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PNEUMOCOCCAL INFECTION AND VACCINATION - a patient's guide

Editorial Team

Overview

Pneumococcal bacterial infection is still a leading cause of death and illness throughout the world, despite the use of antibiotics.

Vaccines have been developed to help prevent infection, especially for those groups most at risk such as those with immune suppression, the elderly, children, and with chronic illnesses.

The vaccines are generally well tolerated by adults and children, and can prevent spread of serious pneumococcus bacteria to those at risk.

90% of the infections caused by pneumococcus bacteria are covered by the vaccines. The vaccines are 60-70% effective for most groups.

Vaccination is by injection. In some cases revaccination may be required after 3-5 years.

Those undergoing radio or chemotherapy should not use the vaccine. In certain situations vaccination should be delayed. People with specific severe allergies should discuss this with their doctor or vaccinator.

Generally, side effects are minor and short-lived.

Brands:

Pneumovax 23 (pneumococcal vaccine polyvalent, MSD)

Pneumo 23 (polysaccharide polyvalent pneumococcal vaccine)

PCV7 (heptavalent pneumococcal conjugate vaccine)

Use: Vaccine against Pneumococcal pneumonia

What is a pneumococcal infection?

The bacterial strain *Streptococcus pneumoniae*, also known as pneumococcus, is a leading cause of illness and death, especially for those over 65 years of age, amongst children and within hospitals.

The number of deaths per year from this bacterium have remained the same for the last 40 years, despite the introduction of penicillin antibiotics. There are over one million deaths of children under 5 years globally from pneumococcus. Pneumococcal infections cause around 100,000 cases of meningitis, bloodstream infections and pneumonia every year in children under 5 years of age. It is also a common cause of ear infection.

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How is pneumococcal infection spread, and can it be prevented without vaccination?

Up to 60% of people in a community may be carrying pneumococcal bacteria in their nasal passages and throat. Like many bacteria and viruses, dangerous strains are carried by healthy people without them suffering symptoms.

Pneumococcal infection is spread in a similar way to the common cold - by sneezing, coughing and touch. Simple hygiene and care can prevent some spread such as frequent hand washing and avoiding touching the mouth and nose.

However, pneumococcus are a common set of bacteria in most people's systems so people can develop serious infection without catching it from others. Pneumococcal bacteria usually develops into a more serious form of infection when it moves from the nose and throat, for instance to infect the blood, down into the lungs as pneumonia, or to the brain as meningitis.

Antibiotics can be effective on some strains of pneumococcal infection, especially in the early stages, but several of the more serious strains have become immune to antibiotics.

What are the benefits of pneumococcal vaccines?

The reason pneumococcal bacterial infection is still a leading cause of death is because of resistance to antibiotics which is on the increase worldwide. This makes people susceptible to infection by pneumococcus very vulnerable - protection using antibiotics is unreliable and the body often succumbs to infection.

As many serious strains of pneumococcal bacteria are carried by people in the community without showing symptoms, carriers of the bacteria are a threat to those most at risk of infection. Vaccination of those in contact with risk groups can lessen the possibility of infection.

Pneumococcal vaccines can offer protection against pneumococcal infections, including 90% of penicillin resistant strains. They are well tolerated by children and adults, including the elderly, and most beneficial to those without a spleen or spleen function, or with long term diseases susceptible to pneumococcal infection.

What is the vaccine made of, how is it given and how often?

The vaccines are made up of inactive or purified (dead) parts of the most common types of pneumococcal bacteria. These are attached to proteins and once introduced to the body, trigger the immune system to build defences against these bacteria.

The vaccination is generally given as an injection under the skin or into a muscle, usually on the upper arm or mid-thigh.

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The vaccine administered to under 2 year olds is intended to last a lifetime. The vaccines for over 2 year olds may need to be re-administered after 3-5 years, especially for those at particular risk of pneumococcal infections.

Who is the vaccine most suitable for?

Those who should consider using the vaccine, and who are at risk from pneumococcal infection include:

those under 2 years of age

the elderly (over 65 years)

those suffering skull fracture

those suffering lung surface irritation (such as through influenza, chemicals, smoking)

those in circumstances where pneumococcal infection is common, such as hospitals or institutional care facilities

those suffering certain diseases.

In general vaccination is recommended for the following diseases or conditions:

those without a spleen or with spleen disorders, or about to have it removed

sickle cell disease

renal (kidney) disease

those with immune suppression or diseases such as HIV infection, Hodgkin's or with an organ transplant.

chronic lung, heart or liver disease, including cirrhosis

diabetes mellitus.

The American Academy of Paediatrics recommends all children under the age of 23 months receive the new pneumococcal vaccine PCV7 (heptavalent pneumococcal conjugate vaccine), approved for children younger than 2 years. They suggest vaccination along with the usual other recommended childhood vaccines at 2, 4, 6, and 12 to 15 months, and also for children between 2-5 years who are at high risk of pneumococcal infection such as those with sickle cell disease and HIV infection.

In Britain, the Dept. of Health recommends immunisation with the pneumococcal 23 valent vaccine for all over 2 years of age if pneumococcal infection is likely to be common or dangerous.

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Revaccination by pneumococcal 23 valent vaccine is recommended for those at high risk, 3-5 years after initial vaccination.

When should vaccination be avoided?

Certain people may not be able to use the vaccine, and there are particular times the vaccine should not be used.

Those with an allergy to the ingredients in the pneumococcal vaccine should not use it. Those under treatment which upset the body's immune system, such as radio and chemotherapy and certain drugs, should not use the vaccine.

Those who are pregnant or breast feeding may decide against using the vaccine, unless the benefits outweigh possible risks.

Those with infections and high temperatures may need to delay the use of the vaccine.

Those who have already been vaccinated with the pneumococcal vaccine within the past 3 years should not be revaccinated unless specifically advised to.

How effective is the vaccine?

The vaccines cover 90% of the pneumococcal bacteria causing infection by promoting the body to develop defenses against these infections. Vaccination may not protect patients from strains of pneumococcal disease not included in the vaccine.

Studies show the overall efficiency of the Pneumo 23 vaccines against pneumonia is 60-70% but less for patients with certain immunity or blood problems, HIV, and those with transplants or lung disease.

Revaccination may be required before 5 years for those at particular risk of developing pneumococcal infection. Those at high risk are generally monitored carefully soon after immunisation, and afterwards yearly, to check the vaccine has promoted development of antibody defence.

What are the side effects?

General side effects of the vaccines are redness and swelling at the site of injection and a mild fever, and in some cases some muscle aches or pain and swelling of joints for a day or so.

However, some people may develop rashes, itching, skin swellings similar to hives, or swelling of face, lips or tongue. These can be signs of allergic reaction to the vaccine and urgent medical attention is required.