

Frequently Asked Question on 23vPPV

Background information

1. What is pneumococcal infection?

Pneumococcal infection represents a wide range of diseases caused by the bacterium *Streptococcus pneumoniae* (or more commonly referred as pneumococcus). While pneumococcus is a common cause of mild illnesses such as sinus or middle ear infections, it may also cause severe or even life-threatening diseases, including pneumonia, septicaemia, and meningitis etc.

Invasive pneumococcal diseases (IPD) are defined as when the bacterium invades body parts which are usually bacteria-free such as blood, cerebrospinal fluid and, less commonly, other body fluids like joint, pleural or pericardial fluid etc. IPD are serious diseases of which the overall case-fatality rate ranges from about 20% in pneumococcal bacteraemia to about 30% in pneumococcal meningitis. The case fatality rate for IPD is substantially higher among elderly patients.

2. What is *Streptococcus pneumoniae*/ pneumococcus?

Streptococcus pneumoniae (pneumococcus) is a kind of bacteria that causes pneumococcal infections. Over 90 different serotypes of pneumococci have been identified according to their composition of capsular antigen.

3. How does individual acquire pneumococcal infections? What is the route of transmission for pneumococci?

Pneumococci are carried on human bodies. They are present in the respiratory tracts even in some healthy carriers. The bacteria can be transmitted via spread of droplet, direct oral contact or indirect contact with articles soiled with respiratory discharges.

4. What is the incidence rate of IPD in Hong Kong?

IPD is more common among young children and the elderly. In Hong Kong, the average annual incidences among children aged below 2 years and above 65 years were both 7.7 per 100,000 during the period 2000 to 2004.

5. How can pneumococcal infections be treated?

The treatment of pneumococcal infections usually involves the use of antibiotic(s). But there is a problem of increasing resistance of the bacterium to antibiotics, which makes prevention of pneumococcal infections important.

6. Does previous pneumococcal infection immune children from future IPD?

As there are over 90 serotypes of pneumococcus, previous infection of a

serotype of pneumococcus may not confer immunity to other serotypes of pneumococcus.

7. How can IPD be prevented?

One of the most effective means of preventing pneumococcal diseases is by immunising with pneumococcal vaccines. Currently there are two types of pneumococcal vaccines registered in Hong Kong:

- (i) 7-valent pneumococcal conjugate vaccine (PCV7), and
- (ii) 23-valent pneumococcal polysaccharide vaccine (23vPPV).

8. What is the relationship between influenza pandemic and pneumococcal infection?

Influenza predisposes individuals to bacterial community-acquired pneumonia. During previous pandemics, secondary bacterial pneumonia has been an important cause of morbidity and mortality.

Pneumococcal vaccines

1. What is the difference between the 7-valent pneumococcal conjugate vaccine (PCV7) and 23-valent pneumococcal polysaccharide vaccine (23vPPV)?

Both pneumococcal vaccines are safe and efficacious against IPD. 23vPPV contains 23 serotypes of purified capsular polysaccharide antigens (1-5, 6B, 7F, 8, 9N, 9V, 10A, 11A, 12F, 14, 15B, 17F, 18C, 19A, 19F, 22, 22F, 23F and 33F) and PCV7 contains purified capsular polysaccharide of seven serotypes (4, 6B, 9V, 14, 18C, 19F and 23F) conjugated to a non-toxic variant of diphtheria toxin. PCV7 is registered for use in children up to 9 years whereas 23vPPV for anyone 2 years or above. For young children, researchers have demonstrated that PCV7 is more immunogenic than 23vPPV.

2. Who should get pneumococcal vaccines?

Having reviewed current scientific evidence and recommendations among the international communities, the Scientific Committee on Vaccine Preventable Diseases (SCVPD) recommends pneumococcal vaccination for those at risk of severe IPD for personal protection, which includes:

- (i) persons at extremes of age (children aged between 6 weeks and less than 2 years and elders aged 65 years or above), and
- (ii) persons aged 2 to 64 years who have history of clinical IPD, are immunocompromised, have underlying chronic illnesses, or have cochlear implants.

3. How many doses of 23vPPV are required to complete a course?

High risk patients aged less than 65 years old may consider to have the revaccination 5 years after the first dose of 23vPPV. Any person who received the first dose at the age of 65 years old or above, only one dose of

23vPPV is required.

4. Do I need to revaccinate with 23vPPV for every 5 years?

As the safety of receiving three or more doses of 23vPPV is not known, the SCVPD does not recommend any person to receive more than two doses of 23vPPV.

5. Why my baby received more doses of pneumococcal vaccine than me?

PCV7 (7-valent pneumococcal conjugate vaccine) for newborns and 23vPPV (23-valent pneumococcal polysaccharide vaccine) are two different types of pneumococcal vaccine. Four doses of PCV7 are currently recommended for newborns.

6. What is the function of 23vPPV? How much protection does it offer?

23vPPV is used for the prevention of infections, in particular IPD, caused by the 23 serotypes contained in the vaccine. Observational studies suggest an effectiveness as high as 50-80% against IPD in healthy adults.

7. Why it is necessary for elderly to receive both influenza vaccine and 23vPPV?

During influenza pandemics, secondary bacterial pneumonia has been an important cause of morbidity and mortality. Data from a local study shows that dual vaccination with influenza vaccine and 23vPPV can lower the risk of hospitalization and mortality among elderly people.

Administration of vaccines

1. Are the two pneumococcal vaccines, PCV7 and 23vPPV, interchangeable?

No. According to recommendations by the Scientific Committee on Vaccine Preventable Diseases, vaccines should receive appropriate type of vaccine according to their age.

2. Can 23vPPV be received together with flu vaccine?

Yes. 23vPPV can be given together with other vaccines, including flu vaccine, but should be administered with a different syringe and at a different injection site.

3. Should 23vPPV be given prior/ after some specific medical procedures?

For individuals who will undergo elective splenectomy, 23vPPV should be given at least 2 weeks before the procedures if possible. 23vPPV should not be given during chemotherapy or radiation therapy for cancer.

Adverse events and contraindications

1. What are the adverse events associated with 23vPPV?

23vPPV has been demonstrated to be safe. Slight swelling and tenderness at the injection site may occur shortly following injection. Local reactions are more severe following a second dose but nearly all reactions resolve within a few days without treatment.

2. Who are not suitable to receive 23vPPV? What are the contraindications of vaccination with 23vPPV?

Severe allergic reaction following a prior dose of 23vPPV or to the vaccine component is a contraindication to further doses of vaccine.

3. Can individuals receive 23vPPV if they are not feeling well on the day of vaccination?

Minor illnesses such as upper respiratory tract infections are not contraindications to vaccination. Vaccination may also be deferred until symptoms subside in case of any worry.

4. Can 23vPPV given during pregnancy or breastfeeding?

The safety of 23vPPV during pregnancy is not known. It is not known whether the vaccine is excreted in human milk. Women who wish to receive 23vPPV should be vaccinated before pregnancy, if possible.

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