

Protocol for Pneumococcal Vaccines

PCV15 (VAXNEUVANCE™), PCV20 (Prevnr 20®), PCV21 (CAPVAXIVE™) and
Pneumococcal Polysaccharide Vaccine: PPSV23 (Pneumovax®23)

1. What's New

A. ACIP recommends PCV21 as an option for adults aged ≥19 years who currently have a recommendation to receive a dose of PCV. NOTE: PI says ≥18yo

B. ACIP recommends a pneumococcal conjugate vaccine (PCV) for all PCV-naïve adults aged ≥50 years

2. Immunization Protocol

- A. Administer a 0.5-mL dose, IM, of pneumococcal conjugate vaccine PCV15 or PCV20 to persons ≥7 years of age according to age-appropriate schedule or high-risk group indication **OR**
- B. Administer a 0.5-mL dose, IM, of pneumococcal conjugate vaccine PCV21 to adults ≥19 years who currently have a recommendation to receive a dose of PCV (PCV15 or PCV20)
 - a. Pneumococcal vaccination is recommended for all adults ≥65 years AND adults aged 19-64 years with certain underlying conditions or risk factors
- C. Administer a 0.5-mL dose, IM or SQ, of pneumococcal polysaccharide vaccine (PPSV) to persons ≥7 years of age according to age-appropriate schedule or high-risk group indication.
- D. PCV and PPSV should not be given at the same time. Either vaccine type may be given simultaneously with influenza and most other ACIP-recommended child and adult vaccinations.⁴

3. Vaccine Schedule DON'T THINK WE HAVE ENOUGH INFO TO UPDATE THIS — SEE COMMENT

A. Routine Schedule¹⁰

Pneumococcal Vaccine (PCV15, PCV20, PCV21; PPSV23) for Persons ≥ 50 Years of Age Dose-0.5-mL, Route varies by product				
Age	Previous PCV Vaccination History	Previous PPSV Vaccination History	Due Now/Route	Due Next
≥ 50 years	Unvaccinated	Unvaccinated	PCV15 IM or	PPSV23 IM or SQ ≥ 1 year later‡
			PCV20 IM <u>or</u>	Complete*
	Unvaccinated	1 dose (at any age)	PCV21 IM	Complete*
			PCV20 IM ≥ 1 year later <u>or</u>	Complete*
	PCV13 only (at any age)	Unvaccinated	PCV21 IM	Complete*
			PCV20 IM ≥ 1 year later <u>or</u>	Complete*
PCV13 (at any age)	1 dose (at < 65 years old)	PPSV23 IM or SQ ≥ 1 year later‡	PCV20 IM ≥ 5 years after last	Complete*

Commented [NP1]: <https://www.cdc.gov/vaccines/acip/recommendations.html>

This recommendation was adopted by the CDC Director on June 27, 2024 and is now official.

Commented [GR2R1]: Link changed:

https://www.cdc.gov/mmwr/volumes/73/wr/mm7336a3.htm?s_cid=mm7336a3_w

Summary

What is already known about this topic?

Adults aged 19–64 years with risk conditions for pneumococcal disease and those aged ≥65 years are recommended to receive either 15- or 20-valent pneumococcal conjugate vaccine (PCV) (PCV15 or PCV20, respectively).

What is added by this report?

On June 27, 2024, the Advisory Committee on Immunization Practices recommended 21-valent PCV (PCV21) as an option for adults aged ≥19 years who are currently recommended to receive PCV15 or PCV20. PCV21 contains eight serotypes not included in other licensed vaccines.

What are the implications for public health practice?

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Commented [NP6]: <https://www.immunize.org/news/iz-express/issue/1764/>

Commented [GR7R6]: October 23-24, 2024

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			pneumococcal dose <u>or</u>	
			<u>PCV21 IM</u>	
			<u>PPSV23 IM or SQ ≥ 5 years after last pneumococcal dose‡</u>	
PCV13 (at any age)	1 dose (\geq 65 years old)		The patient and vaccine provider may consider administering PCV 20 <u>or PCV21 IM</u> via shared clinical decision making to patients who have already received PCV13 (but not PCV15 or PCV20) at any age and PPSV23 at or after the age of 65 (See Section 5 for additional details).	

