



Pneumococcal vaccine for older people



Factsheet





Pneumococcal infection can lead to a range of diseases including pneumonia, septicaemia and meningitis which may cause death.

People who are 65 and over will now be routinely offered a vaccine to help protect against pneumococcal disease.

This factsheet describes the disease and pneumococcal polysaccharide vaccine and why this vaccine is now recommended for older people.

What is pneumococcal disease?

Pneumococcal disease is the term used to describe infections caused by the bacterium *Streptococcus pneumoniae*.

Pneumococcal infection causes a broad range of disease in older people (see Table 1). It is the most common cause of serious pneumonia. As well as infecting the lungs, pneumococcal bacteria can infect the blood stream. This type of infection is called invasive pneumococcal disease (IPD). It is responsible for causing the more serious consequences of pneumococcal infection such as septicaemia (blood poisoning), meningitis or a more serious form of pneumonia which are more likely to lead to death than non invasive infections.

Ninety different types of *Streptococcus pneumoniae* have been identified so far. Most pneumococcal disease in the world is caused by 20-30 of the most common types^{1,2}.

Streptococcus pneumoniae is becoming increasingly resistant to antibiotics in the UK³ and worldwide⁴. As pneumococcal disease becomes harder to treat because of this resistance, its prevention by immunisation becomes more important.

Table 1. Diseases caused by pneumococcal infection in older people

Disease caused by pneumococcal infection	Symptoms	Serious complications
Pneumonia	Cough, breathing difficulties, chest pains, fever, headache, confusion	Can lead to septicaemia (bacteria in the blood stream) where the infection can spread to the lining of the heart (pericarditis) or brain (meningitis)

Septicaemia (blood poisoning)	Fever, confusion, low blood pressure (shock)	Can cause death
Meningitis (inflammation around the brain)	Confusion, fever, headache	Can cause death
Bronchitis	Coughing, mucus secretion	Pneumonia
Peritonitis (inflammation of the abdomen)	Abdominal pain, fever	Can cause death

Who is most at risk from pneumococcal disease?

Older people and very young children are most at risk from infection particularly if they are already ill, have no spleen or have a weakened immune system for example, if they are having treatment for cancer. In adults, the increased risk of pneumococcal disease begins in those over 45 years and rises sharply in those over 75 years of age (see Fig.1).

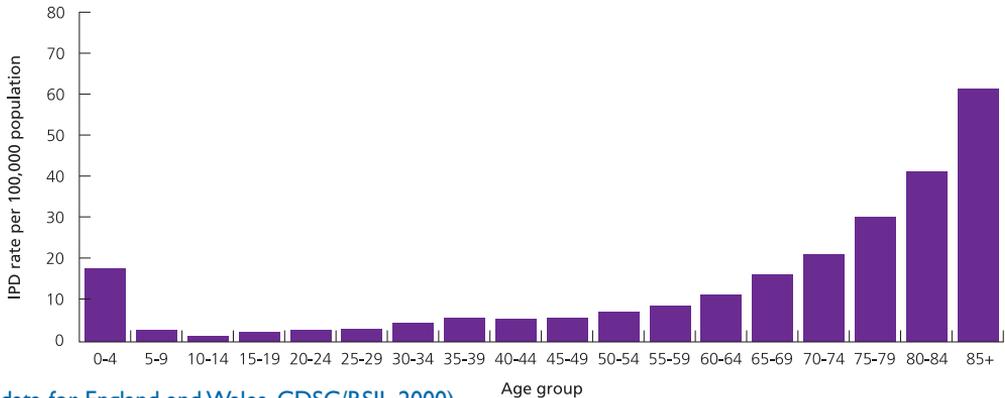


Figure 1. Invasive pneumococcal disease (IPD) rates by age per 100,000 population per year

How common is pneumococcal disease?

It is estimated that two in every 1,000 adults over the age of 65 are admitted to hospital because of pneumococcal pneumonia each year, rising to over four in every 1,000 adults aged 80 years or over⁵.

This means that there may be more than 18,000 hospitalised cases of pneumococcal pneumonia each year in the UK in people of 65 years of age and over.

