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# A dangerous bug

Pneumococcal disease is not something that you should take lightly. The infections can be lethal.

By Datuk Dr MUSA MOHD NORDIN

**P**NEUMOCOCCAL disease, caused by the bacterium *Streptococcus pneumoniae* or pneumococcus (pneumococci if plural), is the leading cause of serious illness in both children and adults worldwide. Out of more than 90 subtypes, 10 of the most common ones cause 62% of invasive pneumococcal infections all over the world.

According to the World Health Organization (WHO), nearly 1.6 million people die every year globally due to pneumococcal disease, and from this figure, at least half of them are children younger than five years of age, mainly in developing countries.

Pneumococcal disease is highly contagious and is transmitted from person to person via respiratory droplets that are expelled through coughing, sneezing, or close contact. Pneumococci are actually common inhabitants of the respiratory tract and can be found in the nasopharynx of 20% to 40% of healthy children and 5% to 10% of adults.

Although almost anyone can get pneumococcal disease, the risk is higher in the young, the elderly, as well as those who suffer from certain health problems (e.g. thalassaemia) or have weakened immune systems (e.g. HIV).

There are generally two main types of pneumococcal diseases:

1. Non-invasive pneumococcal diseases
2. Invasive pneumococcal diseases (IPD)

Non-invasive pneumococcal diseases are the less serious of the two, occurring outside the major organs or blood. The bacteria spreads to the respiratory tract and cause:

- Otitis media (infection of the middle ear)

This is an inflammation of the middle ear. Fluid will usually accumulate, causing the eardrum to swell and leads to earaches. Infected pus drains into the ear canal, and if the eardrum is punctured, may lead to the possibility of hearing loss. Pneumococcus causes 28-55% of such ear infections all over the world.

Invasive pneumococcal diseases (IPD) are more serious as they occur within a major organ or in the blood. Some of the examples of IPD include:

- Pneumonia (lung infection)

Pneumonia, an inflammation of the lungs, is the most common disease caused by the pneumococcus and has symptoms that include abrupt fever, shivering, chest pain, and shortness of breath. The incubation period is very short (one to three days) while the

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fatality rate is between 5% to 7%.

● **Bacteraemia (blood infection)**

This is a serious illness that refers to the presence of pneumococci bacteria in the blood, causing fever, irritability, and rapid breathing.

● **Meningitis**

This is an infection of the meninges, which is the protective layer covering the brain and spinal cord. Symptoms include headaches, vomiting, seizures, fever, and in severe cases,

coma. Children under the age of one have the highest rate of pneumococcal meningitis, with around 10 cases per 100,000 persons. In fact, 19% of all meningitis cases are caused by pneumococci and have high fatality rates.

Pneumococcal infections develop in as quickly as one to three days and delayed treatment may lead to more severe complications and adverse effects such as hearing loss, paralysis, brain damage, coma, and even death.

Pneumococcal disease is usually diagnosed by taking samples of the child's blood, sputum, or spinal fluid for cultures. Depending on how severe an infection is, the child is treated using antibiotics. Mild infections are treated with oral antibiotics.

Penicillin is the common antibiotic used to treat the disease. However, more and more pneumococcal strains are becoming resistant to penicillin as well as other commonly used antibiotics. This complicates treatment and may result in the use of alternative antimicrobial agents. These complications lead to prolonged hospital stays with higher medical costs, and higher incidences of mortality.

The best way to protect your family against

pneumococcal disease is through vaccinations. Infants and very young children are at high risk of deadly infections if they are not immunised against the disease.

According to the World Health Organization (WHO), up to a million children die each year from pneumococcal disease worldwide. Published studies on pneumococcal disease in Malaysia have shown pneumonia to be the most common clinical presentation with morbidity and mortality being highest in children under two years of age.

Pneumococcal conjugate vaccine (PCV) has been proven to safely and effectively reduce the incidence of invasive pneumococcal disease (meningitis, bacteraemia, and pneumonia) and otitis media in young children. In Malaysia, since 2005, a 7-valent paediatric pneumococcal conjugate vaccine has been available for the prevention of pneumococcal infections. There now exists a 10-valent conjugate vaccine, the Pneumococcal Non-Typeable Haemophilus influenzae Protein D Conjugate Vaccine (PHiD-CV) that has been specially designed to improve the prevention against invasive pneumococcal disease by providing protection against three additional pneumococcal strains (serotypes 1, 5 and 7F) and pneumococcal otitis media.

■ *Datuk Dr Musa Mohd Nordin is a consultant paediatrician & neonatologist. This article is courtesy of the Malaysian Paediatric Association's Positive Parenting Childhood Immunisation Campaign that is supported by an educational grant from GlaxoSmithKline. For further information, please visit [www.mypositiveparenting.org](http://www.mypositiveparenting.org)*