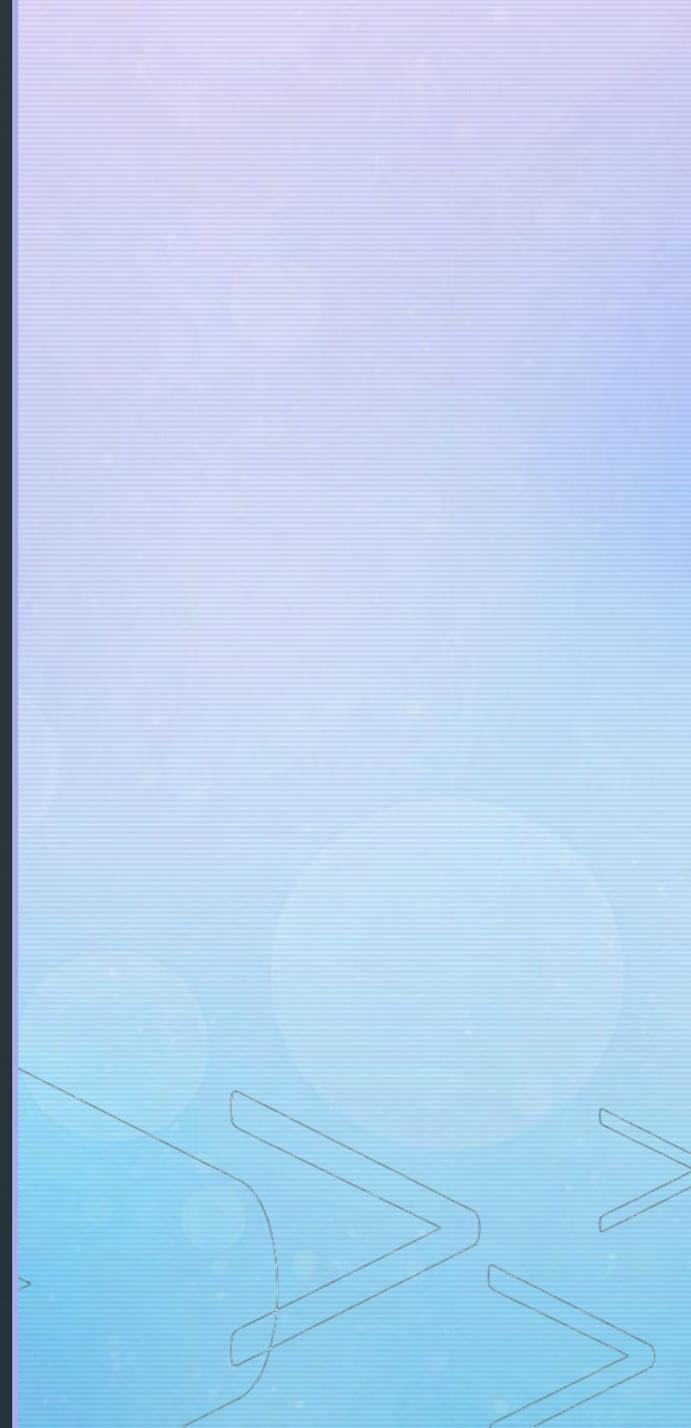




▶ Pneumococcal Vaccine
Recommendations: What
the PCP Needs to Know

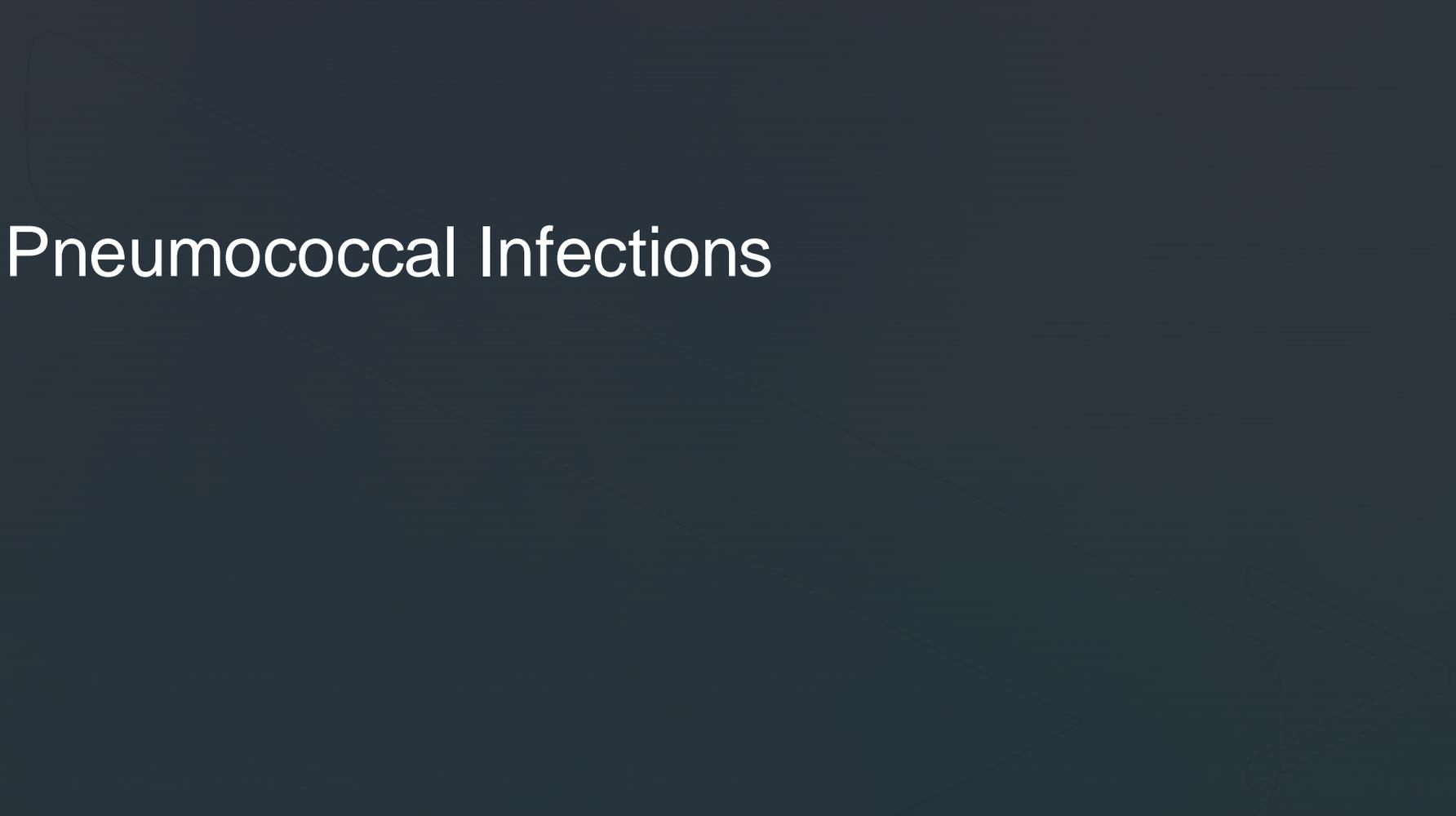
Anita Wong, MD
UCLA Family Medicine Educational Day
July 9, 2025