‡ For adults with an immunocompromising condition, cochlear implant, or cerebrospinal fluid leak, the minimum interval for PPSV23 is \geq 8 weeks since last PCV13 dose and \geq 5 years since last PPSV23 dose; for others, the minimum interval for PPSV23 is \geq 1 year since last PCV13 dose and \geq 5 years since last PPSV23 dose.

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B. Special Conditions Schedule

Pneumococcal Vaccine (PCV15 or PCV20; PPSV23) for Persons 7-18 Years of Age <u>with Immunocompromising Conditions*</u> Dose-0.5-mL, Route varies by <small>product¹¹</small>				
Acceptable Age Range	Previous PCV Vaccination History	Previous PPSV23 Vaccination History	Due Now/Route (\geq 8 weeks since last pneumococcal vaccine)	Due Next
7-18 years of age with immune-compromising conditions	No previous history of PCV13, PCV15, or PCV20	Unvaccinated	PCV15 IM <u>or</u>	Administer PPSV23 in \geq 8 weeks.
			PCV20 IM	Complete
		1 dose	PCV15 IM <u>or</u>	Revaccinate with PCV20 or PPSV23 in 5 years.
			PCV20 IM	Complete
		Unvaccinated	PCV 20 IM <u>or</u>	Complete
			PPSV23 IM or SQ	Revaccinate with PCV20 or PPSV23 in 5 years.
	\geq 1 dose of PCV13 or PCV15 before age 6	Unvaccinated	Complete	
	\geq 1 dose of PCV20 before age 6	Unvaccinated	Complete	
	\geq 1 dose of PCV13 at or after age 6	Unvaccinated	PCV20 IM <u>or</u>	Complete
			PPSV23 IM or SQ	Revaccinate with PCV20 or PPSV23 in 5 years.
		1 dose	PCV20 <u>or†</u>	Complete
			PPSV23†	Complete

Commented [GR8]: No reference given here. I found the information below through the following link:

https://www.cdc.gov/pneumococcal/hcp/vaccine-recommendations/risk-indications.html#cdc_generic_section_5-risk-conditions

**** Age in protocol is 7 due to age restrictions in statute.***

Children 6 through 18 years old
The following guidance applies to children in this age group who have a risk condition.

Never received PCV13, PCV15, or PCV20
Give 1 dose of PCV15 or PCV20 at least 8 weeks after the most recent pneumococcal vaccine dose. Give it regardless of whether the child has previously received PPSV23 or PCV7.

When PCV15 is used

• It should be followed by a dose of PPSV23 if not previously given.

When PCV20 is used

• It doesn't need to be followed by a dose of PPSV23. Their pneumococcal vaccinations are complete.

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*Children and adolescents on maintenance dialysis, or with immunocompromising conditions such as nephrotic syndrome; congenital or acquired asplenia or splenic dysfunction; congenital or acquired immunodeficiencies; diseases and conditions treated with immunosuppressive drugs or radiation therapy, including malignant neoplasms, leukemias, lymphomas, Hodgkin disease, and solid organ transplant; HIV infection; or sickle cell disease or other hemoglobinopathies

†Vaccination must occur at least 8 weeks after the most recent PCV13 dose and at least 5 years after dose 1 PPSV23

Pneumococcal Vaccine (PCV15 or PCV20; PPSV23) for Persons 7-18 Years of Age with <u>Chronic Conditions</u> ** Dose-0.5-mL, Route varies by product ¹¹				
Acceptable Age Range	Previous PCV Vaccination History	Previous PPSV23 Vaccination History	Due Now/Route (≥ 8 weeks since last pneumococcal vaccine)	Due Next
7-18 years of age with chronic conditions	No previous history of PCV13, PCV15, or PCV20	Unvaccinated	PCV15 IM <u>or</u>	Administer PPSV23 in ≥8 weeks.
			PCV20 IM	Complete
	≥1 dose of PCV13 or PCV15 before age 6	Unvaccinated	PCV15 IM <u>or</u>	Complete
			PCV20 IM	Complete
	≥1 dose of PCV20 before age 6	Unvaccinated	PCV20 IM <u>or</u>	Complete
			PPSV23 IM or SQ	Revaccinate with PCV20 or PPSV23 in 5 years.
≥1 dose of PCV13 at or after age 6	Unvaccinated	Unvaccinated	Complete	
			PCV20 IM <u>or</u>	Complete
			PPSV23 IM or SQ	Complete