Laboratory test results sent to the Communicable Disease Surveillance Centre (CDSC) suggest that invasive pneumococcal disease (including septicaemia and meningitis) affects around 51 in every 100,000 people aged 80 years and over (see Fig.1)¹.

The mortality rate for pneumococcal pneumonia has been estimated to be 10 to 20 in every 100 people^{6,7}. Information collected from hospital admissions in Wales suggests that there are over 230 deaths each year from pneumococcal infection in hospital patients over the age of 65 years⁸. This is likely to be an underestimate. Many pneumococcal infections are not routinely investigated so both the number of infections and deaths are likely to be higher^{9,10}.

What is pneumococcal vaccine?

There are two types of pneumococcal vaccine. The 23-valent pneumococcal polysaccharide vaccine (PPV) can be used for adults and children over the age of two years. The 7-valent pneumococcal conjugate vaccine (PCV) is currently only licensed for children under the age of five years.

The polysaccharide vaccine contains part of the polysaccharide (sugar) coat that surrounds the pneumococcal bacterium. The vaccine stimulates the body to produce antibodies that help to protect against 23 types of pneumococcal bacteria as it contains polysaccharides (sugar) from 23 types of pneumococcal bacteria. These 23 types of pneumococcal bacteria cause about 96 per cent of all pneumococcal disease cases in the UK¹.

Which pneumococcal vaccine is being used for older adults?

The pneumococcal polysaccharide vaccine should be used for adults. The 7-valent pneumococcal conjugate vaccine is only licensed for children under the age of five years. Its effectiveness in preventing disease in adults is not currently known.

Is this a new vaccine?

No, 23-valent pneumococcal polysaccharide vaccine was introduced in 1983 and has been used for over ten years in the UK for people who are at particular risk from pneumococcal disease.

Is pneumococcal polysaccharide vaccine used in other countries?

Yes, the USA, Canada, Australia, New Zealand and many European countries recommend polysaccharide vaccine to all those aged 65 and over.

Who should receive pneumococcal vaccine?

It is recommended that older adults are offered pneumococcal polysaccharide vaccine. People aged 80 and over were offered the vaccine in 2003/04. They were followed by all those aged 75 and over in 2004/05. By 2005/06 all those aged 65 and over should be routinely offered pneumococcal vaccine.

From 1 April, 2005, all people aged 65 years and over will be offered the vaccine. This includes older people who missed out on getting the vaccine in 2003/04.

People under these ages who are at higher risk from pneumococcal disease are already recommended to receive the vaccine. This includes people who have a heart condition, chronic lung disease, chronic liver disease, diabetes mellitus, a weakened immune system, a damaged spleen or no spleen¹.

Do people who have had pneumococcal disease need the vaccine?

People who have had pneumococcal disease should still be immunised as there is more than one type of pneumococcal bacteria and they can still become infected from another type. The vaccine protects against all the common types of pneumococcal bacteria.

When should pneumococcal vaccine be given?

Unlike flu vaccine which is given before the start of the flu season (from September) pneumococcal vaccine can be given at any time during the year.

Is it safe to give pneumococcal vaccine at the same time as flu vaccine?

Although pneumococcal vaccine can be given all year round, for convenience it can be given at the same time as the flu jab but at a different site or in separate limbs. Studies have shown that there are no problems in giving the two vaccines at the same time and that there is no interaction between them¹².

How often should it be given?

It is currently recommended that most adults will only need one dose of pneumococcal polysaccharide vaccine in their lifetime.

Revaccination with pneumococcal vaccine is not recommended except for people whose antibody levels are likely to have declined more rapidly, for example people with no spleen or who have a problem with their spleen or nephrotic syndrome. In these special circumstances, another dose should be given five years later¹¹. Revaccination at an interval of less than three years is not recommended.



What adverse reactions might be seen after pneumococcal polysaccharide vaccine?

Local reactions, such as mild soreness, redness and induration (hardening) at the site of injection may occur, lasting no longer than one to three days. Occasionally a mild fever or muscle pain may occur. There is no risk of pneumococcal vaccine causing pneumococcal infection or disease as it does not contain live bacteria, only their sugar coat.

