

# Advancements in Recommendations for Routine Pneumococcal Vaccination in Adults



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# Learning Objectives

1. Identify high risk patients who are eligible for pneumococcal vaccination(s).
2. Recall the current FDA approved pneumococcal vaccines and efficacy with circulating strains.
3. Recognize the current Advisory Committee on Immunization Practices (ACIP) guidelines for specific patient populations.

# Pneumococcal Disease

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# Background & Etiology

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- Pneumococcal disease encompasses all infections caused by *Streptococcus pneumoniae*.
- *S. pneumoniae* is a gram-positive, facultative anaerobic bacteria with over 100 documented serotypes.
- Clinical manifestations range from mild to severe including invasive pneumococcal disease (IPD), with significant morbidity and mortality in high-risk populations.

# Clinical Manifestations

## Mild Pneumococcal Disease

Acute Otitis Media

Sinusitis

## Invasive Pneumococcal Disease

Pneumonia

Meningitis

Bacteremia

# IPD Epidemiology

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**In 2019, IPD incidence was 24 per 100,000 in adults  $\geq$  65 years old**

## Pneumonia

- Accounts for up to 30% of adult community-acquired pneumonia cases
- 150,000 annual hospitalizations in the U.S.
- 25-30% of cases occur with meningitis or bacteremia
- Mortality rate is 5-7%

## Meningitis

- Accounts for over 50% of all bacterial meningitis cases
- Approximately 2,000 annual cases in the U.S.
- Mortality rate is 22%

## Bacteremia

- Unidentifiable source in approximately 4,000 cases annually
- Mortality rate is 20% to as high as 60% in older adults

# Adult Risk Factors

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- **Age  $\geq$  65 years old**
- **Age 19-64 years old with underlying conditions:**
  - Alcoholism
  - Cigarette smoking
  - Chronic heart disease (excluding hypertension)
  - Chronic lung disease (COPD, emphysema, asthma, etc.)
  - Chronic liver and/or kidney disease
  - Diabetes Mellitus
  - Sickle cell disease
  - Asplenia
  - Cochlear implants
  - Cerebrospinal fluid (CSF) leak
  - HIV, cancer, solid organ transplant and/or other diseases requiring immunosuppressive medications



# Transmission & Prevention

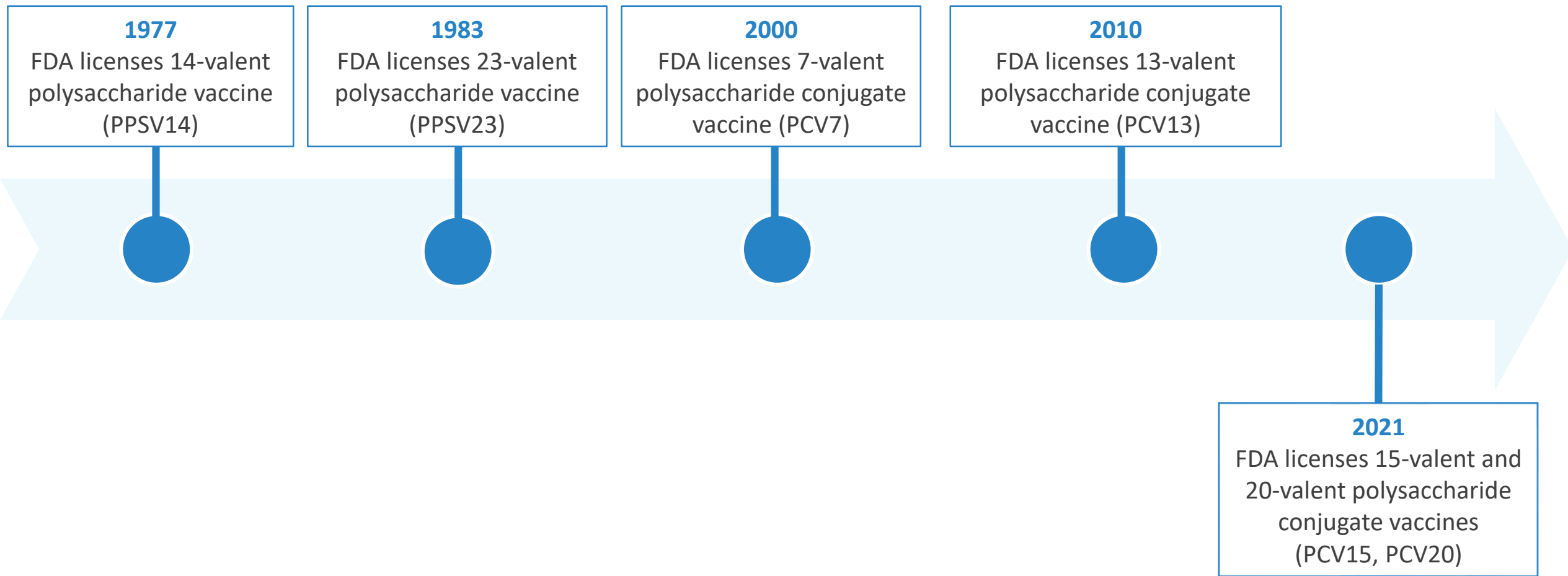
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- *S. pneumoniae* is a human pathogen that colonizes the upper respiratory tract in up to 90% of healthy patients
- Transmitted via respiratory droplets through direct person-to-person contact or autoinoculation by asymptomatic carriers or by clinically infected individuals
- Higher rates of transmission occur within households, crowded conditions, during cold/flu season
- Vaccination is the best way to prevent *S. pneumoniae* transmission & infection