**Children and adolescents with cerebrospinal fluid leak; chronic heart disease; chronic kidney disease (excluding maintenance dialysis and nephrotic syndrome); chronic liver disease; chronic lung disease (including moderate persistent or severe persistent asthma); cochlear implant; or diabetes mellitus

Pneumococcal Vaccine (PCV15, PCV20, <u>PCV21</u> ; PPSV23) for Persons 19-49 Years of Age with <u>Immunocompromising Conditions</u> * Dose-0.5-mL, Route varies by product				
Age	Previous PCV Vaccination History	Previous PPSV Vaccination History	Due Now/Route	Due Next
19-49 years with immune-compromising conditions	Unvaccinated	Unvaccinated	PCV15 IM <u>or</u>	PPSV23 IM or SQ ≥ 8 weeks later†
			PCV20 IM <u>or</u>	Complete‡
			<u>PCV21 IM</u>	<u>Complete‡</u>

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	Unvaccinated	1 dose	PCV15 IM \geq 1 year after last PCV dose or	Complete¥
			PCV20 IM \geq 1 year after last PCV dose	Complete¥
			<u>PCV21 IM \geq 1 year after last PCV dose</u>	<u>Complete¥</u>
	PCV13 only	Unvaccinated	PCV20 IM \geq 1 year after last PCV dose or	Complete¥
			<u>PCV21 IM \geq 1 year after last PCV dose or</u>	<u>Complete¥</u>
			PPSV23 IM or SQ \geq 8 weeks later‡	Revaccinate with PPSV23 in 5 years.
	PCV13	1 dose	PCV20 IM \geq 5 years after last PPSV23 dose or	Complete¥
			<u>PCV21 IM \geq 5 years after last PPSV23 dose or</u>	<u>Complete¥</u>
			PPSV23 IM or SQ \geq 5 years after last PPSV23 dose	PCV20 IM \geq 5 years after last PPSV23 dose
	PCV13	2 doses	PCV20 IM \geq 5 years after last PPSV23 dose or	Complete¥
			<u>PCV21 IM \geq 5 years after last PPSV23 dose</u>	<u>Complete¥</u>
<p>* Immunocompromising conditions include chronic renal failure, nephrotic syndrome, immunodeficiencies, iatrogenic immunosuppression, generalized malignancy, HIV infection, Hodgkin disease, leukemia, lymphoma, multiple myeloma, solid organ transplant, congenital or acquired asplenia, or sickle cell disease or other hemoglobinopathies.</p> <p>‡May use minimum interval of 8 weeks for adults with an immunocompromising condition*, cochlear implant, or cerebrospinal fluid leak.</p> <p>¥Review pneumococcal vaccine recommendations when patient turns 50 years old</p>				

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Pneumococcal Vaccine (PCV15, PCV20, <u>PCV21</u>; PPSV23) for Persons 19-49 Years of Age with Chronic Conditions** Dose-0.5-mL, Route varies by product				
Age	Previous PCV Vaccination History	Previous PPSV Vaccination History	Due Now/Route	Due Next
19-49 years with	Unvaccinated	Unvaccinated	PCV15 IM or	PPSV23 IM or SQ \geq 1 year later
			PCV20 IM	Complete

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chronic conditions	Unvaccinated	1 dose	PCV15 IM \geq 1 year after last PPSV dose or PCV20 IM \geq 1 year after last PPSV dose	Complete
	PCV13 only	Unvaccinated	PCV20 IM \geq 1 year after last PCV dose or PPSV23 IM or SQ \geq 1 year later	Complete
	PCV13	1 dose	PPSV23 IM or SQ \geq 1 year later	Complete¥
	PCV13	1 dose	Complete¥	

**Chronic conditions include alcoholism, chronic heart/liver/lung disease, chronic renal failure, cigarette smoking, cochlear implant, congenital or acquired asplenia, CSF leak, diabetes mellitus, generalized malignancy, HIV infection, Hodgkin disease, immunodeficiencies, iatrogenic immunosuppression, leukemia, lymphoma, multiple myeloma, nephrotic syndrome, solid organ transplant, or sickle cell disease or other hemoglobinopathies.