Outline



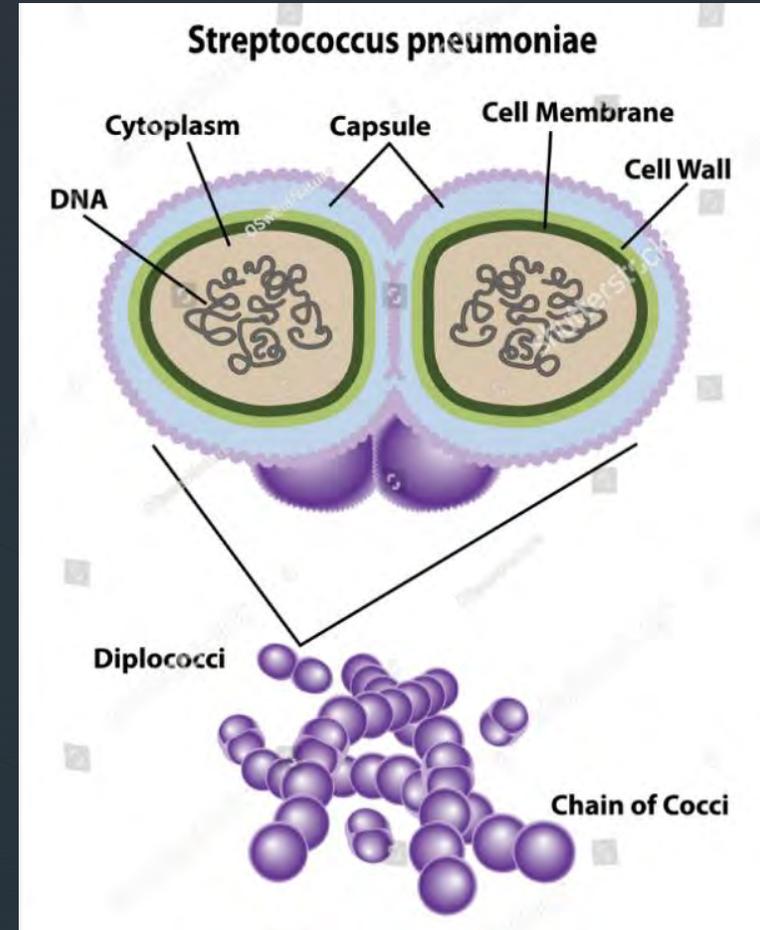
- Pneumococcal infections
- Types of pneumococcal vaccinations
- Vaccine recommendations for adults
- Vaccine recommendations for infants and children
- Cases



- ▶ Pneumococcal Infections

Pneumococcal Infections

- *Streptococcus pneumoniae*
 - Gram-positive encapsulated diplococci
 - Approximately 90 serotypes with varying polysaccharides on the outside capsule



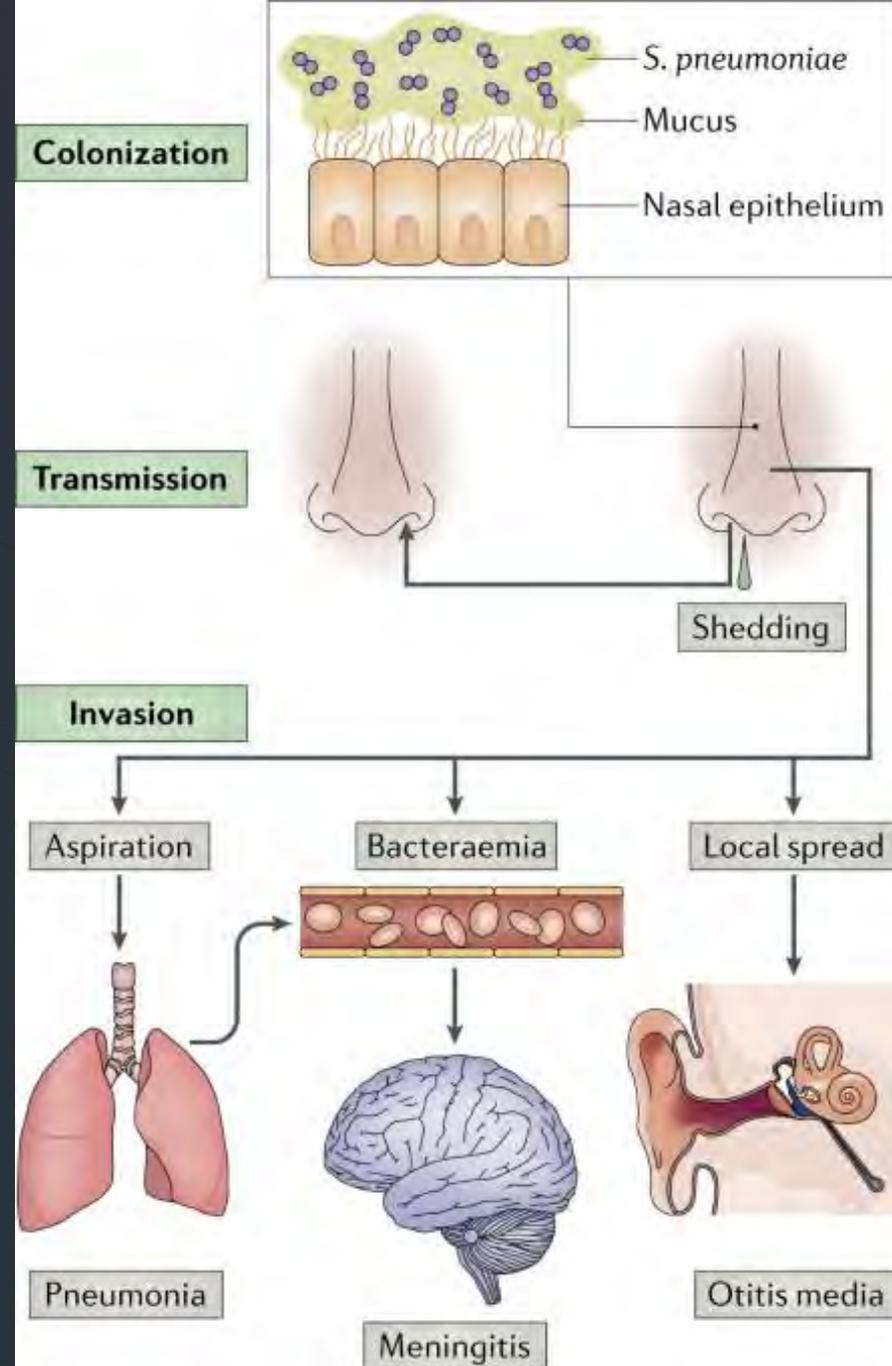
Pneumococcal Infections

Severe Infections

- **Bacteremia**
 - 20% fatality rate overall (1 out of 5)
 - Up to 60% fatality in older adults (3 out of 5)
 - Fulminant course in asplenic patients
- **Meningitis**
 - 22% fatality rate in adults (1 out of 5)
 - 8% fatality rate in children (1 out of 12)
 - 50% of survivors have neurologic sequelae
- **Pneumonia**
 - 5-7% fatality rate overall (1 out of 20), but higher in older adults and immunocompromised patients
 - Most common presentation in adults

Mild Infections

- **Acute otitis media**
 - Most common presentation in young children
- **Sinusitis**





- Types of Pneumococcal Vaccinations

Types of Pneumococcal Vaccinations

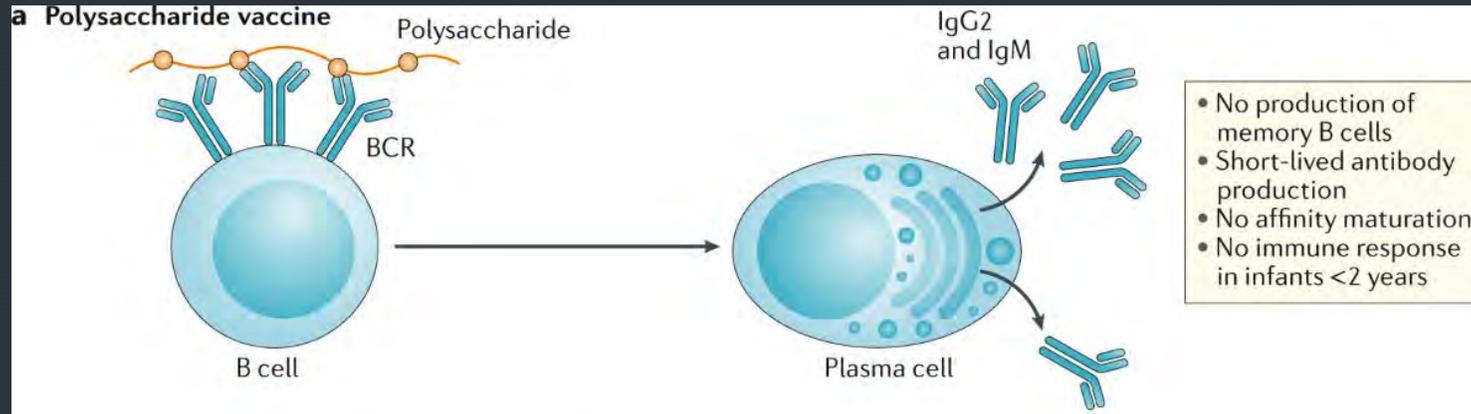
Pneumococcal conjugate vaccines (PCV)