# Pneumococcal Vaccine

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# Pneumococcal Vaccine Development Timeline

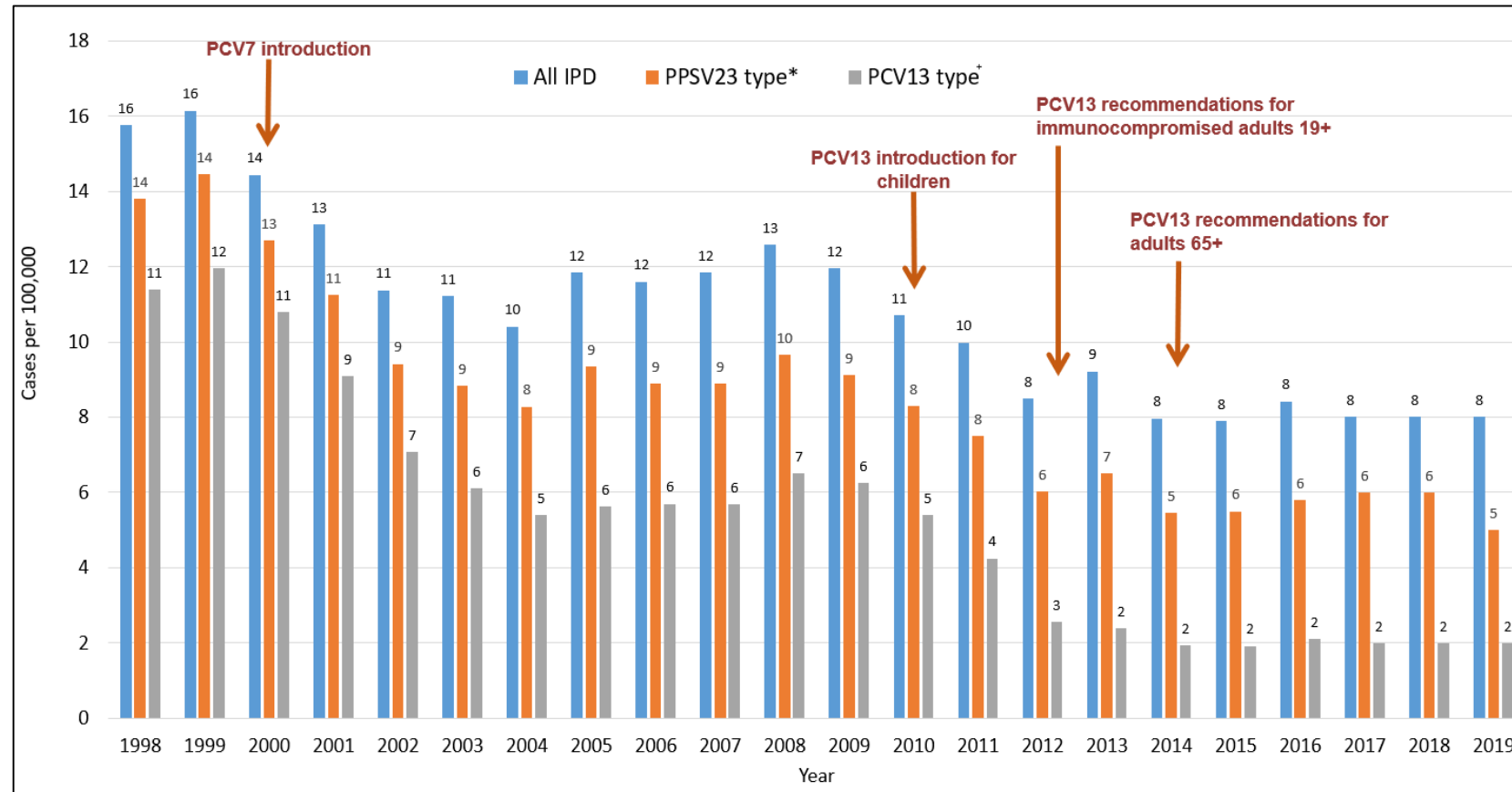


# Vaccination Impact

1998-2019

Routine pneumococcal vaccination & added serotype coverage in novel vaccines has significantly reduced incidence of IPD in high-risk populations