¥Review pneumococcal vaccine recommendations when patient turns 50 years old

Pneumococcal Vaccine (PCV15, PCV20, <u>PCV21</u>; PPSV23) for Persons 19-64 Years of Age with Cochlear Implant or Cerebrospinal Fluid Leak Dose-0.5-mL, Route varies by product				
Age	Previous PCV Vaccination History	Previous PPSV Vaccination History	Due Now/Route	Due Next
19-64 years	Unvaccinated	Unvaccinated	PCV15 IM or PCV20 IM <u>or</u> <u>PCV21 IM</u>	PPSV23 IM or SQ \geq 8 weeks later‡ Complete <u>Complete</u>
			PCV15 IM \geq 1 year after last PPSV dose or PCV20 IM \geq 1 year after last PPSV dose or <u>PCV21 IM</u>	Complete
			PCV20 IM \geq 1 year after last PCV dose or <u>PCV21 IM or</u> PPSV23 IM or SQ \geq 8 weeks later‡	Complete <u>Complete</u> Complete¥
	PCV13 only	Unvaccinated	PCV20 IM \geq 1 year after last pneumococcal dose or <u>PCV21 IM or</u>	Complete
			PPSV23 IM or SQ \geq 8 weeks later‡	Complete¥
	PCV13	1 dose	PCV20 IM \geq 5 years after last pneumococcal dose or	Complete¥

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			<u>PCV21 IM ≥ 5 years</u> <u>after last</u> <u>pneumococcal dose</u>	<u>Complete</u> ¥
<p>†May use minimum interval of 8 weeks for adults with an immunocompromising condition, cochlear implant, or cerebrospinal fluid leak.</p> <p>¥Review pneumococcal vaccine recommendations when patient turns 50 years old</p>				

4. Licensed Vaccines

Product Name	Vaccine Components	Presentation	FDA Approved Age Range	Thimerosal	Commented [NP9]: Why is latex not mentioned?
Pneumococcal Conjugate Vaccines					
Prevnar 20™ (PCV20) ¹	Sterile suspension of mixture of saccharides of the capsular antigens of <i>S. pneumoniae</i> , individually linked to non-toxic diphtheria CRM197 protein	0.5 mL prefilled syringes	≥ 6 weeks of age	None	
VAXNEUVANCE™ (PCV15) ²		0.5 mL prefilled syringes	≥ 2 months		
<u>CAPVAXIVE™</u> (PCV21) ³	<u>Sterile suspension of mixture of saccharides of the capsular antigens of <i>S. pneumoniae</i>, individually linked to non-toxic diphtheria CRM197 protein</u>	<u>0.5 mL prefilled syringes</u>	<u>≥18 years</u>	<u>None</u>	<p>Commented [NP10]: https://www.merck.com/product/usa/pi_circulars/c/capvaxive/capvaxive_pi.pdf</p> <p>Formatted: Left</p>
Pneumococcal Polysaccharide Vaccine					
Pneumovax 23® (PPSV23) ³	Pneumococcal Vaccine Polysaccharide is a sterile, liquid vaccine consisting of a mixture of purified capsular polysaccharides from <i>Streptococcus pneumoniae</i>	0.5 mL single dose vials	≥ 2 years	None	<p>Commented [NP11]: ACIP says 19+</p> <p>Formatted: Superscript</p>
		0.5 mL prefilled syringes			

5. Recommendations for Use

A. Routine

1. Age **50** years or older:
 - b. Not previously received a dose of PCV13, PCV15, or PCV20 or whose previous vaccination history is unknown: 1 dose PCV15 OR 1 dose PCV20 OR 1 dose PCV21. If PCV15 is used, this should be followed by a dose of PPSV23 given at least 1 year after the PCV15 dose
 - i. A minimum interval of 8 weeks between PCV15 and PPSV23 can be considered for adults with an immunocompromising condition, cochlear implant, or

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cerebrospinal fluid leak to minimize the risk of invasive pneumococcal disease caused by serotypes unique to PPSV23 in these vulnerable groups.

