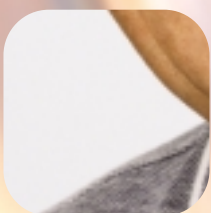
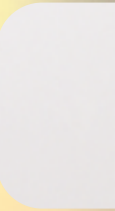
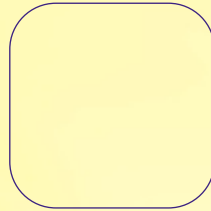
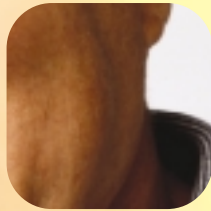
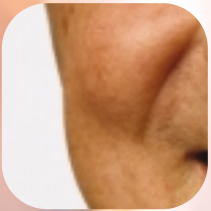
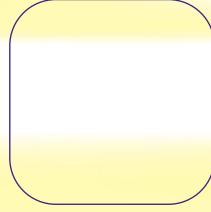
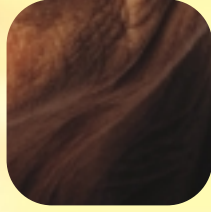
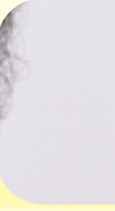
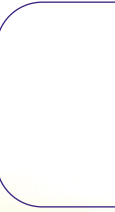
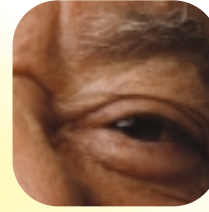
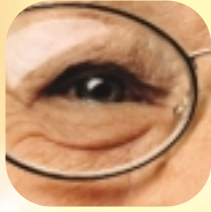


Pneumococcal

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 UK and worldwide.^{3,4} As pneumococcal disease becomes harder to treat because of this resistance, its prevention by immunisation becomes more important.

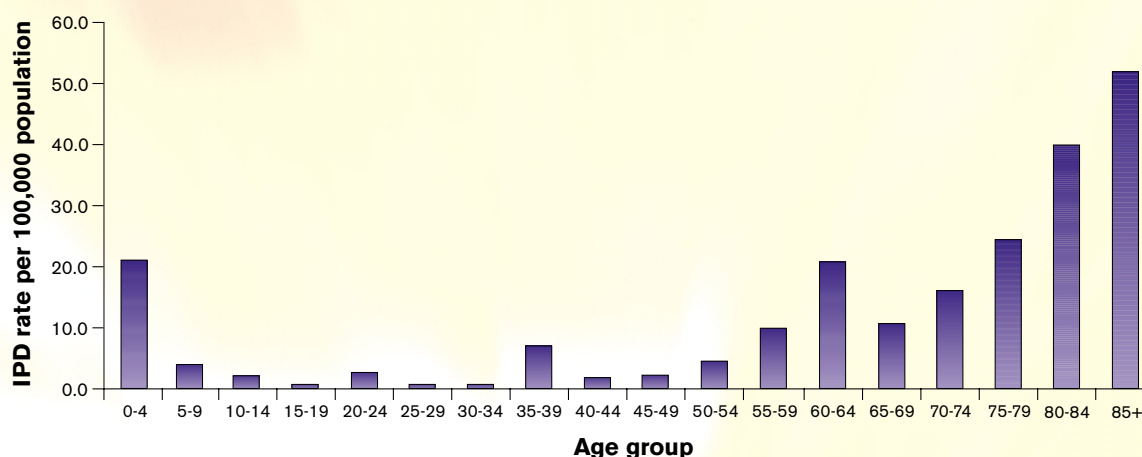
Table 1. Diseases caused by pneumococcal infection in older people

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 (Northern Ireland)



How common is pneumococcal disease?

It is estimated that 2 in every 1,000 adults over the age of 65 are admitted to hospital because of pneumococcal pneumonia each year, rising to over 4 in every 1,000 adults aged 80 years or over.⁵

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 44.5 in every 100,000 people aged 80 years and over in Northern Ireland (see Fig.1).⁶

The mortality rate for pneumococcal pneumonia has been estimated to be 10 to 20 in every 100 people.^{7,8} Information collected from hospital admissions in England suggests that there are over 3,400 deaths each year from pneumococcal infection in hospital patients over the age of 65 years.⁹ 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.^{10,11}

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 two 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% of all pneumococcal disease cases in the UK.¹

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 two 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 10 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 polysaccharide vaccine?