## Trends in Invasive Pneumococcal Disease Adults 19-64 Years Old

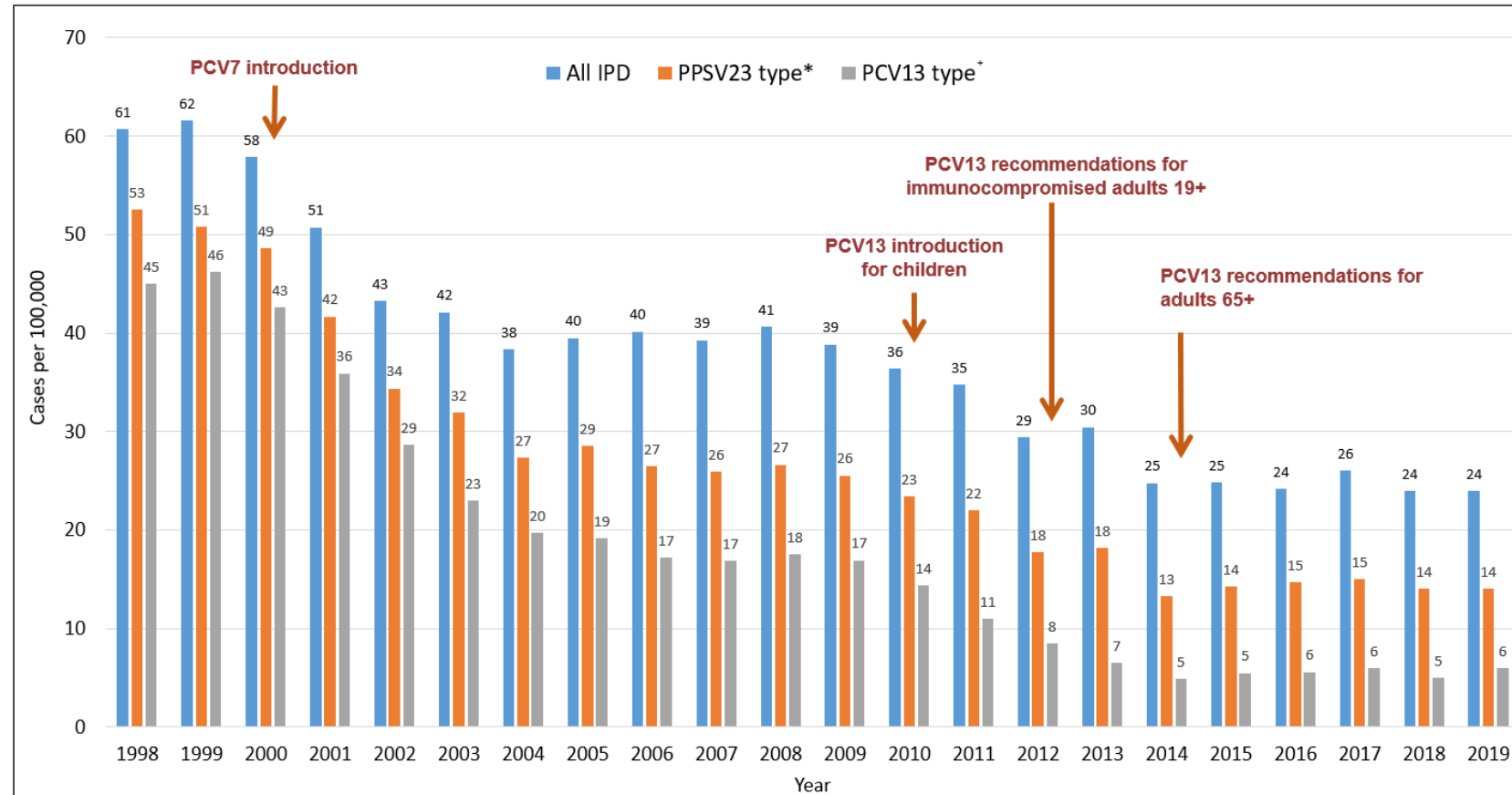


Source: Centers for Disease Control and Prevention. Pneumococcal Disease. National Center for Immunization and Respiratory Diseases, Division of Bacterial Diseases. Reviewed January 13, 2022.

# Vaccination Impact

## 1998-2019

## Trends in Invasive Pneumococcal Disease Adults ≥ 65 Years Old



Source: Centers for Disease Control and Prevention. Pneumococcal Disease. National Center for Immunization and Respiratory Diseases, Division of Bacterial Diseases. Reviewed January 13, 2022.