- Vaccine against a pneumococcal capsular polysaccharide linked to a protein (nontoxic variant of diphtheria toxin CRM197)
- Protects against pneumonia, meningitis, and bacteremia
- Stimulates antibody production in the nasal epithelium to prevent colonization

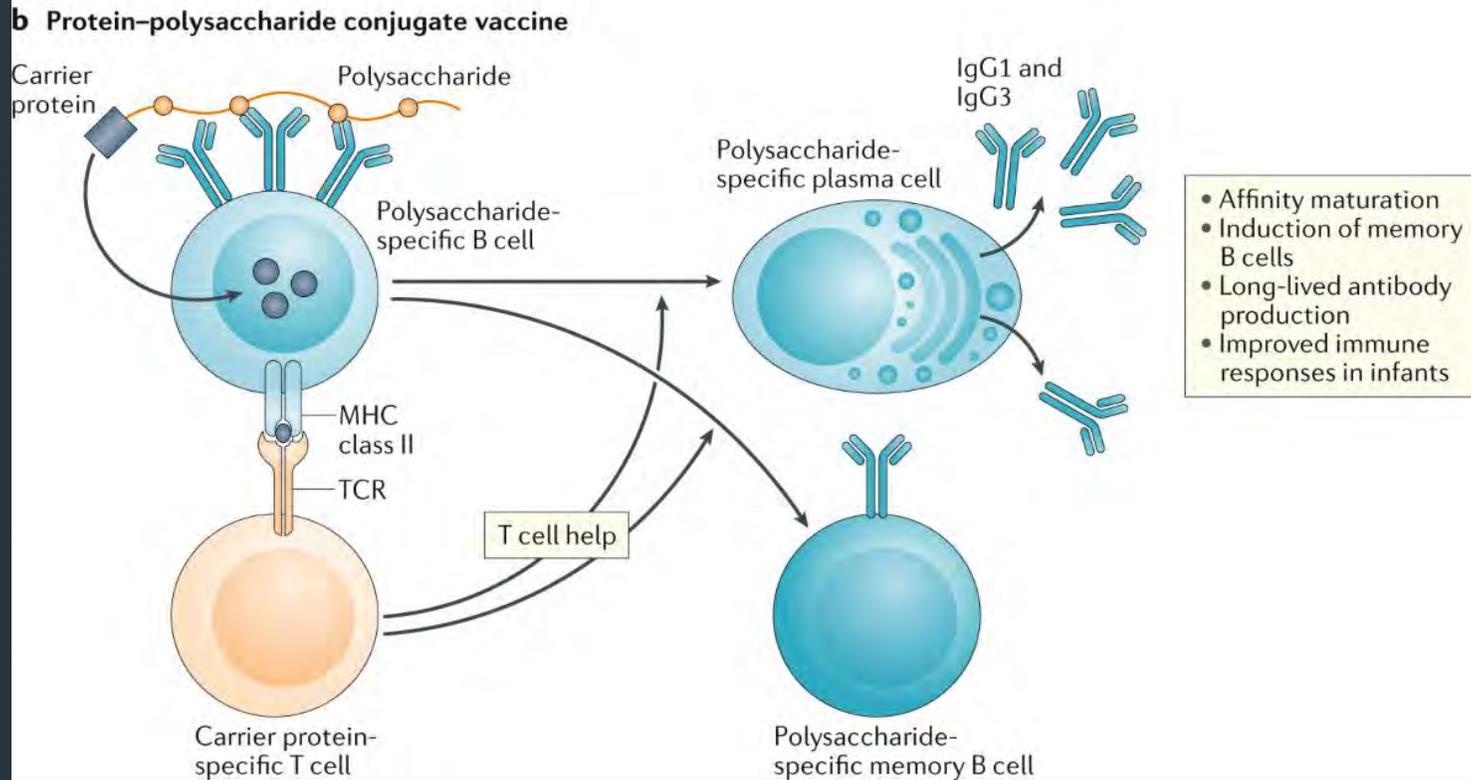
Pneumococcal polysaccharide vaccines (PPSV)

- Purified preparations of pneumococcal capsular polysaccharide from 23 serotypes
- Prevents invasive infections (meningitis, bacteremia) but only offers low level protection to pneumonia
- Does not protect against nasal colonization

PPSV



PCV



Types of Pneumococcal Vaccinations

Pneumococcal conjugate vaccines (PCVs)

- *PCV7 (no longer made)*
- *PCV13 (no longer made)*
- PCV15 (Vaxneuvance[®])
- PCV20 (Prevnar20[®])
- PCV21 (CAPVAXIVE[™])

Pneumococcal polysaccharide vaccines (PPSV)

- PPSV23 (Pneumovax[®])

Types of Pneumococcal Vaccinations

Pneumococcal conjugate vaccines (PCVs)

- *PCV7 (no longer made)*
- *PCV13 (no longer made)*
- PCV15 (Vaxneuvance[®]): ≥ 6 weeks
- PCV20 (Prevnar20[®]): ≥ 6 weeks
- PCV21 (CAPVAXIVE[™]): ≥ 18 yo

Pneumococcal polysaccharide vaccines (PPSV)

- PPSV23 (Pneumovax[®]): ≥ 2 yo

Figure 1

Pneumococcal Vaccine Serotypes

Serotypes^{a,b} included in pneumococcal vaccines currently recommended for adults—United States, 2024

■ Included in vaccine □ Not included in vaccine

Vaccine	Serotype																															
	1	3	4	5	6A	6B	7F	9V	14	18C	19A	19F	23F	22F	33F	8	10A	11A	12F	15B	2	9N	17F	20	5A	15C	16F	23A	23B	24F	31	35B
PCV21																																
PPSV23																																
PCV20																																
PCV15																																

^a PCV21 is approved for the prevention of invasive pneumococcal disease caused by serotype 15B based upon prespecified criteria for the proportion of participants with fourfold or more rise in opsonophagocytic activity responses. ^b PCV21 contains serotype 20A. PCV: pneumococcal conjugate vaccine; PCV15: 15-valent PCV; PCV20: 20-valent PCV; PCV21: 21-valent PCV; PPSV23: 23-valent pneumococcal polysaccharide vaccine. Source: Reference 2.

PCV20 versus PCV21

- PCV21 contains 8 new serotypes not included in PCV15, PCV20 or PPSV23, but does **NOT** contain serotype 4
 - In certain adult populations, serotype 4 causes high percentages ($\geq 30\%$) of invasive pneumococcal disease, so PCV20 should be used in these populations

PCV20 versus PCV21

- Populations where prevalence of serotype 4 is $\geq 30\%$ are denoted in red.
- Populations where prevalence of serotype 4 is $< 30\%$ are denoted in green, yellow, or orange.

Age group (years)	Region	State	2017	2018	2019	2020	2021	2022	2023
19-49	East	CT	0	0	0	0	0	0	0
		GA	0	0	0	0	2	1	0
		MD	0	0	0	0	0	0	0
		NY	0	0	0	0	0	0	3
		TN	0	0	0	0	0	0	2
	West	AK [†]	0	6	13	65	66	59	37
		CA	15	22	14	21	17	13	10
		CO	19	32	25	31	37	28	23
		MN	0	1	0	2	4	2	28
		NM	9	19	9	22	30	30	22
OR	0	0	0	0	11	45	48		

Age group (years)	Region	State	2017	2018	2019	2020	2021	2022	2023
50-64	East	CT	0	0	1	0	0	0	0
		GA	0	0	1	0	1	0	1
		MD	0	0	0	0	0	0	0
		NY	0	0	0	4	0	0	0
		TN	0	0	0	0	0	0	3
	West	AK [†]	0	2	10	48	66	56	41
		CA	16	12	6	15	0	11	18
		CO	13	12	16	23	20	22	14
		MN	0	0	1	1	2	2	12
		NM	0	7	13	18	22	21	15
OR	0	0	0	0	3	19	43		

Age group (years)	Region	State	2017	2018	2019	2020	2021	2022	2023
≥ 65	East	CT	0	0	0	0	0	0	0
		GA	0	0	0	0	0	0	1
		MD	0	1	0	0	0	0	0
		NY	0	0	0	0	0	0	1
		TN	0	0	1	1	0	0	3
	West	AK [†]	0	3	3	26	36	37	31
		CA	5	6	2	0	3	4	3
		CO	3	1	4	8	9	11	7
		MN	0	0	0	0	0	0	1
		NM	1	1	1	6	10	9	14
OR	0	0	0	0	0	6	26		

