

PRACTICE ALERT

Pneumococcal Conjugate Vaccines for Adults

2024 ACIP updates: PCV21 approval, a lowered routine vaccination age, and revised catch-up guidance for adults

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What This Briefing Covers

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Vaccine basics

Conjugate vs. polysaccharide vaccines

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How recommendations evolved

Four decades of policy change

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Who needs vaccination now

Age- and risk-based criteria

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The three vaccine options

PCV15+PPSV23, PCV20, PCV21

05

Serotype coverage & the PCV21 gap

What each vaccine does and doesn't cover

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Practical guidance by prior vaccination history

Two Vaccine Technologies, One Goal

Understanding the underlying platform explains why recommendations differ by age and vaccine

Conjugate (PCV)



Polysaccharide antigen linked to a carrier protein

- Protein conjugation triggers a T-cell–dependent immune response
- Produces stronger, longer-lasting immunity with immunologic memory
- Effective in infants and young children, unlike plain polysaccharide vaccines
- Current adult options: PCV15, PCV20, PCV21

Polysaccharide (PPSV)

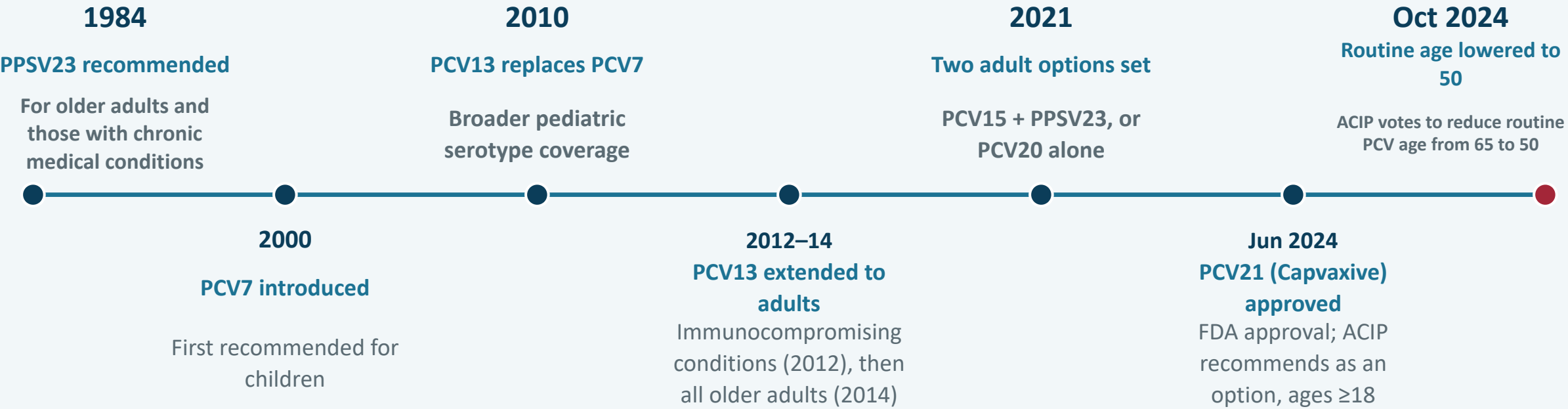


Free polysaccharide antigens, unconjugated

- Elicits a T-cell–independent response — no immunologic memory formed. (Direct b cell activation)
- Not reliably immunogenic in children younger than 2 years
- Broadest single-vaccine serotype coverage (23 serotypes)
- Current adult option: PPSV23, used after PCV15 or in select catch-up scenarios

How We Got Here: A Shifting Landscape

Four decades of expanding pneumococcal vaccine options and recommendations



Current Recommendations at a Glance

50+

Routine, age-based

All adults ≥50 years

- Lowered from age 65 (ACIP, October 2024)
- Previously required an age ≥65 threshold; PCV is now offered a decade earlier
- Applies regardless of underlying health status

19–49

Risk-based

Adults with qualifying conditions

- Immunocompromising conditions that raise infection risk
- Chronic medical conditions that raise risk of serious disease
- Full list: chronic heart/lung/liver disease, diabetes, smoking, asplenia, HIV, malignancy, and more (upcoming slide)

Three Ways to Vaccinate Adults Today

1

PCV15 → PPSV23

Sequential, two-vaccine series

- 15-valent conjugate vaccine (Vaxneuvance) first
- Followed by 23-valent polysaccharide vaccine (PPSV23) ≥ 1 year later
- Longest-established pathway; now the most complex of the three

2

PCV20

Single vaccine (Prennar 20)

- 20-valent conjugate vaccine given alone
- Contains all PCV15 serotypes plus 5 additional serotypes
- No PPSV23 needed to complete the series

3

PCV21

Single vaccine (Capvaxive)

- 21-valent conjugate vaccine given alone
- FDA-approved June 2024; targets serotypes causing most invasive disease in adults
- Does not contain serotype 4 — see caution ahead

Option 1: PCV15 Followed by PPSV23

The original sequential pathway, in use since 2021

1 PCV15 → PPSV23 *Vaxneuvance[®] then Pneumovax[®] 23*

This two-vaccine series pairs a 15-valent conjugate vaccine with the 23-valent polysaccharide vaccine, given at least one year later. It offers the broadest combined serotype coverage of the three options, but requires patients to complete two separate visits and vaccines to finish the series.

Clinical considerations

- Requires tracking and follow-up ≥ 1 year after the PCV15 dose
- Most complex of the three pathways to counsel and document
- May still be appropriate when PPSV23 is already on hand or preferred

QUICK FACTS

Serotypes covered

15 (PCV15) + 23 (PPSV23)

Doses required

Two, ≥ 1 year apart

Platform

Conjugate then polysaccharide

Option 2: PCV20 Alone

A single-visit conjugate vaccine, standalone since 2021



PCV20

Prevnar 20®

PCV20 is a 20-valent conjugate vaccine that contains every serotype in PCV15 plus five additional serotypes. Given as a single dose, it completes the pneumococcal vaccination series without requiring a follow-up PPSV23 dose — simplifying the schedule for both patients and clinicians.