# Currently Available Pneumococcal Vaccines

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There are four vaccines currently licensed by the FDA for protection against pneumococcal disease

## Pneumococcal Polysaccharide Vaccine (PPSV23)

PPSV23 (Pneumovax 23<sup>®</sup>)

## Pneumococcal Conjugate Vaccines (PCV)

PCV13 (Prevnar 13<sup>®</sup>)  
PCV15 (Vaxneuvance<sup>®</sup>)  
PCV20 (Prevnar 20<sup>®</sup>)

# Circulating Strains of *S. pneumoniae*

	1	2	3	4	5	6A	6B	7F	8	9N	9V	10A	11A	12F	14	15B	17F	18C	19A	19F	20	22F	23F	33F
<b>PCV13</b>	Light Blue		Light Blue	Light Blue	Light Blue	Light Blue	Light Blue	Light Blue			Light Blue				Light Blue			Light Blue	Light Blue	Light Blue			Light Blue	
<b>PCV15</b>	Medium Blue		Medium Blue	Medium Blue	Medium Blue	Medium Blue	Medium Blue	Medium Blue			Medium Blue				Medium Blue			Medium Blue	Medium Blue	Medium Blue		Medium Blue	Medium Blue	Medium Blue
<b>PCV20</b>	Dark Blue		Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue		Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue	Dark Blue		Dark Blue	Dark Blue	Dark Blue		Dark Blue	Dark Blue	Dark Blue
<b>PPSV23</b>	Very Dark Blue	Very Dark Blue	Very Dark Blue	Very Dark Blue	Very Dark Blue		Very Dark Blue	Very Dark Blue	Very Dark Blue	Very Dark Blue	Very Dark Blue	Very Dark Blue	Very Dark Blue	Very Dark Blue	Very Dark Blue	Very Dark Blue	Very Dark Blue	Very Dark Blue		Very Dark Blue	Very Dark Blue	Very Dark Blue	Very Dark Blue	Very Dark Blue

# Vaccines & Strain Coverage

Serotypes	PCV13	PCV15	PCV20	PPSV23
1	X	X	X	X
3	X	X	X	X
4	X	X	X	X
5	X	X	X	X
6A	X	X	X	
6B	X	X	X	X
7F	X	X	X	X
9V	X	X	X	X
14	X	X	X	X
18C	X	X	X	X
19A	X	X	X	X
19F	X	X	X	X
23F	X	X	X	X
22F		X	X	X
33F		X	X	X
8			X	X
10A			X	X
11A			X	X
12F			X	X
15B			X	X
2				X
9N				X
17F				X
20				X

## Adults ≥ 65 Years Old

- PCV13 serotypes account for 27% of IPD cases
- PCV15 covers 2 additional serotypes (22F, 33F), which account for 15% of IPD cases
- PCV20 covers 7 additional serotypes (22F, 33F, 8, 10A, 11A, 12F, 15B, 2, 9N, 17F, 20) which account for 27% of IPD cases

## Adults 19-64 with Underlying Conditions

- PCV13 serotypes accounted for 30% of IPD cases
- PCV15 covers 2 additional serotypes (22F, 33F), which account for 13% of cases
- PCV20 covers 7 additional serotypes (22F, 33F, 8, 10A, 11A, 12F, 15B, 2, 9N, 17F, 20) which account for 28% of IPD cases



# 23-Valent Pneumococcal Polysaccharide Vaccine (PPSV23)

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- Currently one PPSV licensed for use in eligible populations (PPSV23, Pneumovax 23<sup>®</sup>)
- Formulated with purified pneumococcal polysaccharide antigens
- PPSV23 provides protection against 23 serotypes of *S. pneumoniae*
- Greater than 80% of adults experience detectable antibody response within 2-3 weeks
- Recommended in patients who receive 15-valent polysaccharide conjugate vaccine (PCV15)

# Pneumococcal Conjugate Vaccines (PCV)

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- PCV13 (Prevnar 13<sup>®</sup>), PCV15 (Vaxneuvance<sup>®</sup>) and PCV20 (Prevnar 20<sup>®</sup>)
- Each PCV is identified by the number of *S. pneumoniae* serotypes it provides coverage for
- PCV vaccines are formulated with purified capsular polysaccharides from these serotypes  
in conjugation with a nontoxic diphtheria toxin (CRM197)

Sources: Centers for Disease Control and Prevention. Pneumococcal vaccination: information for healthcare professionals. Reviewed January 24, 2022.  
Vaxneuvance (pneumococcal 15-valent conjugate vaccine). Package insert. Merck Sharp & Dohme Corp; 2022.  
Prevnar 20 (pneumococcal 20-valent conjugate vaccine). Package insert. Wyeth Pharmaceuticals LLC; 2021.  
Klein NP, et al. *Vaccine*. 2021;39(38):5428-5435.