- ii. Immunocompromising conditions include chronic renal failure, nephrotic syndrome, immunodeficiency, iatrogenic immunosuppression, generalized malignancy, human immunodeficiency virus, Hodgkin disease, leukemia, lymphoma, multiple myeloma, solid organ transplants, congenital or acquired asplenia, sickle cell disease, or other hemoglobinopathies.
- c. Previously received only PCV7: follow the recommendation above.
- d. Previously received only PCV13: 1 dose PCV20 OR 1 dose PCV21 at least 1 year after the PCV13 dose OR complete the recommended PPSV23 series as described here: www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf
- e. Previously received only PPSV23: 1 dose PCV15 OR 1 dose PCV20 or 1 dose PCV21 at least 1 year after the PPSV23 dose. If PCV15 is used, it need not be followed by another dose of PPSV23.
- f. Previously received both PCV13 and PPSV23 but NO PPSV23 was received at age 65 years or older: 1 dose PCV20 or 1 dose PCV21 at least 5 years after their last pneumococcal vaccine dose OR complete the recommended PPSV23 series as described here: www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf
- g. Previously received both PCV13 and PPSV23, AND PPSV23 was received at age 65 years or older: Adults aged 65 or older have the option to receive PCV20 OR 1 dose PCV21 if they previously completed the pneumococcal vaccine series with both PCV13 and PPSV23. This includes one dose of PCV13 at any age and all recommended doses of PPSV23, including one dose at or after age 65. PCV20 [OR PCV21 ??] is not routinely recommended for these individuals as their risk of disease is lower due to prior vaccinations. Instead, ACIP recommends a PCV20 OR PCV21 vaccination for persons aged 65 or older who have received both PCV13 and PPSV23 on the basis of shared clinical decision-making.

Shared clinical decision-making refers to an individually based vaccine recommendation informed by a decision-making process between the health care provider and the patient or parent/guardian. Pharmacists can engage in shared clinical decision making to discuss PCV20 vaccination with persons aged 65 or older who are most likely to benefit.

Pharmacists are authorized to administer PCV20 OR PCV21 vaccine if one of the following risk factors is present AND at least 5 years has elapsed since last pneumococcal vaccination:

- i. Individuals living in nursing homes or other long-term care facilities.
- ii. Individuals living in areas with low pediatric pneumococcal conjugate vaccine uptake.
- iii. Individuals with immunocompromising conditions, cochlear implant, cerebrospinal fluid leak, or more than one of these chronic medical conditions: alcoholism; chronic heart, liver, or lung disease; cigarette smoking; or diabetes.

B. Special Conditions

- 1. Age 7-18 years:

Commented [NP12]: this language is not available from ACIP yet

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What are ACIP's current shared clinical decision-making recommendations?

ACIP has five recommendations for vaccination based on shared clinical decision-making and these are shown in the [adult and child/adolescent the immunization schedules](#).

- Pneumococcal conjugate vaccination (PCV20 or PCV21) for adults aged 65 years and older who have completed the recommended vaccine series with both PCV13 (at any age) and PPSV23 (which was administered at age ≥65 years)