PCV20 versus PCV21

- Populations at risk
 - Alaska, Colorado, New Mexico, Navajo Nation, Oregon
 - Individuals in these areas are more likely to have serotype 4 if they are < 65 yo and have one of the following risk factors:
 - Alcohol use disorder
 - Chronic lung disease
 - Cigarette smoking
 - Unhoused status
 - IV drug use

PCV20 versus PCV21

- Bottom line:
 - Alaska, Colorado, New Mexico, Navajo Nation, Oregon -> preferentially use PCV20 instead of PCV21
 - Otherwise use what is available in your clinic



- ▶ Pneumococcal Vaccination
Recommendations for Adults

▶ The CDC recommends pneumococcal vaccination for:

- All adults 50 years and older
- Adults younger than 50 years at increased risk for pneumococcal disease



▶ Adult Populations at Increased Risk

- CSF leak
- Cochlear implant

Adult Populations at Increased Risk: Immunocompromising Conditions

- Congenital or acquired asplenia, or splenic dysfunction
- Congenital or acquired immunodeficiency
- Diseases or conditions treated with immunosuppressive drugs or radiation therapy
- HIV infection
- Solid organ transplantation
- Sickle cell disease or other hemoglobinopathies
- Chronic renal failure or nephrotic syndrome
- Generalized malignancy, Hodgkin disease, lymphoma, leukemia, multiple myeloma

Adult Populations at Increased Risk: Chronic Health Conditions

- Diabetes mellitus
- Alcohol use disorder
- Tobacco use disorder
- Chronic heart disease
 - Includes congestive heart failure and cardiomyopathies
 - Excludes hypertension
- Chronic lung disease
 - Includes COPD, emphysema, asthma
- Chronic liver disease

Pneumococcal Vaccine Timing for Adults

Make sure your patients are up to date with pneumococcal vaccination.

Adults ≥50 years old

Complete pneumococcal vaccine schedules

Prior vaccines	Option A	Option B
None*	PCV20 or PCV21	PCV15 → ≥1 year† → PPSV23‡
PCV15 only at any age	→ ≥1 year† → PPSV23‡	NO OPTION B
PCV15 & PPSV23 OR PCV20 OR PCV21 at any age	No vaccines recommended; schedule is complete.	
PPSV23 only at any age	→ ≥1 year → PCV20 or PCV21	→ ≥1 year → PCV15
PCV13 only at any age	→ ≥1 year → PCV20 or PCV21	NO OPTION B
PCV13 at any age & PPSV23 at <65 yrs	→ ≥5 years → PCV20 or PCV21	

* Also applies to people who received PCV7 at any age and no other pneumococcal vaccines

† If PPSV23 is not available, PCV20 or PCV21 may be used

‡ Consider minimum interval (8 weeks) for adults with an immunocompromising condition, cochlear implant, or cerebrospinal fluid leak (CSF) leak

§ For adults with an immunocompromising condition, cochlear implant, or CSF leak, the minimum interval for PPSV23 is ≥8 weeks since last PCV13 dose and ≥5 years since last PPSV23 dose; for others, the minimum interval for PPSV23 is ≥1 year since last PCV13 dose and ≥5 years since last PPSV23 dose

Adults 19–49 years old with a cochlear implant or cerebrospinal fluid leak

Complete pneumococcal vaccine schedules

Prior vaccines	Option A	Option B
None*	PCV20 or PCV21	PCV15 → ^{≥8 weeks} → PPSV23 [†]
PCV15 only at any age	→ ^{≥8 weeks} → PPSV23 [†]	NO OPTION B
PCV15 & PPSV23 OR PCV20 OR PCV21 at any age	No vaccines recommended at this time. Review pneumococcal vaccine recommendations again when your patient turns 50 years old.	
PPSV23 only at any age	→ ^{≥1 year} → PCV20 or PCV21	→ ^{≥1 year} → PCV15
PCV13 only at any age	→ ^{≥1 year} → PCV20 or PCV21	NO OPTION B
PCV13 and 1 dose of PPSV23 at any age	→ ^{≥5 years} → PCV20 or PCV21	No vaccines recommended at this time. Review pneumococcal vaccine recommendations again when your patient turns 50 years old.

* Also applies to people who received PCV7 at any age and no other pneumococcal vaccines

[†] If PPSV23 is not available, PCV20 or PCV21 may be used

Adults 19–49 years old with specified immunocompromising conditions

Complete pneumococcal vaccine schedules

Prior vaccines	Option A	Option B
None*	PCV20 or PCV21	PCV15 → ≥8 weeks → PPSV23 [†]
PCV15 only at any age	→ ≥8 weeks → PPSV23 [†]	NO OPTION B
PCV15 & PPSV23 OR PCV20 OR PCV21 at any age	No vaccines recommended at this time. Review pneumococcal vaccine recommendations again when your patient turns 50 years old.	
PPSV23 only at any age	→ ≥1 year → PCV20 or PCV21	→ ≥1 year → PCV15
PCV13 only at any age	→ ≥1 year → PCV20 or PCV21	NO OPTION B
PCV13 and 1 dose of PPSV23 at any age	→ ≥5 years → PCV20 or PCV21	
PCV13 and 2 doses of PPSV23 at any age	→ ≥5 years → PCV20 or PCV21	No vaccines recommended at this time. Review pneumococcal vaccine recommendations again when your patient turns 50 years old.
Immunocompromising conditions	<ul style="list-style-type: none"> Chronic renal failure Congenital or acquired asplenia Congenital or acquired immunodeficiency[§] Generalized malignancy 	<ul style="list-style-type: none"> HIV infection Hodgkin disease Iatrogenic immunosuppression[¶] Leukemia Lymphoma

* Also applies to people who received PCV7 at any age and no other pneumococcal vaccines

[†] If PPSV23 is not available, PCV20 or PCV21 may be used

[§] Includes B- (humoral) or T-lymphocyte deficiency, complement deficiencies (particularly C1, C2, C3, and C4 deficiencies), and phagocytic disorders (excluding chronic granulomatous disease)

[¶] Includes diseases requiring treatment with immunosuppressive drugs, including long-term systemic corticosteroids and radiation therapy

Adults 19–49 years old with chronic health conditions

Complete pneumococcal vaccine schedules

Prior vaccines	Option A	Option B
None*	PCV20 or PCV21	PCV15 → ≥ 1 year → PPSV23 [†]
PCV15 only at any age	≥ 1 year → PPSV23 [†]	NO OPTION B
PCV15 & PPSV23 OR PCV20 OR PCV21 at any age	No vaccines recommended at this time. Review pneumococcal vaccine recommendations again when your patient turns 50 years old.	
PPSV23 only at any age	≥ 1 year → PCV20 or PCV21	≥ 1 year → PCV15
PCV13 [†] only at any age	≥ 1 year → PCV20 or PCV21	NO OPTION B
PCV13 [†] and PPSV23 at any age	No vaccines are recommended at this time. Review pneumococcal vaccine recommendations again when your patient turns 50 years old.	
Chronic health conditions	<ul style="list-style-type: none"> Alcoholism Chronic heart disease, including congestive heart failure and cardiomyopathies Chronic liver disease 	<ul style="list-style-type: none"> Chronic lung disease, including chronic obstructive pulmonary disease, emphysema, and asthma Cigarette smoking Diabetes mellitus

* Also applies to people who received PCV7 at any age and no other pneumococcal vaccines

[†] If PPSV23 is not available, PCV20 or PCV21 may be used

[†] Adults with chronic medical conditions were previously not recommended to receive PCV13

Shared clinical decision-making for those who already completed the series with PCV13 and PPSV23

Prior vaccines

Complete series:
PCV13 at any age &
PPSV23 at ≥ 65 yrs

Shared clinical decision-making option for adults ≥ 65 years old

≥ 5 years

PCV20 or PCV21

Together, with the patient, vaccine providers **may choose** to administer PCV20 or PCV21 to adults ≥ 65 years old who have already received PCV13 (but not PCV15, PCV20, or PCV21) at any age and PPSV23 at or after the age of 65 years old.