# PCV15 & PCV20

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- Licensed by the FDA in 2021 for prevention of pneumococcal disease
- Randomized controlled trials have demonstrated comparable immunologic response to the previously recommended 13-valent PCV (PCV13, Prevnar13<sup>®</sup>)
- Compared to PCV13<sup>®</sup>, Vaxneuvance<sup>®</sup> and Prevnar 20<sup>®</sup> provide unique coverage for currently circulating serotypes of *S. pneumoniae* contributing significantly to recent cases of IPD
- Incorporated into Advisory Committee on Immunization Practices (ACIP) guidelines in October 2021, replacing previous recommendations for PCV13

# ACIP Pneumococcal Vaccine Guideline Recommendations

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- PCV15 or PCV20 for PCV-naïve adults  $\geq 65$  years or 19-64 years with underlying conditions
- Eligible adults may receive PCV15 in series with PPSV23 or PCV20 alone

**In patients who receive PCV15 + PPSV23, recommended dosing interval is  $\geq 1$  year**

**Shorter interval (8 weeks) may be considered in patients with certain immunocompromising conditions:**

- |                         |                                |  |                            |
|-------------------------|--------------------------------|--|----------------------------|
| • Chronic renal failure | • Iatrogenic immunosuppression | • Leukemia, lymphoma, multiple myeloma | • Other hemoglobinopathies |
| • Nephrotic syndrome    | • Generalized malignancy       | • Solid organ transplant               | • Cochlear implant         |
| • Immunodeficiency      | • HIV                          | • Sickle cell disease                  | • CSF leak                 |
| • Asplenia              | • Hodgkin disease              |  |                            |

- **Adults with previous pneumococcal vaccination**
  - PPSV23 only – May receive PCV20 or PCV15  $\geq 1$  year after last PPSV23 dose, additional PPSV23 not recommended
  - PCV13 only – Not yet evaluated, complete previously recommended PCV13 + PPSV23 series or administer one dose of PCV20
  - PCV13 + PPSV23 – Do not need to revaccinate

# ACIP Recommendations Recap

**For those who have never received a pneumococcal vaccine or those with unknown vaccination history**

**Administer one dose of PCV15 or PCV20.**

If **PCV20** is used, their pneumococcal vaccinations are complete.

**PCV20**

If **PCV15** is used, follow with one dose of PPSV23.

- The recommended interval is at least 1 year.
- The minimum interval is 8 weeks and can be considered in adults with an immunocompromising condition\*, cochlear implant, or cerebrospinal fluid leak.
- Their pneumococcal vaccinations are complete.

**PCV15** → At least 1 year apart (8 weeks can be considered) → **PPSV23**

**For those who previously received PPSV23 but who have not received any pneumococcal conjugate vaccine (e.g., PCV13, PCV15, PCV20)**

**You may administer one dose of PCV15 or PCV20.**

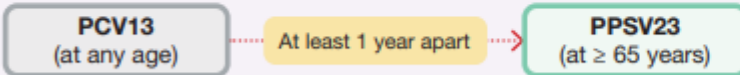
Regardless of which vaccine is used (PCV15 or PCV20):

- The minimum interval is at least 1 year.
- Their pneumococcal vaccinations are complete.

**PPSV23** → At least 1 year apart → **PCV15 or PCV20**

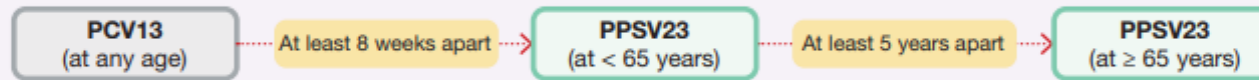
# ACIP Recommendations Recap

Adults 65 years or older without an immunocompromising condition, cerebrospinal fluid leak, or cochlear implant



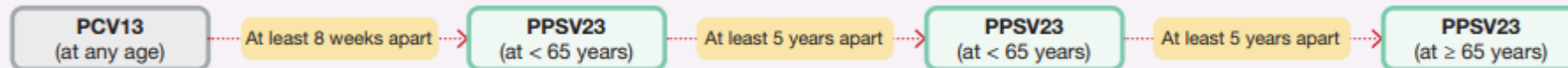
**CDC recommends 1 dose of PPSV23\*\* at age 65 years or older.**  
Administer a single dose of PPSV23 at least 1 year after PCV13 was received. Their pneumococcal vaccinations are complete.

Adults 19 years or older with a cerebrospinal fluid leak or cochlear implant



**CDC recommends 1 dose of PPSV23\*\* before age 65 years and 1 dose of PPSV23\*\* at age 65 years or older.**  
Administer a single dose of PPSV23 at least 8 weeks after PCV13 was received.

Adults 19 years or older with an immunocompromising condition



**CDC recommends 2 doses of PPSV23\*\* before age 65 years and 1 dose of PPSV23\*\* at age 65 years or older.**  
Administer a single dose of PPSV23 at least 8 weeks after PCV13 was received.

\*\*For adults who have received PCV13 but have not completed their recommended pneumococcal vaccine series with PPSV23, one dose of PCV20 may be used if PPSV23 is not available. If PCV20 is used, their pneumococcal vaccinations are complete.