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- A. Chronic heart disease (particularly cyanotic congenital heart disease and cardiac failure); chronic lung disease (including asthma treated with high-dose, oral corticosteroids); diabetes mellitus:
 - a. Any incomplete series with PCV: no further PCV doses needed
 - b. No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after completing all recommended PCV doses)
- B. Cerebrospinal fluid leak, cochlear implant:
 - a. No history of either PCV or PPSV23: 1 dose PCV, 1 dose PPSV23 at least 8 weeks later
 - b. Any PCV but no PPSV23: 1 dose PPSV23 at least 8 weeks after the most recent dose of PCV
 - c. PPSV23 but no PCV: 1 dose PCV at least 8 weeks after the most recent dose of PPSV23
- C. Sickle cell disease and other hemoglobinopathies; anatomic or functional asplenia; congenital or acquired immunodeficiency; HIV infection; chronic renal failure; nephrotic syndrome; malignant neoplasms, leukemias, lymphomas, Hodgkin disease, and other diseases associated with treatment with immunosuppressive drugs or radiation therapy; solid organ transplantation; multiple myeloma:
 - a. No history of either PCV or PPSV23: 1 dose PCV, 2 doses PPSV23 (dose 1 of PPSV23 administered 8 weeks after PCV and dose 2 of PPSV23 administered at least 5 years after dose 1 of PPSV23)
 - b. Any PCV but no PPSV23: 2 doses PPSV23 (dose 1 of PPSV23 administered 8 weeks after the most recent dose of PCV and dose 2 of PPSV23 administered at least 5 years after dose 1 of PPSV23)
 - c. PPSV23 but no PCV: 1 dose PCV at least 8 weeks after the most recent PPSV23 dose and a dose 2 of PPSV23 administered 5 years after dose 1 of PPSV23 and at least 8 weeks after a dose of PCV
- D. Hematopoietic Stem Cell Transplant⁶: Children aged <19 years who are hematopoietic stem cell transplant (HSCT) recipients are recommended to receive 4 doses of PCV20, starting 3–6 months after HSCT. Administer 3 doses of PCV20, 4 weeks apart starting 3–6 months after HSCT. Administer a fourth PCV20 dose ≥6 months after the third dose of PCV20 or ≥12 months after HSCT, whichever is later.
 - a. If PCV20 is not available, 3 doses of PCV15 4 weeks apart, followed by a single dose of PPSV23 ≥1 year after HSCT, can be administered. For patients with chronic graft versus host disease (GVHD) who are receiving PCV15, a fourth dose of PCV15 can be administered in place of PPSV23 because these children are less likely to respond to PPSV23. Any PCV but no PPSV23: 2 doses PPSV23 (dose 1 of PPSV23 administered 8 weeks after the most recent dose of PCV and dose 2 of PPSV23 administered at least 5 years after dose 1 of PPSV23)
 - b. A patient's clinical team is best informed to determine the appropriate timing of vaccination.
2. Age 19–64 years³:
 - A. Underlying medical conditions or other risk factors include alcoholism, chronic heart/liver/lung disease, chronic renal failure, cigarette smoking, cochlear implant,

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congenital or acquired asplenia, CSF leak, diabetes mellitus, generalized malignancy, HIV, Hodgkin disease, immunodeficiency, iatrogenic immunosuppression, leukemia, lymphoma, multiple myeloma, nephrotic syndrome, solid organ transplants, or sickle cell disease, or other hemoglobinopathies

- c. Not previously received a PCV13, PCV15, or PCV20 or whose previous vaccination history is unknown: 1 dose PCV15 OR 1 dose PCV20 OR 1 dose PCV21. If PCV15 is used, this should be followed by a dose of PPSV23 given at least 1 year after the PCV15 dose.
 - a) A minimum interval of 8 weeks between PCV15 and PPSV23 can be considered for adults with an immunocompromising condition, cochlear implant, or cerebrospinal fluid leak
 - b) Immunocompromising conditions include chronic renal failure, nephrotic syndrome, immunodeficiency, iatrogenic immunosuppression, generalized malignancy, human immunodeficiency virus, Hodgkin disease, leukemia, lymphoma, multiple myeloma, solid organ transplants, congenital or acquired asplenia, sickle cell disease, or other hemoglobinopathies
- d. Previously received only PCV7: follow the recommendation above
- e. Previously received only PCV13: 1 dose PCV20 OR 1 dose PCV21 at least 1 year after the PCV13 dose OR complete the recommended PPSV23 series as described here: www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf
- f. Previously received only PPSV23: 1 dose PCV15 OR 1 dose PCV20 or 1 dose PCV21 at least 1 year after the PPSV23 dose. If PCV15 is used, it need not be followed by another dose of PPSV23
- g. Previously received both PCV13 and PPSV23 but have not completed the recommended series: 1 dose PCV20 or 1 dose PCV21 at least 5 years after their last pneumococcal vaccine dose OR complete the recommended PPSV23 series as described here: www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf

6. Contraindications

- A. Severe allergic reaction (e.g., anaphylaxis) to a previous dose or to any vaccine component.
- B. PCV20¹ or PCV21 or PCV15²: Persons who experienced an anaphylactic reaction to a previous dose of any diphtheria toxoid-containing vaccine.