More severe adverse reactions are rare¹⁸. However, if a doctor, nurse or pharmacist suspects that a serious reaction to pneumococcal vaccine has occurred, they should report it to the Committee on Safety of Medicines, using the Yellow Card spontaneous reporting scheme.

How effective is pneumococcal polysaccharide vaccine?

A number of studies have shown that pneumococcal polysaccharide vaccine gives substantial, but not complete protection against the serious forms of pneumococcal infection where the bacteria have entered the blood stream (invasive pneumococcal disease).



The effectiveness of the vaccine in preventing invasive pneumococcal diseases (such as septicaemia, meningitis and invasive pneumococcal pneumonia) is likely to be around 50-70 per cent in older age groups^{13,14,15,16}. Studies suggest that it is not effective in preventing pneumococcal pneumonia that occurs without septicaemia¹⁷.

A disease surveillance system is in place in Wales and England to measure how effective this immunisation programme is. The results from this surveillance programme and ongoing research will be used to assess whether conjugate vaccines may be used in older age groups in the future.

Note

The polysaccharide vaccine used in older people is not suitable for use in children under the age of two years as they are not able to make a long-lasting protective immune response to polysaccharide vaccines. A conjugate vaccine is available for use in children who fall into high-risk groups.

Glossary

Adverse effect

A side effect of any medicine including vaccines.

Antibodies

Proteins produced by the body to neutralise or destroy toxins and disease-carrying organisms.

Bacterium/bacteria

Single cell micro-organisms, some of which cause disease. Others are essential for our bodies to work properly.

Communicable Disease Surveillance Centre (CDSC)

The Communicable Disease Surveillance Centre monitors the incidence of infectious or contagious diseases, which can be passed from person to person. The Immunisation

Division of CDSC is made up of doctors, epidemiologists and research scientists who monitor the immunisation programmes in Wales and England.

Conjugate vaccine

Vaccines made with part of the sugar (polysaccharide) coating of a bacterium being combined (conjugated) with a protein (for example tetanus or diphtheria) which makes it work better and gives better protection over a long period of time.

Committee on Safety of Medicines (CSM)

Statutory independent committee responsible for advising on the licensing and safety of human medicines.

Epidemiology

The study of patterns of diseases, including their occurrence, severity and distribution.

Induration

The hardening of an area around an injection site.

Invasive pneumococcal disease

Serious form of pneumococcal infection where the bacteria have entered the blood stream, leading to septicaemia, or other parts of the body such as the brain causing meningitis.

Meningitis

Meningitis is an inflammation of the lining of the brain. It is very rare but very serious, although if it's picked up early enough, most people make a full recovery.

Mortality rate

The chances of dying from a particular condition, for example pneumococcal pneumonia.

Nephrotic syndrome

A kidney condition leading to loss of protein.

Pneumonia

Inflammation of the lung from a variety of different causes, such as viruses and bacteria, particularly *Streptococcus pneumoniae*.

Pneumococcal pneumonia

Pneumonia caused by the *Streptococcus pneumoniae* bacterium.

Polysaccharide vaccine

Polysaccharide vaccines are manufactured from parts of the sugar (polysaccharide) coat of a bacterium, for example *Pneumococcus*, *Hib* and *Meningococcus*.

Septicaemia

A serious form of blood poisoning (infection of the blood) due to the bacteria.

Streptococcus pneumoniae

Streptococcus pneumoniae is a type of bacterium, of which there are over 90 different types.

Yellow Card reporting scheme

The Yellow Card scheme is for voluntary reporting of suspected adverse drug reactions (ADRs) including those following vaccination for routine post-marketing surveillance of medicines. These cards may be completed by doctors, dentists, pharmacists, coroners and nurses and by pharmaceutical companies under statutory obligations. They are submitted to the Committee on Safety of Medicines (CSM)/Medicines and Healthcare products Regulatory Agency (MHRA).

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Department of Health publication.
Public Health Protection Division,
Office of the Chief Medical Officer
Welsh Assembly Government,
Cathays Park,
Cardiff CF10 3NQ
E-mail: jenny.thorne@wales.gsi.gov.uk
Telephone: Neil Robins 029 2082 5397