# New Pneumococcal Vaccines

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»»» *PCV15 & PCV20*

# PCV15 Clinical Trial Data

## (PNEU-DAY) Immunogenicity, Safety and Tolerability of a 15-valent PCV in Immunocompetent Adults 18-49 Years Old

Study Design	Phase 3, multicenter, randomized, double-blind, active comparator-controlled study
Population	Immunocompetent adults aged 18-49 years old with or without pneumococcal disease risk factors (diabetes mellitus, chronic liver/heart/lung disease, tobacco use), with no prior history of pneumococcal vaccination
Intervention	Randomized 1,515 patients to PCV13 vs. PCV 15 in series with subsequent PPSV23 dose
Results	<ul style="list-style-type: none"><li>• 74.8% of participants had <math>\geq 1</math> pneumococcal disease risk factor</li><li>• Antibody response was present in both groups at 30 days post-vaccination</li><li>• Serology titers demonstrated comparable immune response for shared serotypes and confirmed higher immune response to PCV15-unique strains in the PCV15 group</li><li>• 80% of participants in both groups experienced at least 1 adverse event, all being mild and transient <math>\leq 72</math> hours<ul style="list-style-type: none"><li>• Most common ADE (PCV13 vs. PCV15): Injection site pain 68.8% vs 75.8%, fatigue (36.8% vs. 34.3%)</li><li>• Serious adverse events at 6 months were low in both groups (3.2% vs. 4.3%)</li><li>• No deaths deemed to be related to study vaccine occurred</li></ul></li></ul>



# PCV15 Clinical Trial Data

## (PNEU-PATH) Safety, Tolerability and Immunogenicity of a 15-valent PCV in Healthy Adults $\geq$ 50 Years Old

Study Design	Phase 3, multicenter, randomized, double-blind, active comparator-controlled study
Population	Healthy adults age $\geq$ 50 years old with no prior history of pneumococcal vaccination
Intervention	Randomized 652 patients to PCV13 vs. PCV15 in series with subsequent PPSV23 dose 12 months later
Results	<ul style="list-style-type: none"><li>• Comparable immune response for shared serotypes was elicited at 1 month and 1-year post-vaccination in both groups</li><li>• Serology titers confirmed higher antibody response to the 2 PCV15 unique strains at 1 month and 1-year post-vaccination in patients receiving PCV15</li><li>• Patients in both PCV13 and PCV15 groups experienced mild, short-term (<math>\leq</math> 72 hours) vaccine-related ADE (62.0% vs. 72.5%)<ul style="list-style-type: none"><li>• Most common ADE was injection site pain (41.4% vs. 55.0%)</li><li>• Serious adverse events at 12 months were low in both groups (5.9% vs. 5.2%)</li><li>• No deaths occurred during study period</li></ul></li></ul>

# PCV20 Clinical Trial Data

## Immunogenicity and Safety of a 20-valent PCV in Adults 18-49 Years Old

Study Design	Phase 3, multicenter, randomized, double-blind study
Population	Healthy adults aged 18-49 years old with no prior history of pneumococcal vaccination
Intervention	Randomized 1,710 patients to PCV13 vs. PCV20
Results	<ul style="list-style-type: none"><li>• 30-day post-immunization serology studies demonstrated noninferiority of PCV20 to PCV13 for antibody response of matched serotypes</li><li>• Confirmed higher response for the 7 PCV-20 unique serotypes in the PCV20 group</li><li>• Patients in both PCV13 and PCV15 groups experienced vaccine-related ADE within 7-10 days post-vaccination<ul style="list-style-type: none"><li>• Most common local ADE was injection site pain (75.7% vs. 78.7%), median duration 1-2 days</li><li>• Most common systemic event was muscle pain (60.5% vs. 62.1%), median duration 1-2.5 days</li><li>• Serious adverse events were low in both groups (0% vs. 0.7%) and deemed unrelated to study vaccines</li><li>• No deaths occurred during study period</li></ul></li></ul>

# PCV20 Clinical Trial Data

Safety, Tolerability and Immunogenicity of a 20-valent PCV in adults aged $\geq 18$ years	
Study Design	Phase 3, multicenter, randomized, double-blind, active controlled study
Population	Healthy adults age $\geq 18$ years old with no prior history of pneumococcal vaccination
Intervention	Randomized in age-based cohorts: 18-59 randomized to PCV20 vs. PCV13, $\geq 60$ years to PCV20 vs. PCV13 followed by PPSV23 in 1 month
Results	<ul style="list-style-type: none"><li>• Noninferiority was established for all 13 matched serotypes between PCV13 and PCV20 groups</li><li>• Noninferiority criteria was met for 6 of the 7 unique serotypes between PCV20 and PPSV23</li><li>• Noninferiority for all PCV20 serotype antibody responses in participants in all age groups</li><li>• Patients in both PCV13 and PCV20 groups experienced similar rates of vaccine-related ADE within 10 days<ul style="list-style-type: none"><li>• Most common local ADE was injection site pain, most common systemic ADE was muscle pain</li><li>• Neither group demonstrated significant incidence of serious adverse events</li><li>• 6-month safety follow-up demonstrated newly diagnosed conditions in <math>\leq 2.3\%</math> of patients</li><li>• One death occurred during study period due to non-vaccine related causes</li></ul></li></ul>