Commented [NP15]: https://www.merck.com/product/usa/pi_circulars/c/capvaxive/capvaxive_pi.pdf

7. Warnings and Precautions

- A. PPSV23: Care should be exercised when administering to patients with severely compromised cardiovascular or pulmonary function in whom a systemic reaction would pose a significant risk.³

8. Other Considerations

- A. Adults with previous PPSV23 only: Adults who have only received PPSV23 may receive a PCV (either PCV20 or PCV 21 or PCV15) ≥1 year after their last PPSV23 dose. When PCV15 is used in those with history of PPSV23 receipt, it need not be followed by another dose of PPSV23.⁴

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- B. Lactation: It is not known whether pneumococcal vaccines are excreted in human milk. Use with caution in people who are nursing.¹⁻³
- C. Pregnancy: Pneumococcal vaccine should be considered for persons at increased risk.⁹
- D. Simultaneous administration of PCV15 and PPSV23 is NOT recommended. See section 5, recommendations for use, for the necessary minimum interval between doses.^{4,5}
- E. Splenectomy, immunocompromising therapy, or cochlear implant: When elective splenectomy, immunocompromising therapy, or cochlear implant placement is being planned, age appropriate PCV vaccination should be completed at least 2 weeks before surgery or initiation of therapy. If vaccine is not administered before surgery, it should be administered ≥2 weeks after surgery. If the patient is unlikely to return, vaccine can be administered in the immediate postoperative period.⁷
- F. Children who have experienced invasive pneumococcal disease should receive all recommended doses of a pneumococcal conjugate vaccine as appropriate for their age and underlying condition. The full series of scheduled doses should be completed even if the series is interrupted by an episode of invasive pneumococcal disease.⁷
- G. Individuals with diseases associated with immunosuppressive therapy or radiation therapy and solid organ transplantation may have a diminished response to the vaccine.¹⁻³
- H. Recipients of Hematopoietic Cell Transplants (HCT): ACIP recommends that patients be revaccinated with three sequential doses of age appropriate PCV vaccine beginning 3–6 months after HCT transplant. A dose of PPSV should be administered ≥8 weeks after the last dose of PCV.⁷

9. Side Effects and Adverse Reactions

PCV20 ¹ , <u>PCV21⁸</u> , PCV15 ² Adverse Events	Frequency
Soreness at the injection site, fatigue	Up to 76%
Headache, muscle pain, joint pain, decreased appetite, local swelling, decreased arm movement	Up to 30%
Vomiting, fever, chills, rash	Up to 30%
Allergic reactions	Rare
PPSV23 ³ Adverse Events	Frequency
Soreness, redness, swelling at the injection site	Up to 60%
Headache, muscle pain, fatigue	Up to 20%
Nausea, fever, chills	Rare, up to 2%
Allergic Reactions	Rare

10. Storage and Handling

- A. Store medications according to OAR 855-041-1036.
- B. All clinics and pharmacies enrolled with the Vaccines for Children (VFC) Program must immediately report any storage and handling deviations to the Oregon Immunization Program at 971-673-4VFC (4823).

Vaccine	Temp	Storage Issues	Notes
Prevnar 20™ ¹	Store at 2°– 8°C (36°- 46°F)	Store syringes horizontally to minimize re-suspension time; do not freeze	
VAXNEUVANCE™ ²		Do not freeze. Protect from light.	

Commented [NP17]: https://www.merck.com/product/usa/pi_circulars/c/capvaxive/capvaxive_pi.pdf

The most commonly reported (>10%) solicited adverse reactions:

- in individuals 18 through 49 years of age were: injection-site pain (73.1%), fatigue (36.0%), headache (27.5%), myalgia (16.4%), injection-site erythema (13.8%), and injection-site swelling (13.3%). (6.1)
- in individuals 50 years of age and older were: injection-site pain (41.2%), fatigue (19.7%), and headache (11.0%). (6.1)

Commented [NP18]: Not PCV21

Commented [GR19R18]: Any need to further stratify these side-effects, based on this comment?

