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PNEUMOCOCCAL VACCINE (ADULTS) in SPECIAL POPULATION

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WHO 2011–2020 Global Vaccine Action Plan promotes immunisation benefits to be equitably extended to all people including high risk special groups eg: preterm infants, pregnant women, those with chronic and immune-compromising medical conditions or at immunocompromised due to disease or aging. In the recent months, Drug Information Centre has been receiving calls asking for pneumococcal vaccination schedules for different populations. Many patients with these conditions are under-vaccinated. In the US, coverage among people aged > 65 years was 67% for the influenza vaccine in the 2014–2015 season and 55–60% for pneumococcal vaccines in 2013, while the coverage rate for herpes zoster vaccination among those aged 60 years or older was only 24%.

Two pneumococcal vaccines are recommended for adults: 13-valent pneumococcal conjugate vaccine (PCV13) & 23-valent pneumococcal polysaccharide vaccine (PPSV23). When both are indicated, PCV13 should be given before PPSV23 whenever possible. **CDC recommends vaccination to high risk patients with underlying medical conditions, summarised below:**

Risk Group	Condition	PCV 13 > / = 19 yrs	PPSV 23 19-64 yrs	PCV 13 > / = 65 yrs	PPSV 23 > / = 65 yrs
Immunocompetent	Alcoholism		✓	✓	✓
	Chronic heart/liver/lung/disease		✓	✓	✓
	Cigarette smoker		✓	✓	✓
	Diabetes mellitus		✓	✓	✓
	Cerebrospinal fluid leaks	✓	✓	✓	✓
	Cochlear implant	✓	✓	✓	✓
Functional or anatomic asplenia	Sickle cell disease / Hemoglobinopathies	✓	✓	✓	✓
	Congenital or acquired asplenia, or splenic dysfunction	✓	✓	✓	✓
Immunocompromised	HIV infection				
	Chronic renal failure / nephrotic syndrome				
	On immunosuppressive drugs or radiation therapy				
	Congenital immunodeficiency	✓		✓	✓
	Leukemia/Lymphoma/ Multiple Myeloma				
	Malignancy				

Useful Terms :

Conjugate: A type of vaccine that joins a **protein to an antigen** in order to improve the protection the vaccine provides

Polysaccharide: A type of vaccine composed of long chains of sugar molecules that resemble the surface of certain types of bacteria in order to help the immune system mount a response

≥ 8 weeks after PCV 13 ;
≥ 5 years after PPSV 23 at < 65 yrs

≥ 8 weeks after PCV 13 ;



FAQ

1. WHY PCV13 before PPSV23 to adults >65 years and older? Doesn't PPSV23 protect them against 10 extra strains of the pneumococcal bacteria?

PCV13 is recommended before PPSV23, based on studies demonstrating a better response to serotypes common to both vaccines when PCV was given first.

2. I have a patient on Adalimumab (Humira) for rheumatoid arthritis. Are patients on biologic therapy (monoclonal antibodies) part of the immunosuppressed population who needs PCV13 vaccination?

Adalimumab is a potent anti-inflammatory drug that blocks the activity of tumor necrosis factor (TNF). Adalimumab is considered immunosuppressive because serious infections have been reported including tuberculosis and infections caused by viruses, fungi, or bacteria. Consequently, a person taking Biologics or other drugs that affect TNF activity (such as infliximab [Remicade], Golimumab [Simponi], or Etanercept [Enbrel]) should be considered to have immunosuppression and receive PCV13.

3. Is PPSV23 contraindicated in pregnancy? Our patient has asthma and is pregnant.

No. PPSV23 is recommended in pregnancy if risk factors are present (eg: medical, occupational, lifestyle, or other indication). Safety studies have been conducted in third trimester.

4. How would you summarise the recommendations from CDC about pneumococcal vaccine?

- 1) Determine **age** range of patients if > 65 years or younger.
- 2) **Immunocompetent or immunocompromised** or with chronic condition?
- 3) Previous **history of PCV 13 or PPSV 23** ?

VACCINES	Pneumococcal Conjugated Vaccine, PCV13 (PREVENAR 13®, IM)	Pneumococcal Polysaccharide Vaccine, PPSV 23 (PNEUMO 23®, IM, SC)
BRAND NAME	PREVENAR 13	PNEUMOVAX 23
PRICE (RM)	RM 207.00 (purchase from Kedai NF)	RM 58.30 (Formulary)
AGE	Conjugate vaccines can be used for all ages, including infants and children under 2 years of age	Polysaccharide vaccines can only be used for children aged 2 years or older and adults.
SEROTYPES		
PROTECTION DURATION	Protection from Conjugate vaccine lasts longer than that from the polysaccharide vaccine. <input type="checkbox"/> -Children < 5 years are likely to have 3–5 years of protection. <input type="checkbox"/> -Older children, adolescents and adults are likely to have at least 5 years of protection after immunisation.	Protection from polysaccharide vaccines is shorter than from conjugate vaccines. <input type="checkbox"/> -Children < 5 years are likely to have 2–3 years of protection. <input type="checkbox"/> -Older children, adolescents and adults are likely to have between 3–5 years of protection after immunisation.
BOOSTER EFFECTS	Generates long term memory cells . Rapid boosting of immunity with booster doses.	Do not generate long term memory cells. Repeat polysaccharide vaccine doses generate less circulating antibodies than previous doses

Reference: https://www.immunize.org/askexperts/experts_pneumococcal_vaccines
<https://www.immune.org.nz>

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