# Immunogenicity & Efficacy

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## PCV15 (VAXNEUVANCE®)

- Antibody response of PCV15 has been compared in clinical trials to PCV13
- Comparative immunogenicity has been studied in healthy adults  $\geq 50$  years old, adults 18-49 years old with  $\geq 1$  risk factor as well as adults with HIV
- Among shared serotypes, PCV15 has demonstrated similar or higher antibody response to PCV13 in all populations studied
- PCV15 met superiority criteria for serotype 3, but clinical impact of this difference is unknown

## PCV20 (PREVNAR 20®)

- Antibody response of PCV20 has been compared in clinical trials to PCV13
- Comparative immunogenicity has been evaluated in adults 60-64 years old and adults  $\geq 18$  years old with stable medical conditions
- The PCV20 antibody response has demonstrated noninferiority to PCV13 for all shared serotypes in adults  $\geq 60$
- Noninferiority of immune response was also met for 6 of the 7 serotypes unique to PCV20

# Safety

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## PCV15 (VAXNEUVANCE®)

- Several randomized controlled trials have assessed the safety of PCV15 in adults  $\geq 18$
- Serious adverse events within 6 months were found to be similar between PCV15 (2.5%) and PCV13 (2.4%)
- PCV15 was well tolerated in all studies
  - Adverse reactions reported: injection site pain, fatigue, myalgia
  - No serious adverse events or deaths deemed to be resultant of study vaccines

## PCV20 (PREVNAR 20®)

- Several randomized controlled trials have assessed the safety of PCV20 in adults  $\geq 18$
- Serious adverse events within 6 months were found to be similar between PCV15 (1.5%) and controls (1.8%)
- PCV20 was well tolerated in all studies
  - Adverse reactions reported: injection site pain, muscle/joint pain, fatigue, headache
  - No serious adverse events or deaths deemed to be resultant of study vaccines

# Pneumococcal Vaccines in Practice

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# Dosing & Administration

## Dosage Form

Sterile injectable suspension  
Pre-filled 0.5 mL single-dose syringes

## Route of Administration

PCV15 & PCV20: Intramuscular injection only  
PPSV23: Intramuscular or subcutaneous injection

## Preparation

Hold horizontally and shake vigorously immediately prior to administration  
Do not use if vaccine cannot be resuspended or if particulate matter and/or discoloration is observed

Sources: Prevnar 20 (pneumococcal 20-valent conjugate vaccine). Package insert. Wyeth Pharmaceuticals LLC; 2021.

Pneumovax 23 (pneumococcal vaccine polyvalent). Package insert. Merck Sharp & Dohme Corp; 2021.

Vaxneuvance (pneumococcal 15-valent conjugate vaccine). Package insert. Merck Sharp & Dohme Corp; 2022.

Centers for Disease Control and Prevention. Pneumococcal vaccination: information for healthcare professionals. Reviewed January 24, 2022.

# Adverse Reactions

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Pain, swelling, erythema at the injection site

Fatigue

Myalgia, arthralgia

Headache

Fever, chills

Adverse reactions should be reported to the Vaccine Adverse Event Reporting System (VAERS)



# Additional Warnings

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## CONTRAINDICATIONS

- All pneumococcal vaccines: history of severe allergic reaction to previous doses of or any component in available vaccines.
- PCV15 & PCV20: history of severe allergic reaction to any diphtheria toxoid

## PRECAUTIONS


- Acute moderate-severe illness (with or without a fever)
- Doses may be administered following recovery in the absence of other contraindications
- The CDC does not provide this warning in acute mild illnesses

Sources: Centers for Disease Control and Prevention. Pneumococcal vaccination: information for healthcare professionals. Reviewed January 24, 2022.  
Pneumovax 23 (pneumococcal vaccine polyvalent). Package insert. Merck Sharp & Dohme Corp; 2021.  
Pevnar 20 (pneumococcal 20-valent conjugate vaccine). Package insert. Wyeth Pharmaceuticals LLC; 2021.  
Vaxneuvance (pneumococcal 15-valent conjugate vaccine). Package insert. Merck Sharp & Dohme Corp; 2022.