Commented [GR20R18]: PCV15, PCV20, or PCV21

- Redness, swelling, pain, or tenderness where the vaccine provider gave the shot
- Fever or chills
- Loss of appetite
- Fussiness (irritability) in young children
- Feeling tired
- Headache
- Muscle aches or joint pain

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<u>CAPVAXIVE™⁸</u>		<u>Do not freeze. Protect from light.</u>	
Pneumovax® 23 ³		None	

Commented [NP22]: https://www.merck.com/product/usa/pi_circulars/c/capvaxive/capvaxive_pi.pdf

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Pneumococcal Polysaccharide Vaccine: PPSV23 (Pneumovax®23)

13. Appendix

- a. Centers for Disease Control and Prevention (CDC). Pneumococcal Vaccine Timing. Atlanta, GA: US Department of Health and Human Services, CDC; 2023. <https://www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf>
- b. Centers for Disease Control and Prevention (CDC). Shared Clinical Decision-Making for Pneumococcal Conjugate Vaccine (PCV20) Vaccination in Adults Aged 65 Years or Older: Job Aid for Healthcare Professionals. Atlanta, GA: US Department of Health and Human Services, CDC; 2023. <https://www.cdc.gov/vaccines/hcp/admin/downloads/job-aid-SCDM-PCV20-508.pdf>
- c. Centers for Disease Control and Prevention (CDC). Pneumococcal PneumoRecs VaxAdvisor Mobile App for Vaccine Providers. Atlanta, GA: US Department of Health and Human Services, CDC; 2023. <https://www.cdc.gov/vaccines/vpd/pneumo/hcp/pneumoapp.html>

Notes (not part of protocol):

Recent Meeting Recommendations

ACIP approved the following recommendations by majority vote and they have been adopted by the CDC Director. They will be published in MMWR and reflected in CDC's print and digital resources in the coming months.

October 23-24, 2024

ACIP approved the following recommendations by majority vote at its October 23-24, 2024 meeting:

Pneumococcal Vaccines

ACIP recommends a pneumococcal conjugate vaccine (PCV) for all PCV-naïve adults aged ≥50 years

This recommendation was adopted by the CDC Director on October 23, 2024 and is now official.

PCV20 or PCV21: Additional vaccination not recommended

If PCV20 or PCV21 is used, a dose of PPSV23 isn't indicated. Regardless of which vaccine is used (PCV20 or PCV21), their pneumococcal vaccinations are complete.

Recommendation for shared clinical decision-making

Based on shared clinical decision-making, adults **65 years or older** have the option to get PCV20 or PCV21, or to not get additional pneumococcal vaccines. They can get PCV20 or PCV21 if they have received both

- PCV13 (but not PCV15, PCV20, or PCV21) at any age and
- PPSV23 at or after the age of 65 years old

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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 ¹
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

¹ If PPSV23 is not available, PCV20 or PCV15 may be used

² Consider minimum interval of 8 weeks for adults with an immunocompromising condition, cochlear implant, or cerebrospinal fluid leak (CSF) leak.

³ 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

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

Prior vaccines	Shared clinical decision-making option for adults ≥ 65 years old
Complete series: PCV13 at any age & PPSV23 at ≥ 65 yrs	≥ 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.

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 ¹
PPSV23 only	≥ 1 year PCV20 or PCV21	≥ 1 year PCV15
PCV13 only	≥ 1 year PCV20 or PCV21	NO OPTION B
PCV13 and 1 dose of PPSV23	≥ 5 years PCV20 or PCV21	
PCV13 and 2 doses of PPSV23	≥ 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 • HIV infection • Hodgkin disease • Iatrogenic immunosuppression¹ • Leukemia • Lymphoma • Multiple myeloma • Nephrotic syndrome • Sickle cell disease/other hemoglobinopathies • Solid organ transplant

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

¹ If PPSV23 is not available, PCV20 or PCV15 may be used

² The minimum interval for PPSV23 is ≥ 8 weeks since last PCV13 dose and ≥ 5 years since last PPSV23 dose

³ Includes B- (humoral) or T-lymphocyte deficiency, complement deficiencies (particularly C1, C2, C3, and C4 deficiencies), and phagocytic disorders (excluding chronic granulomatous disease)

⁴ Includes diseases requiring treatment with immunosuppressive drugs, including long-term systemic corticosteroids and radiation therapy