- ▶ Pneumococcal Vaccination
Recommendations for Children

Types of Pneumococcal Vaccinations

Pneumococcal conjugate vaccines (PCVs)

- *PCV7 (no longer made)*
- *PCV13 (no longer made)*
- PCV15 (Vaxneuvance[®]): ≥ 6 weeks
- PCV20 (Prevnar20[®]): ≥ 6 weeks
- ~~PCV21 (CAPVAXIVE[™]): ≥ 18 yo~~

Pneumococcal polysaccharide vaccines (PPSV)

- PPSV23 (Pneumovax[®]): ≥ 2 yo

▾ The CDC's
recommendations for
vaccinating healthy
children < 18 yo:

Routine vaccination with PCV

- 4-dose series at 2, 4, 6, 12–15 months

Catch-up vaccination with PCV

- Healthy children ages 2–4 years with any incomplete*
PCV series: 1 dose PCV
- For other catch-up guidance, see Table 2.

Note: For children **without** risk conditions, PCV20 is not indicated if they have received 4 doses of PCV13 or PCV15 or another age appropriate complete PCV series.



Table 1 Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2025

These recommendations must be read with the notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars. To determine minimum intervals between doses, see the catch-up schedule (Table 2).

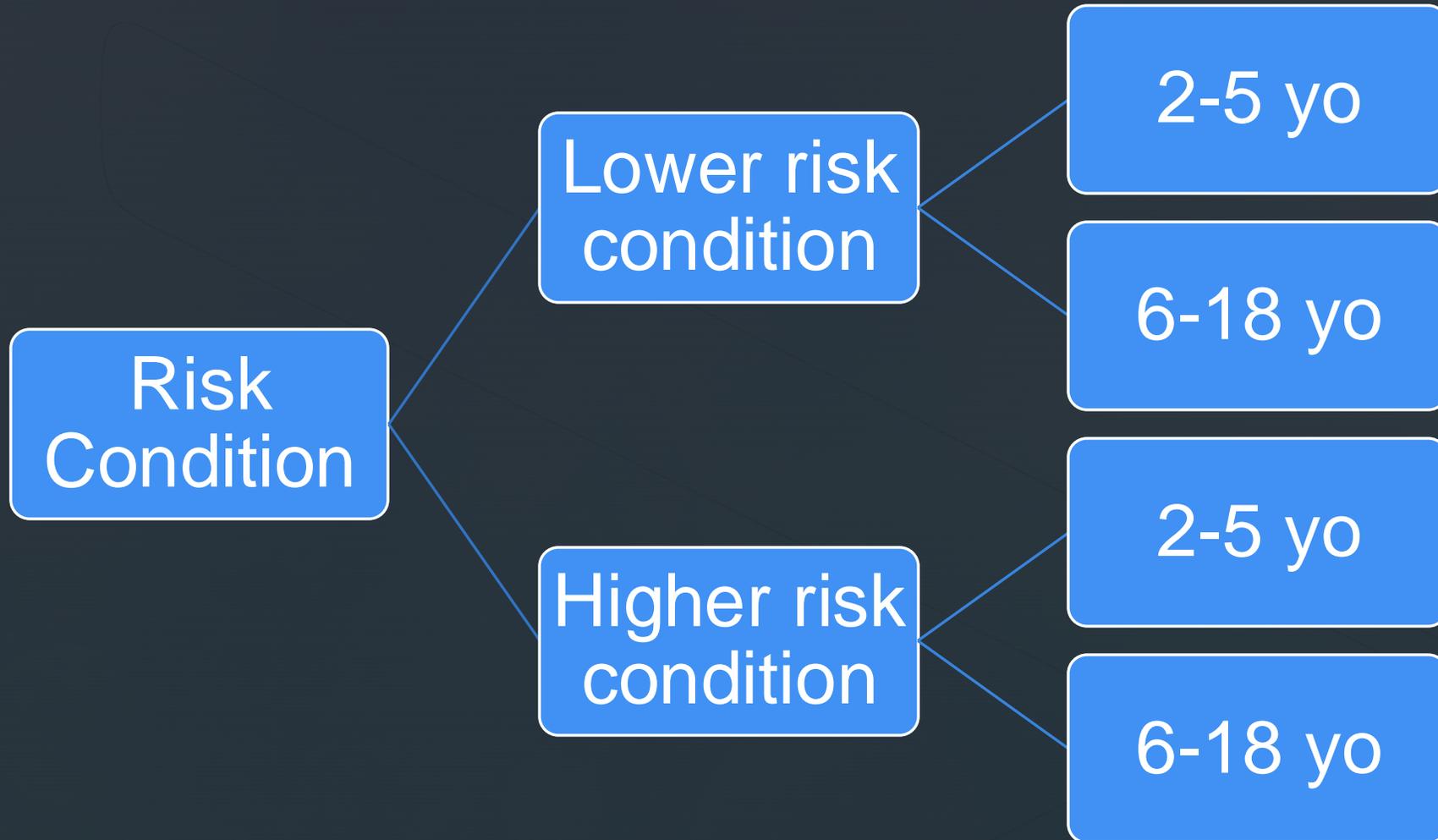
Vaccine and other immunizing agents	Birth	1 mo	2 mos	4 mos	6 mos	9 mos	12 mos	15 mos	18 mos	19–23 mos	2–3 yrs	4–6 yrs	7–10 yrs	11–12 yrs	13–15 yrs	16 yrs	17–18 yrs
Respiratory syncytial virus (RSV-mAb [Nirsevimab])	1 dose depending on maternal RSV vaccination status (See Notes)					1 dose (8 through 19 months), See Notes											
Hepatitis B (HepB)	1st dose	← 2nd dose →		← 3rd dose →													
Rotavirus (RV): RV1 (2-dose series), RV5 (3-dose series)			1st dose	2nd dose	See Notes												
Diphtheria, tetanus, acellular pertussis (DTaP <7 yrs)			1st dose	2nd dose	3rd dose				← 4th dose →			5th dose					
Haemophilus influenzae type b (Hib)			1st dose	2nd dose	See Notes			← 3rd or 4th dose (See Notes) →									
Pneumococcal conjugate (PCV15, PCV20)			1st dose	2nd dose	3rd dose			← 4th dose →									

Table 2 Recommended Catch-up Immunization Schedule for Children and Adolescents Who Start Late or Who Are More than 1 Month Behind, United States, 2025

The table below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child's age. **Always use this table in conjunction with Table 1 and the Notes that follow.**

Children age 4 months through 6 years					
Vaccine	Minimum Age for Dose 1	Minimum Interval Between Doses			
		Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5
Hepatitis B	Birth	4 weeks	8 weeks and at least 16 weeks after first dose minimum age for the final dose is 24 weeks		
Rotavirus	6 weeks Maximum age for first dose is 14 weeks, 6 days.	4 weeks	4 weeks maximum age for final dose is 8 months, 0 days		
Diphtheria, tetanus, and acellular pertussis	6 weeks	4 weeks	4 weeks	6 months	6 months A fifth dose is not necessary if the fourth dose was administered at age 4 years or older and at least 6 months after dose 3
<i>Haemophilus influenzae</i> type b	6 weeks	No further doses needed if first dose was administered at age 15 months or older. 4 weeks if first dose was administered before the 1st birthday. 8 weeks (as final dose) if first dose was administered at age 12 through 14 months.	No further doses needed if previous dose was administered at age 15 months or older 4 weeks if current age is younger than 12 months and first dose was administered at younger than age 7 months and at least 1 previous dose was PRP-T (ActHib, Pentacel, Hiberix), Vaxelis or unknown 8 weeks and age 12 through 59 months (as final dose) if current age is younger than 12 months and first dose was administered at age 7 through 11 months; OR if current age is 12 through 59 months and first dose was administered before the 1st birthday and second dose was administered at younger than 15 months; OR if both doses were PedvaxHIB and were administered before the 1st birthday	8 weeks (as final dose) This dose only necessary for children age 12 through 59 months who received 3 doses before the 1st birthday.	
Pneumococcal conjugate	6 weeks	No further doses needed for healthy children if first dose was administered at age 24 months or older 4 weeks if first dose was administered before the 1st birthday 8 weeks (as final dose for healthy children) if first dose was administered at the 1st birthday or after	No further doses needed for healthy children if previous dose was administered at age 24 months or older 4 weeks if current age is younger than 12 months and previous dose was administered at <7 months old 8 weeks (as final dose for healthy children) if previous dose was administered between 7–11 months (wait until at least 12 months old); OR if current age is 12 months or older and at least 1 dose was administered before age 12 months	8 weeks (as final dose) This dose is only necessary for children age 12 through 59 months regardless of risk, or age 60 through 71 months with any risk, who received 3 doses before age 12 months.	

