underlying medical conditions predisposing them to invasive pneumococcal disease
- Indigenous children, especially in central Australia
- People aged 65 years and over
- People with weakened immune systems
- People with chronic diseases such as diabetes, lung disease, cancer or kidney disease
- People who have impaired spleen function or have had their spleen removed
- Indigenous Australians
- Torres Strait Islanders

- Tobacco smokers.

Transmission of infection

Most people carry *Streptococcus pneumoniae* bacteria in their nose and throat. The bacteria are transferred to another person through droplets of saliva or mucus, such as when a 'carrier' sneezes, coughs, shares toys or kisses someone.

Most of the time, this doesn't cause any illness. However, vulnerable people may develop pneumococcal disease. The immune system is unable to keep the bacteria in check, which then multiply out of control and spread to other areas of the body.

Diagnosis

Since other types of bacteria can cause similar infections, it is important to test specifically for the presence of *Streptococcus pneumoniae*.

Depending on the symptoms, pneumococcal disease is diagnosed using a number of tests, including:

- Physical examination
- Chest x-ray
- Phlegm test
- Blood test
- Urine test
- Cerebrospinal fluid (CSF) test by lumbar puncture.

Treatment

Treatment options include:

- Antibiotics such as penicillin
- Pain-killing medication
- Plenty of fluids
- Rest
- Hospitalisation in severe cases – for example, meningitis.

Vaccination is available

There are currently 90 different strains of *Streptococcus pneumoniae* recognised and no vaccine can protect against all of them. However, two vaccines are available to help prevent infection with the most common strains.

The risk of infection in young children, especially in children younger than two years, can be substantially reduced with a vaccine called Prevenar. The vaccine Pneumovax 23 will protect all other age groups.

These vaccines are available to all Victorians, but are provided free of charge for people at increased risk.

Prevenar vaccine

Prevenar is specifically formulated for young children whose immune systems do not respond to other vaccines. It protects against the strains that are responsible for at least 80 per cent of serious pneumococcal disease cases. It is recommended for children aged two months to five years of age.

Under the National Immunisation Program Schedule, the Prevenar vaccine is free for all infants at two, four and six months of age. Children less than five years of age with certain medical risk factors are also eligible for free pneumococcal vaccine. See your doctor for further information.

A large study in northern California found that the Prevenar vaccine is nearly 100 per cent effective at preventing invasive pneumococcal disease (such as bacteraemia and meningitis) caused by the strains included in the vaccine, and 90 per cent effective for all strains, including non-vaccine types.

Pneumovax 23 vaccine

Pneumovax 23 is recommended for:

- All adults aged over 65 years
- Aboriginal and Torres Strait Islander people aged 50 years and older, and those 15–49 years of age who have underlying conditions placing them at risk of pneumococcal disease
- Children aged two years and over who are at increased risk – for example, children with underlying medical risk conditions and Indigenous children in central and northern Australia
- People with serious health problems, such as heart or lung disease, diabetes or kidney disease
- People with illnesses that reduce immunity to infections, such as leukaemia or HIV, or who are being treated with drugs that suppress the immune system
- Transplant recipients or people with a damaged (or no) spleen
- Tobacco smokers.

Possible side effects of vaccination

See your doctor if you are concerned about your child following the vaccination. Some of the possible side effects of the Prevenar vaccine include:

- Redness, swelling and soreness at the injection site
- Low grade fever
- Sleepiness
- Irritability.

Where to get help

- Your doctor or local council immunisation service
- Nurse-on-Call Tel. 1300 606 024 – for expert health information and advice (24 hours, 7 days)
- Your local community health centre
- Immunisation Program, Department of Human Services Victoria Tel. 1300 882 008
- The emergency department of your nearest hospital

Things to remember

- Pneumococcal disease is a leading cause of serious illness and death among Australian children aged less than five years.
- *Streptococcus pneumoniae* (pneumococcus) can cause a range of different illnesses including sinusitis, otitis media, pneumonia, bacteraemia, osteomyelitis, septic arthritis and meningitis.
- Vaccines are available that prevent invasive pneumococcal disease (such as bacteraemia and meningitis).

Want to know more?

Go to More information for support groups, related links and references.

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