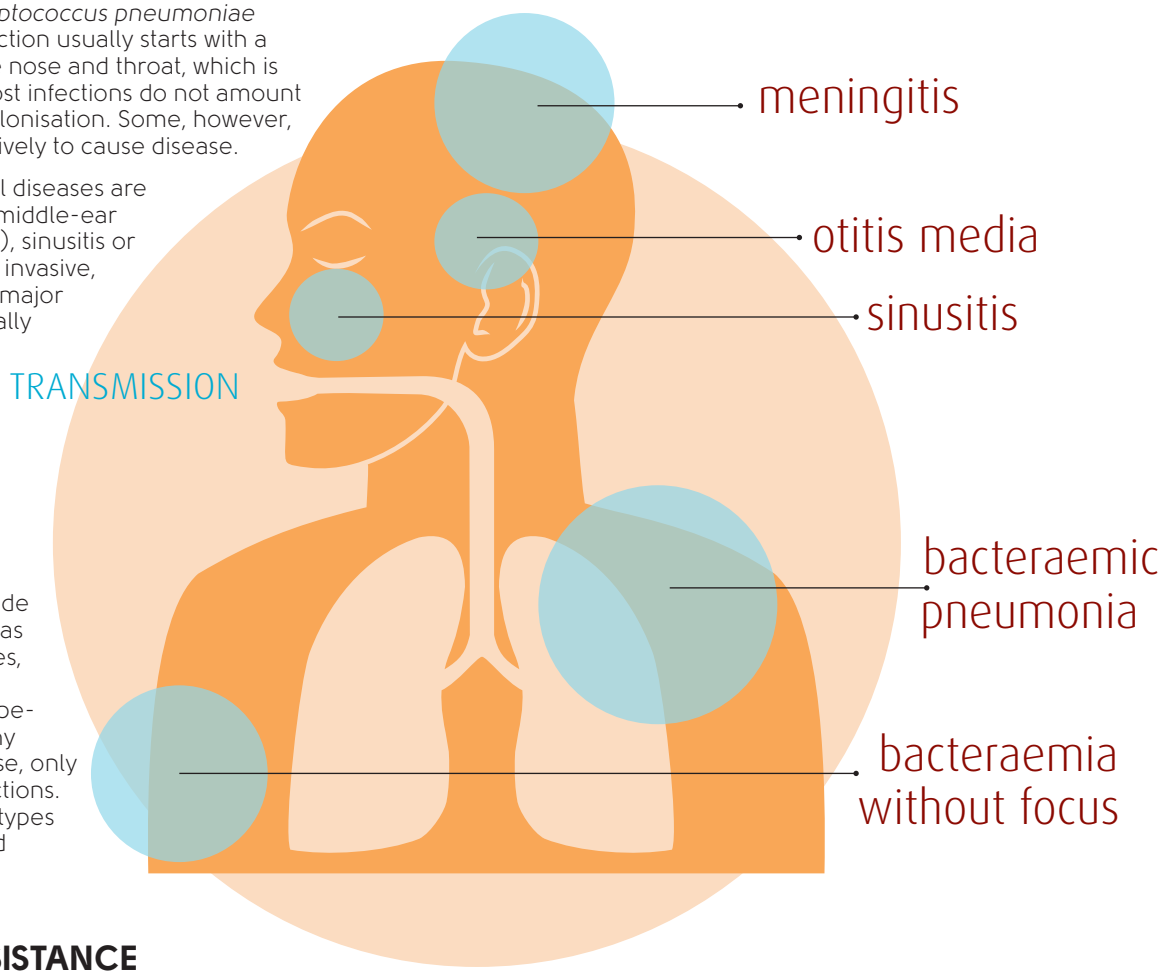
the 2016 pneumococcal disease guide for general practitioners

Influenza Specialist Group

PNEUMOCOCCAL DISEASE is caused by the bacterium, *Streptococcus pneumoniae* (pneumococcus). Infection usually starts with a colonising event in the nose and throat, which is asymptomatic, and most infections do not amount to anything beyond colonisation. Some, however, spread locally or invasively to cause disease.

Certain pneumococcal diseases are non-invasive, such as middle-ear infections (otitis media), sinusitis or bronchitis.[4] Others are invasive, involve the blood or a major organ and are potentially life-threatening. Examples of invasive pneumococcal diseases (IPDs) include septicaemia (sepsis), meningitis or bacteraemic pneumonia.

Pneumococci usually possess a polysaccharide capsule, which occurs as more than 90 serotypes, and immunity to the organism is capsule type-specific. Although many serotypes cause disease, only a few cause most infections. The predominant serotypes vary with age, time and geography.[5,6]



ANTIBIOTIC RESISTANCE

Pneumococcal disease is mainly treated using β-lactam antibiotics, though pneumococci bacteria are increasingly developing antibiotic resistance. Strains have variably become resistant to penicillin, cephalosporins, macrolides, tetracycline, clindamycin and the quinolones.[7]

TRANSMISSION

Transmission occurs through respiratory droplets from people with pneumococcal disease or healthy carriers. If the infected person coughs or sneezes in close proximity of others, infection may spread.