Vaccination Recommendations for Children with Risk Conditions



Lower Risk Conditions in Children

- CSF leak
- Cochlear implant
- Chronic heart disease (particularly cyanotic heart disease)
- Chronic kidney disease (excluding dialysis and nephrotic syndrome)
- Chronic liver disease
- Chronic lung disease (including moderate or severe persistent asthma)
- Diabetes mellitus

Lower Risk Conditions in Children

2-5 yo

Age 2-5 years

- Any incomplete* PCV series with:
 - 3 PCV doses: 1 dose PCV (at least 8 weeks after the most recent PCV dose)
 - Less than 3 PCV doses: 2 doses PCV (at least 8 weeks after the most recent dose and administered at least 8 weeks apart)
- Completed recommended PCV series but have not received PPSV23.
 - Previously received at least 1 dose of PCV20: no further PCV or PPSV23 doses needed
 - Not previously received PCV20: administer 1 dose PCV20 or 1 dose PPSV23 administer at least 8 weeks after the most recent PCV dose.

6-18 yo

Age 6-18 years

- Not previously received any dose of PCV13, PCV15, or PCV20: administer 1 dose of PCV15 or PCV20. If PCV15 is used and no previous receipt of PPSV23, administer 1 dose of PPSV23 at least 8 weeks after the PCV15 dose.**
- Received PCV before age 6 years but have not received PPSV23
 - Previously received at least 1 dose of PCV20: no further PCV or PPSV23 doses needed
 - Not previously received PCV20: 1 dose PCV20 or 1 dose PPSV23 administer at least 8 weeks after the most recent PCV dose.
- Received PCV13 only at or after age 6 years: administer 1 dose PCV20 or 1 dose PPSV23 at least 8 weeks after the most recent PCV13 dose.
- Received 1 dose PCV13 and 1 dose PPSV23 at or after age 6 years: no further doses of any PCV or PPSV23 indicated.

Higher Risk Conditions in Children

- Dialysis or nephrotic syndrome
- Immunocompromising condition
 - Congenital or acquired asplenia, or splenic dysfunction
 - Congenital or acquired immunodeficiency
 - Diseases or conditions treated with immunosuppressive drugs or radiation therapy
 - HIV infection
 - Sickle cell disease or other hemoglobinopathy
- Malignant neoplasms, leukemias, lymphomas, Hodgkin's disease
- Solid organ transplant

Higher Risk Conditions in Children

2-5 yo

Age 2–5 years

- Any incomplete* PCV series:
 - 3 PCV doses: 1 dose PCV (at least 8 weeks after the most recent PCV dose)
 - Less than 3 PCV doses: 2 doses PCV (at least 8 weeks after the most recent dose and administered at least 8 weeks apart)
- Completed recommended PCV series but have not received PPSV23
 - Previously received at least 1 dose of PCV20: no further PCV or PPSV23 doses needed
 - Not previously received PCV20: administer 1 dose PCV20 or 1 dose PPSV23 at least 8 weeks after the most recent PCV dose. If PPSV23 is used, administer 1 dose of PCV20 or dose 2 PPSV23 at least 5 years after dose 1 PPSV23.

6-18 yo

Age 6–18 years

- Not previously received any dose of PCV13, PCV15, or PCV20: administer 1 dose of PCV15 or 1 dose of PCV20. If PCV15 is used and no previous receipt of PPSV23, administer 1 dose of PPSV23 at least 8 weeks after the PCV15 dose.**
- Received PCV before age 6 years but have not received PPSV23
 - Previously received at least 1 dose of PCV20: no additional dose of PCV or PPSV23
 - Not previously received PCV20: administer 1 dose PCV20 or 1 dose PPSV23 at least 8 weeks after the most recent PCV dose. If PPSV23 is used, administer either PCV20 or dose 2 PPSV23 at least 5 years after dose 1 PPSV23.
- Received PCV13 only at or after age 6 years: administer 1 dose PCV20 or 1 dose PPSV23 at least 8 weeks after the most recent PCV13 dose. If PPSV23 is used, administer 1 dose of PCV20 or dose 2 PPSV23 at least 5 years after dose 1 PPSV23.
- Received 1 dose PCV13 and 1 dose PPSV23 at or after age 6 years: administer 1 dose PCV20 or 1 dose PPSV23 at least 8 weeks after the most recent PCV13 dose and at least 5 years after dose 1 PPSV23.



PneumoRecs VaxAdvisor

Medical

Designed for iPad. Not verified for macOS.



 Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

Search



Pneumococcal Vaccine Recommendations

PneumoRecs
VaxAdvisor



SCAN ME

PneumoRecs VaxAdvisor

Tool to help determine which
pneumococcal vaccines children
and adults need.



Get Started

Enter a patient's age, pneumococcal vaccination history, and underlying medical conditions. Move through this tool to create customized pneumococcal vaccination recommendations.

<https://www2a.cdc.gov/vaccines/m/pneumo/pneumo.html>

Let's do some cases!

Case 1

- You are seeing a 52 YO otherwise healthy woman in clinic to establish care. She just moved here from Idaho and does not have any of her prior immunization records. What pneumococcal vaccination would you recommend that she get?

Case 1

- Answer: Administer **PCV20 or PCV21** for all adults who have never received any pneumococcal conjugate vaccine or whose previous vaccination history is unknown.
- You can administer PCV15, however you would then have to give PPSV23 one year later.

Pneumococcal Vaccine Timing for Adults

Make sure your patients are up to date with pneumococcal vaccination.

Adults ≥50 years old

Complete pneumococcal vaccine schedules

Prior vaccines	Option A	Option B
None*	PCV20 or PCV21	PCV15 → ≥1 year† → PPSV23‡
PCV15 only at any age	→ ≥1 year† → PPSV23‡	NO OPTION B
PCV15 & PPSV23 OR PCV20 OR PCV21 at any age	No vaccines recommended; schedule is complete.	
PPSV23 only at any age	→ ≥1 year → PCV20 or PCV21	→ ≥1 year → PCV15
PCV13 only at any age	→ ≥1 year → PCV20 or PCV21	NO OPTION B
PCV13 at any age & PPSV23 at <65 yrs	→ ≥5 years → PCV20 or PCV21	

* Also applies to people who received PCV7 at any age and no other pneumococcal vaccines

† If PPSV23 is not available, PCV20 or PCV21 may be used

‡ Consider minimum interval (8 weeks) for adults with an immunocompromising condition, cochlear implant, or cerebrospinal fluid leak (CSF) leak

§ For adults with an immunocompromising condition, cochlear implant, or CSF leak, the minimum interval for PPSV23 is ≥8 weeks since last PCV13 dose and ≥5 years since last PPSV23 dose; for others, the minimum interval for PPSV23 is ≥1 year since last PCV13 dose and ≥5 years since last PPSV23 dose

Case 2

- You are seeing a 52 YO male with a cochlear implant in clinic to establish care. He brought his vaccine records, and you see that he received PCV20 five years ago, when he was 47 YO. What pneumococcal vaccination would you recommend that he get?

Case 2

- Answer: No additional pneumococcal vaccinations are recommended.

Pneumococcal Vaccine Timing for Adults

Make sure your patients are up to date with pneumococcal vaccination.

Adults ≥50 years old

Complete pneumococcal vaccine schedules

Prior vaccines	Option A	Option B
None*	PCV20 or PCV21	PCV15 → ≥1 year† → PPSV23‡
PCV15 only at any age	→ ≥1 year† → PPSV23‡	NO OPTION B
PCV15 & PPSV23 OR PCV20 OR PCV21 at any age	No vaccines recommended; schedule is complete.	
PPSV23 only at any age	→ ≥1 year → PCV20 or PCV21	→ ≥1 year → PCV15
PCV13 only at any age	→ ≥1 year → PCV20 or PCV21	NO OPTION B
PCV13 at any age & PPSV23 at <65 yrs	→ ≥5 years → PCV20 or PCV21	

* Also applies to people who received PCV7 at any age and no other pneumococcal vaccines

† If PPSV23 is not available, PCV20 or PCV21 may be used

‡ Consider minimum interval (8 weeks) for adults with an immunocompromising condition, cochlear implant, or cerebrospinal fluid leak (CSF) leak

§ For adults with an immunocompromising condition, cochlear implant, or CSF leak, the minimum interval for PPSV23 is ≥8 weeks since last PCV13 dose and ≥5 years since last PPSV23 dose; for others, the minimum interval for PPSV23 is ≥1 year since last PCV13 dose and ≥5 years since last PPSV23 dose

Case 3

- You are seeing a 52 YO otherwise healthy woman in clinic to establish care. She brought her vaccine records, and you see that she received PCV15 one year ago. What pneumococcal vaccination would you recommend that she get?