Clinical considerations

- One dose completes the series — no PPSV23 needed afterward
- Broadest single-dose conjugate coverage available
- Includes serotype 4, unlike PCV21

QUICK FACTS

Serotypes covered

20

Doses required

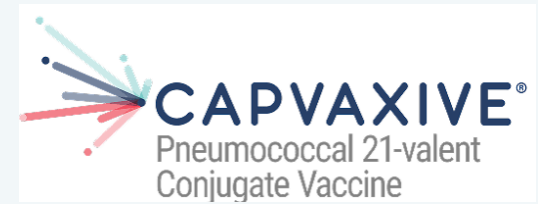
One

Platform

Conjugate (protein-linked)

FDA approval

June 2021



Option 3: PCV21 Alone

The newest option, purpose-built for adult disease patterns

3 PCV21 Capvaxive®

PCV21 is a 21-valent conjugate vaccine approved by the FDA in June 2024 and recommended by ACIP the same month. Rather than simply adding serotypes, its composition was selected to target the serotypes most responsible for invasive pneumococcal disease specifically in adults — including 11 serotypes not found in PCV15 or PCV20.

Clinical considerations

- One dose completes the series — no PPSV23 needed afterward
- Does not include serotype 4.
- Consider PCV20 instead for younger at-risk adults in high serotype-4 regions

QUICK FACTS

Serotypes covered

21 (excludes serotype 4)

Doses required

One

FDA approval

June 2024



Serotype Coverage Is Not Cumulative

Total serotypes targeted by each vaccine — but coverage overlaps only partially between products



PCV20 vs. PCV15

Contains all PCV15 serotypes, plus 5 additional serotypes.

PCV21 is different

Excludes 10 serotypes found in PCV20, but adds 11 serotypes not in PCV15 or PCV20 — chosen for adult disease burden.

PCV21 Does Not Cover Serotype 4

A clinically meaningful gap for specific populations

Geographic hot spots

Recent invasive pneumococcal disease due to serotype 4 has reached 30% or greater of cases in:

- Alaska
- Colorado
- Navajo Nation
- New Mexico
- Oregon

Who is typically affected

- Adults younger than 65 years
- With a qualifying risk condition
- And a history of substance use disorder or homelessness

Clinical takeaway

For patients matching this profile, consider PCV20 (or PCV15 + PPSV23) instead of PCV21 to ensure serotype 4 coverage.

Qualifying Conditions for Adults 19–49

Any one of the following warrants pneumococcal vaccination before the routine age of 50

Chronic medical conditions

- Alcoholism
- Chronic heart disease (incl. CHF, cardiomyopathies)
- Chronic liver disease
- Chronic lung disease (COPD, emphysema, asthma)
- Cochlear implant
- Cerebrospinal fluid leak
- Cigarette smoking
- Diabetes

Underlying conditions & other risk factors

- Chronic renal failure
- Congenital or acquired asplenia
- Generalized malignancy
- HIV infection
- Hodgkin disease
- Iatrogenic immunosuppression
- Immunodeficiency
- Leukemia, lymphoma, multiple myeloma
- Nephrotic syndrome
- Solid organ transplant
- Sickle cell disease or other hemoglobinopathies

Catch-Up Schedule: Adults ≥65 Years

Previously received	Recommendation
None, or PCV7 only (at any age)	Single dose of PCV21, PCV20, or PCV15. If PCV15 given — add 1 dose PPSV23 ≥ 1 year later.
PPSV23 only	Single dose of PCV21, PCV20, or PCV15 ≥ 1 year after the last PPSV23 dose.
PCV13 only	Single dose of PCV21, PCV20, or PPSV23 ≥ 1 year after the PCV13 dose.

Key point: If a patient has already received PCV20 or PCV21, no further PCV vaccination is recommended — regardless of prior history.

Catch-Up Schedule: Ages 19–64 with Risk Conditions

Previously received	Recommendation
None, or PCV7 only (at any age)	Single dose of PCV21, PCV20, or PCV15. If PCV15 given — add 1 dose PPSV23 ≥ 1 year later.
PPSV23 only	Single dose of PCV21, PCV20, or PCV15 ≥ 1 year after the last PPSV23 dose.
PCV13 only	Single dose of PCV21, PCV20, or PPSV23 ≥ 1 year after the PCV13 dose.
PCV13 + 1 dose PPSV23	Re-review recommendations when the patient turns 65.

Risk conditions: alcoholism; chronic heart, liver, or lung disease; cochlear implant; cerebrospinal fluid leak; cigarette smoking; diabetes may require a second dose of ppsv23 if it was given before 65.

What to Remember — and What's Coming

1

Vaccination thresholds have shifted

Routine PCV now begins at age 50, not 65; risk-based vaccination still applies to adults 19–49.

2

Three valid pathways exist

PCV15+PPSV23, PCV20 alone, or PCV21 alone — choice depends on prior history and patient risk factors.

3

Check for the serotype 4 gap

Avoid PCV21 in younger at-risk adults with substance use or housing instability history; prefer PCV20.

4

No PCV needed after PCV20/PCV21

Once either is given, the conjugate series is complete — booster need will be determined over time.

5

More products are coming

Two 24-valent and one 31-valent PCV are in the pipeline; market forces may phase out PCV15+PPSV23.

For scenarios beyond those shown here, consult the most recent CDC/ACIP recommendations.