Following acquisition, the bacterium becomes established in the nasopharynx of the host with asymptomatic colonisation. It may then spread to other parts of the body where it causes disease. The bacteria's polysaccharide capsule helps it to resist phagocytosis. If no anti-capsular antibody pre-exists, alveolar macrophages cannot kill the pneumococci.[1-3,5]

CLINICAL FEATURES

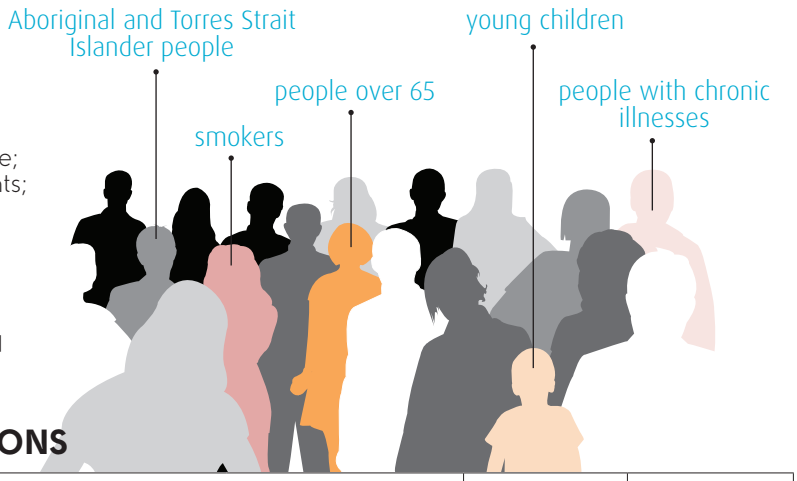
The major clinical syndromes of IPD are pneumonia, septicaemia and meningitis.[2,8] Symptoms of pneumonia include fever, chills, coughing, rapid or difficult breathing, chest pain, rigors, tachycardia, rusty-coloured sputum, cough productive of mucopurulent, dyspnea, tachypnea, hypoxia, or, in older patients, confusion or low alertness.

Meningitis, although least common, is the most severe category of IPD and is often fatal.[2,3] Symptoms include a stiff neck, fever, lethargy, nuchal rigidity, cranial nerve signs, seizures, coma, headache, pain when looking into bright lights, confusion, or, in babies, poor eating and drinking, low alertness or vomiting.

Septicaemia is the most common IPD among young children. Symptoms include fever, chills and low alertness. By 12 months, most children have also experienced otitis media. Pneumococcus is detected in 28 to 55% of middle ear aspirates from children with otitis media. Symptoms include ear pain, a red, swollen eardrum, fever, and sleepiness. Complications of otitis media may include mastoiditis and meningitis.[2,5,9]

WHO IS MOST AT RISK?

Anyone can contract IPD though some groups are at heightened risk. These include people younger than two years of age or older than 65; children in group childcare; children in developing countries; nursing homes residents; smokers; people suffering from chronic conditions such as lung, heart, liver or kidney disease, asthma, diabetes or alcoholism; people with cochlear ear implants, cerebrospinal fluid (CSF) leaks or impaired immunity for any reason, including those arising from conditions such as HIV/AIDS, cancer or a damaged or absent spleen; and Aboriginal and Torres Strait Islander people.[3,10,11]



ADULT VACCINATION RECOMMENDATIONS

RISK OF IPD		AGE		13vPCV [2]*	23vPPV [1]**
		Non-Indigenous	Indigenous		
Healthy		≥ 65yrs		-	1 dose‡
			≥ 50yrs	-	2 doses#
Increased risk category (B)	• Diabetes mellitus • Chronic lung disease • Chronic cardiac disease • Chronic liver disease • Down syndrome • Alcoholism • Tobacco smoking	18–64 yrs	18–49 yrs	-	3 doses*
		≥ 65yrs	≥ 50yrs	-	2 doses*
Highest risk category (A)	• Functional or anatomical asplenia • Immunocompromised persons (eg chronic renal failure) • Cerebrospinal fluid leaks • Cochlear implants • Intracranial shunts	18–64 yrs	18–49 yrs	1 dose	3 doses*
		≥ 65yrs	≥ 50yrs	1 dose	3 doses‡•

1 23vPPV is funded under the NIP, except for non-indigenous category A & B 18–64 yrs, which is subsidised on the PBS for eligible adults.

2 13vPCV is not funded under the NIP.

* Recommended for those with risk factors for invasive disease who have never received the 13vPCV. This dose should precede the 1st dose of the recommended 23vPPC by 2 months. For those who have had 23vPPC, the 13-valent vaccine should be given at least 12 months later.

** The minimum interval between any 2 doses of Pneumovax23 is 5 years with a maximum of 3 lifetime adult doses.

‡ The 2nd dose should be given 5 years after the 1st dose.

The 2nd dose should be given 5–10 years after the 1st dose. The 3rd dose should be given at 50 years for indigenous people or 5 years after the 2nd dose, whichever is later.

• The 3rd dose should be given at 65 years or 5 years after the 2nd dose, whichever is later.

Ref: NHMRC Australian Immunisation Handbook, 10th Edition, 2013. Pharmaceutical Benefits Scheme Listing Pneumococcal Purified Capsular Polysaccharides. Available at http://www.pbs.gov.au/medicine/item/1903E

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