Case 3

- Answer: She should receive **PPSV23** to complete her pneumococcal vaccination.

Pneumococcal Vaccine Timing for Adults

Make sure your patients are up to date with pneumococcal vaccination.

Adults ≥50 years old

Complete pneumococcal vaccine schedules

Prior vaccines	Option A	Option B
None*	PCV20 or PCV21	PCV15 → ≥1 year† → PPSV23‡
PCV15 only at any age	→ ≥1 year† → PPSV23‡	NO OPTION B
PCV15 & PPSV23 OR PCV20 OR PCV21 at any age	No vaccines recommended; schedule is complete.	
PPSV23 only at any age	→ ≥1 year → PCV20 or PCV21	→ ≥1 year → PCV15
PCV13 only at any age	→ ≥1 year → PCV20 or PCV21	NO OPTION B
PCV13 at any age & PPSV23 at <65 yrs	→ ≥5 years → PCV20 or PCV21	

* Also applies to people who received PCV7 at any age and no other pneumococcal vaccines

‡ If PPSV23 is not available, PCV20 or PCV21 may be used

† Consider minimum interval (8 weeks) for adults with an immunocompromising condition, cochlear implant, or cerebrospinal fluid leak (CSF) leak

§ For adults with an immunocompromising condition, cochlear implant, or CSF leak, the minimum interval for PPSV23 is ≥8 weeks since last PCV13 dose and ≥5 years since last PPSV23 dose; for others, the minimum interval for PPSV23 is ≥1 year since last PCV13 dose and ≥5 years since last PPSV23 dose

▶ Case 3: continuation

- Your MA says that our clinic no longer carries PPSV23. What do you do?

▶ Case 3: continuation

- If PPSV23 is not available, you may use **PCV20** or **PCV21** to complete the series.

Pneumococcal Vaccine Timing for Adults

Make sure your patients are up to date with pneumococcal vaccination.

Adults ≥50 years old

Complete pneumococcal vaccine schedules

Prior vaccines	Option A	Option B
None*	PCV20 or PCV21	PCV15 → ≥1 year [†] → PPSV23 [†]
PCV15 only at any age	→ ≥1 year [†] → PPSV23 [†]	NO OPTION B
PCV15 & PPSV23 OR PCV20 OR PCV21 at any age	No vaccines recommended; schedule is complete.	
PPSV23 only at any age	→ ≥1 year → PCV20 or PCV21	→ ≥1 year → PCV15
PCV13 only at any age	→ ≥1 year → PCV20 or PCV21	NO OPTION B
PCV13 at any age & PPSV23 at <65 yrs	→ ≥5 years → PCV20 or PCV21	

* Also applies to people who received PCV7 at any age and no other pneumococcal vaccines

[†] If PPSV23 is not available, PCV20 or PCV21 may be used

[‡] Consider minimum interval (8 weeks) for adults with an immunocompromising condition, cochlear implant, or cerebrospinal fluid leak (CSF) leak

[§] For adults with an immunocompromising condition, cochlear implant, or CSF leak, the minimum interval for PPSV23 is ≥8 weeks since last PCV13 dose and ≥5 years since last PPSV23 dose; for others, the minimum interval for PPSV23 is ≥1 year since last PCV13 dose and ≥5 years since last PPSV23 dose

Case 4

- You have a 47 yo M with ESRD on HD who received PCV13 at 38 yo and PPSV23 at 43 yo. What pneumococcal vaccination would you recommend that he get?

Case 4

- Answer: He should receive **PCV20** or **PCV21** in 1 year (5 years after receiving his last dose of PPSV23).

Adults 19–49 years old with specified immunocompromising conditions

Complete pneumococcal vaccine schedules

Prior vaccines	Option A	Option B
None*	PCV20 or PCV21	PCV15 → ≥8 weeks → PPSV23 [†]
PCV15 only at any age	→ ≥8 weeks → PPSV23 [†]	NO OPTION B
PCV15 & PPSV23 OR PCV20 OR PCV21 at any age	No vaccines recommended at this time. Review pneumococcal vaccine recommendations again when your patient turns 50 years old.	
PPSV23 only at any age	→ ≥1 year → PCV20 or PCV21	→ ≥1 year → PCV15
PCV13 only at any age	→ ≥1 year → PCV20 or PCV21	NO OPTION B
PCV13 and 1 dose of PPSV23 at any age	→ ≥5 years → PCV20 or PCV21	NO OPTION B
PCV13 and 2 doses of PPSV23 at any age	→ ≥5 years → PCV20 or PCV21	No vaccines recommended at this time. Review pneumococcal vaccine recommendations again when your patient turns 50 years old.
Immunocompromising conditions	<ul style="list-style-type: none"> Chronic renal failure Congenital or acquired asplenia Congenital or acquired immunodeficiency[§] Generalized malignancy 	<ul style="list-style-type: none"> HIV infection Hodgkin disease Iatrogenic immunosuppression^{††} Leukemia Lymphoma

* Also applies to people who received PCV7 at any age and no other pneumococcal vaccines

[†] If PPSV23 is not available, PCV20 or PCV21 may be used

[§] Includes B- (humoral) or T-lymphocyte deficiency, complement deficiencies (particularly C1, C2, C3, and C4 deficiencies), and phagocytic disorders (excluding chronic granulomatous disease)

^{††} Includes diseases requiring treatment with immunosuppressive drugs, including long-term systemic corticosteroids and radiation therapy

Case 5

- You have a 48 yo M with HFpEF who received PCV13 at 38 yo and PPSV23 at 43 yo. What pneumococcal vaccination would you recommend that he get?

Case 5

- Answer: No additional pneumococcal vaccines are indicated until at least 50 yo.

Adults 19–49 years old with chronic health conditions

Complete pneumococcal vaccine schedules

Prior vaccines	Option A	Option B
None*	PCV20 or PCV21	PCV15 → ≥ 1 year → PPSV23 [†]
PCV15 only at any age	≥ 1 year → PPSV23 [†]	NO OPTION B
PCV15 & PPSV23 OR PCV20 OR PCV21 at any age	No vaccines recommended at this time. Review pneumococcal vaccine recommendations again when your patient turns 50 years old.	
PPSV23 only at any age	≥ 1 year → PCV20 or PCV21	≥ 1 year → PCV15
PCV13 [†] only at any age	≥ 1 year → PCV20 or PCV21	NO OPTION B
PCV13 [†] and PPSV23 at any age	No vaccines are recommended at this time. Review pneumococcal vaccine recommendations again when your patient turns 50 years old.	
Chronic health conditions	<ul style="list-style-type: none"> Alcoholism Chronic heart disease, including congestive heart failure and cardiomyopathies Chronic liver disease 	<ul style="list-style-type: none"> Chronic lung disease, including chronic obstructive pulmonary disease, emphysema, and asthma Cigarette smoking Diabetes mellitus

* Also applies to people who received PCV7 at any age and no other pneumococcal vaccines

[†] If PPSV23 is not available, PCV20 or PCV21 may be used

[†] Adults with chronic medical conditions were previously not recommended to receive PCV13

Pneumococcal Vaccine Timing for Adults

Make sure your patients are up to date with pneumococcal vaccination.