It is recommended that all those over 65 are offered pneumococcal polysaccharide vaccine.

People under 65 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, diabetes mellitus, a weakened immune system, a damaged spleen or no spleen.¹²

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 polysaccharide vaccine be given?

Unlike flu vaccine which is given before the start of the flu season (from October) 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 them.¹³

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, eg 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 later.¹²

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 rare.¹⁹ 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% in older age groups.^{14,15,16,17} Studies suggest that it is not effective in preventing pneumococcal pneumonia that occurs without septicaemia.¹⁸

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

Committee on Safety of Medicines (CSM)

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

Communicable Disease Surveillance Centre (CDSC) Northern Ireland

The Communicable Disease Surveillance Centre (NI) monitors the incidence of infectious or contagious diseases, which can be passed from person to person. CDSC (NI) monitors the immunisation programmes in Northern Ireland.

Conjugate vaccine

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

Epidemiology

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

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.

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, eg *Pneumococcus*, Hib and *Meningococcus*.

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).

References

- 1 George AC and Melegaro A. Invasive pneumococcal infection in England and Wales 1999. *CDR Weekly* 2001 11: 4-17.
- 2 Sleeman K et al. Invasive pneumococcal disease in England and Wales: vaccination implications. *JID* 2001 183: 239-46.
- 3 Invasive pneumococcal infection, England and Wales: 2000. *CDR Weekly* 2003 3-9.
- 4 Davies et al. Molecular epidemiological survey of penicillin-resistant *Streptococcus pneumoniae* from Asia, Europe, and North America. *Diagn Microbiol Infect Dis* 1999 34: 7-12.
- 5 Hospital Episodes Statistics: www.doh.gov.uk/hes. Admissions reporting pneumococcal pneumonia and lobar pneumonia codes (ICD-10 code: J13 and J181) in the first diagnostic field (HES 1999-2000).
- 6 Laboratory reports from CDSC (NI). Unpublished.
- 7 Cartwright K. Pneumococcal disease in western Europe: burden of disease, antibiotic resistance and management. *Eur J Pediatr* 2002 16: 188-95.
- 8 World Health Organization (1999) Pneumococcal vaccines. WHO position paper. *Weekly Epidemiol Rec* 74: 177-83. (<http://www.who.int/wer/pdf/1999/wer7423.pdf>)
- 9 Hospital Episodes Statistics. Deaths from pneumococcal related hospital admissions (pneumococcal related codes or lobar pneumonia code in the first diagnostic field).
- 10 BTS guidelines for the management of community acquired pneumonia in adults. *Thorax* 2001 56 (Suppl 4): iv1-iv64.
- 11 McIntosh EDG and Booy R. Invasive pneumococcal disease in England and Wales: what is the true burden and what is the potential for prevention using 7-valent pneumococcal conjugate vaccine? *Arch Dis Child* 2002; 86: 403-6.
- 12 Salisbury DM and Begg NT (Eds) 1996 Immunisation against infectious disease. HMSO, London. (see new 2003 pneumococcal chapter at www.doh.gov.uk/greenbook)
- 13 Christenson B et al. Effects of a large-scale intervention with influenza and 23-valent pneumococcal vaccines in adults aged 65 years or older: a prospective study. *Lancet* 2001 357: 1008-11.
- 14 Mantani P et al. Efficacy of polysaccharide pneumococcal vaccine in adults in more developed countries: the state of the evidence. *Lancet Infect Dis* 2003 3: 71-8.
- 15 Fedson DS. The clinical effectiveness of pneumococcal vaccination: a brief review. *Vaccine* 1999 17: S85-S90.
- 16 Fine MJ et al. Efficacy of pneumococcal vaccination in adults: a meta-analysis of randomised controlled trials. *Arch Int Med* 1994; 154: 2666-77
- 17 Butler JC et al. Pneumococcal polysaccharide vaccine efficacy: an evaluation of current recommendations *JAMA* 1993; 270: 1826-31.
- 18 Jackson LA et al. Effectiveness of pneumococcal polysaccharide vaccine in older adults. *N Engl J Med* 2003 348: 1747-55.
- 19 Atkinson W and Wolfe C (Eds) 2003 *Epidemiology and prevention of vaccine preventable diseases USA* DHHS, CDC.



Health
Promotion
Agency

© Crown Copyright. Reproduced by the Health Promotion Agency for Northern Ireland on behalf of the Department of Health, Social Services and Public Safety with permission from the Department of Health.