Adults ≥50 years old

Complete pneumococcal vaccine schedules

Prior vaccines	Option A	Option B
None*	PCV20 or PCV21	PCV15 → ≥1 year† → PPSV23‡
PCV15 only at any age	→ ≥1 year† → PPSV23‡	NO OPTION B
PCV15 & PPSV23 OR PCV20 OR PCV21 at any age	No vaccines recommended; schedule is complete.	
PPSV23 only at any age	→ ≥1 year† → PCV20 or PCV21	→ ≥1 year† → PCV15
PCV13 only at any age	→ ≥1 year† → PCV20 or PCV21	NO OPTION B
PCV13 at any age & PPSV23 at <65 yrs	→ ≥5 years† → PCV20 or PCV21	NO OPTION B

* Also applies to people who received PCV7 at any age and no other pneumococcal vaccines

† If PPSV23 is not available, PCV20 or PCV21 may be used

‡ Consider minimum interval (8 weeks) for adults with an immunocompromising condition, cochlear implant, or cerebrospinal fluid leak (CSF) leak

§ For adults with an immunocompromising condition, cochlear implant, or CSF leak, the minimum interval for PPSV23 is ≥8 weeks since last PCV13 dose and ≥5 years since last PPSV23 dose; for others, the minimum interval for PPSV23 is ≥1 year since last PCV13 dose and ≥5 years since last PPSV23 dose

Case 6

- You have a 78 yo F who previously received PCV13 at 65 yo and PPSV23 at 67 yo. What pneumococcal vaccination would you recommend for her?

Case 6

- Answer: She can receive **PCV20** if desired after shared decision-making.

Shared clinical decision-making for those who already completed the series with PCV13 and PPSV23

Prior vaccines

Complete series:
PCV13 at any age &
PPSV23 at ≥ 65 yrs

Shared clinical decision-making option for adults ≥ 65 years old

≥ 5 years

PCV20 or PCV21

Together, with the patient, vaccine providers **may choose** to administer PCV20 or PCV21 to adults ≥ 65 years old who have already received PCV13 (but not PCV15, PCV20, or PCV21) at any age and PPSV23 at or after the age of 65 years old.

Case 7

- You are seeing a healthy 18-month-old F for catch up vaccinations. She received only one dose of PCV13 at 12 months old. What would be your recommendation for her to complete her pneumococcal vaccination series?

Case 7

- Answer: She should receive one dose of **PCV15** or **PCV20** now, and she will have completed her childhood pneumococcal vaccinations.

Table 2 Recommended Catch-up Immunization Schedule for Children and Adolescents Who Start Late or Who Are More than 1 Month Behind, United States, 2025

The table below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child's age. **Always use this table in conjunction with Table 1 and the Notes that follow.**

Children age 4 months through 6 years					
Vaccine	Minimum Age for Dose 1	Minimum Interval Between Doses			
		Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5
Hepatitis B	Birth	4 weeks	8 weeks and at least 16 weeks after first dose minimum age for the final dose is 24 weeks		
Rotavirus	6 weeks Maximum age for first dose is 14 weeks, 6 days.	4 weeks	4 weeks maximum age for final dose is 8 months, 0 days		
Diphtheria, tetanus, and acellular pertussis	6 weeks	4 weeks	4 weeks	6 months	6 months A fifth dose is not necessary if the fourth dose was administered at age 4 years or older and at least 6 months after dose 3
<i>Haemophilus influenzae</i> type b	6 weeks	No further doses needed if first dose was administered at age 15 months or older. 4 weeks if first dose was administered before the 1st birthday. 8 weeks (as final dose) if first dose was administered at age 12 through 14 months	No further doses needed if previous dose was administered at age 15 months or older 4 weeks if current age is younger than 12 months and first dose was administered at younger than age 7 months and at least 1 previous dose was PRP-T (ActHib, Pentacel, Hiberix), Vaxelis or unknown 8 weeks and age 12 through 59 months (as final dose) if current age is younger than 12 months and first dose was administered at age 7 through 11 months; OR if current age is 12 through 59 months and first dose was administered before the 1st birthday and second dose was administered at younger than 15 months; OR if previous doses were PedvaxHIB and were administered before the 1st birthday	8 weeks (as final dose) This dose only necessary for children age 12 through 59 months who received 3 doses before the 1st birthday.	
Pneumococcal conjugate	6 weeks	No further doses needed for healthy children if first dose was administered at age 24 months or older 4 weeks if first dose was administered before the 1st birthday 8 weeks (as final dose for healthy children) if first dose was administered at the 1st birthday or after	No further doses needed for healthy children if previous dose was administered at age 24 months or older 4 weeks if current age is younger than 12 months and previous dose was administered at <7 months old 8 weeks (as final dose for healthy children) if previous dose was administered between 7–11 months (wait until at least 12 months old); OR if current age is 12 months or older and at least 1 dose was administered before age 12 months	8 weeks (as final dose) This dose is only necessary for children age 12 through 59 months regardless of risk, or age 60 through 71 months with any risk, who received 3 doses before age 12 months.	

Case 8

- You are seeing a healthy 8-month-old F for catch up vaccinations. She received her first dose of PCV13 at 2 months old. You administer her second dose of PCV20 today in clinic. What would be your recommendation for her to complete her pneumococcal vaccination series?

Case 8

- Answer: She should come back in 4 weeks to receive her third dose of PCV20. She will be due for her fourth (and last) dose of PCV20 after she turns 12 months.

Table 2 Recommended Catch-up Immunization Schedule for Children and Adolescents Who Start Late or Who Are More than 1 Month Behind, United States, 2025

The table below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child's age. **Always use this table in conjunction with Table 1 and the Notes that follow.**

Children age 4 months through 6 years					
Vaccine	Minimum Age for Dose 1	Minimum Interval Between Doses			
		Dose 1 to Dose 2	Dose 2 to Dose 3	Dose 3 to Dose 4	Dose 4 to Dose 5
Hepatitis B	Birth	4 weeks	8 weeks and at least 16 weeks after first dose minimum age for the final dose is 24 weeks		
Rotavirus	6 weeks Maximum age for first dose is 14 weeks, 6 days.	4 weeks	4 weeks maximum age for final dose is 8 months, 0 days		
Diphtheria, tetanus, and acellular pertussis	6 weeks	4 weeks	4 weeks	6 months	6 months A fifth dose is not necessary if the fourth dose was administered at age 4 years or older and at least 6 months after dose 3
<i>Haemophilus influenzae</i> type b	6 weeks	No further doses needed if first dose was administered at age 15 months or older. 4 weeks if first dose was administered before the 1st birthday. 8 weeks (as final dose) if first dose was administered at age 12 through 14 months.	No further doses needed if previous dose was administered at age 15 months or older 4 weeks if current age is younger than 12 months and first dose was administered at younger than age 7 months and at least 1 previous dose was PRP-T (ActHib, Pentacel, Hiberix), Vaxelis or unknown 8 weeks and age 12 through 59 months (as final dose) if current age is younger than 12 months and first dose was administered at age 7 through 11 months; OR if current age is 12 through 59 months and first dose was administered before the 1st birthday and second dose was administered at younger than 15 months; OR	8 weeks (as final dose) This dose only necessary for children age 12 through 59 months who received 3 doses before the 1st birthday.	
Pneumococcal conjugate	6 weeks	No further doses needed for healthy children if first dose was administered at age 24 months or older 4 weeks if first dose was administered before the 1st birthday 8 weeks (as final dose for healthy children) if first dose was administered at the 1st birthday or after	No further doses needed for healthy children if previous dose was administered at age 24 months or older 4 weeks if current age is younger than 12 months and previous dose was administered at <7 months old 8 weeks (as final dose for healthy children) if previous dose was administered between 7–11 months (wait until at least 12 months old); OR if current age is 12 months or older and at least 1 dose was administered before age 12 months	8 weeks (as final dose) This dose is only necessary for children age 12 through 59 months regardless of risk, or age 60 through 71 months with any risk, who received 3 doses before age 12 months.	

Summary

- Pneumococcal vaccination is important to prevent severe Streptococcal pneumoniae infections including bacteremia, meningitis, and pneumonia.
- It is important to consider checking the vaccination recommendations for your patients with chronic conditions or immunocompromising conditions to ensure they are not under-vaccinated.
- Use of the CDC PneumoRecs app is helpful, especially with patients who have had prior pneumococcal vaccinations.

References

- Centers for Disease Control and Prevention. (2024, October 6). *Pneumococcal vaccine recommendations*. Centers for Disease Control and Prevention. <https://www.cdc.gov/pneumococcal/hcp/vaccine-recommendations/index.html>.
- Weiser JN, Ferreira DM, Paton JC. Streptococcus pneumoniae: transmission, colonization and invasion. *Nature Reviews Microbiology*. 16,355-367.
- Pollard, A. J., & Bijker, E. M. (2020). A guide to vaccinology: From basic principles to new developments. *Nature Reviews Immunology*, 21(2), 83–100. <https://doi.org/10.1038/s41577-020-00479-7>

Questions?