# Pneumococcal Vaccine Storage

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For all available pneumococcal vaccines:



Store  
refrigerated at  
2°C to 8°C  
(36°F to 46°F)



Administer as  
soon as possible  
upon removal  
from refrigerator



Do not freeze  
Discard if vaccine  
has been frozen

# Patient Counseling Points

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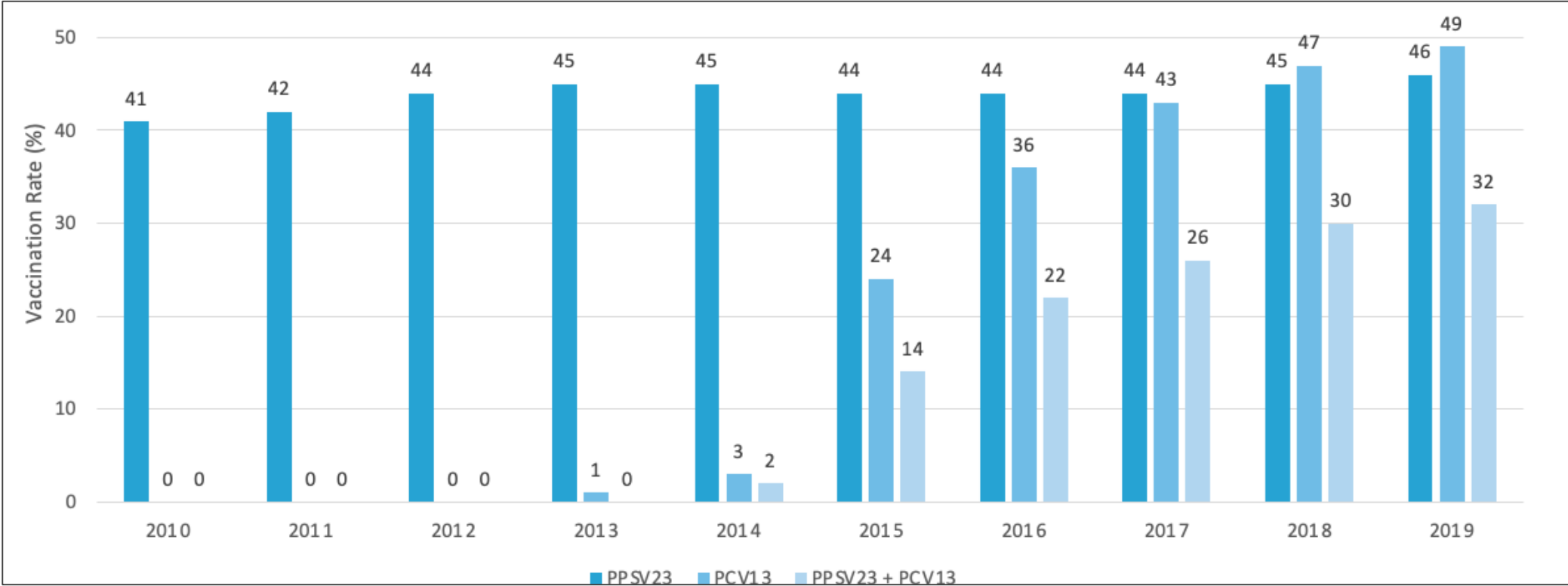
Upon receiving pneumococcal vaccines, patients should be counseled regarding

- Importance of PCV to prevent IPD
- Vaccine components & potential for allergic reaction
- Common side effects of pneumococcal vaccines
- Rescheduling vaccination during moderate-severe acute illness
- Subsequent dosing to complete vaccination series (PCV15 only)
- Access to Vaccine Adverse Events Reporting System (VAERS)

All patients should be provided with a CDC Vaccine Information Statement (VIS)

# Pneumococcal Vaccination Rates in Adults

Reimbursement Claims Submitted to Centers for Medicare & Medicaid (CMS) for Pneumococcal Vaccination from 2010-2019, All Adults ≥ 65



# Pneumococcal Vaccination Rates in Adults by Age

## Reimbursement Claims Submitted to Centers for Medicare & Medicaid (CMS) for Pneumococcal Vaccination from 2010-2019, by Age

Age Category (Years)	Total Enrolled Beneficiaries	Any Pneumococcal Vaccine	PPSV23 (≥1 dose, %)	PCV13 (≥1 dose, %)	PPSV23 and PCV13 (%)
65-69	7,957,095	49.6	29.7	40.4	20.5
70-74	6,796,985	62.8	44.8	51.2	33.2
75-79	4,743,679	71	55.0	55.4	39.4
80-84	3,150,261	75.1	62.1	55.4	42.5
> 85	3,110,957	75.3	62.2	52.4	39.3

# Pneumococcal Vaccination Rates in Adults by Conditions

## Reimbursement Claims Submitted to Centers for Medicare & Medicaid (CMS) for Pneumococcal Vaccination from 2010-2019, by Conditions

	Total Enrolled Beneficiaries	Any Pneumococcal Vaccine	PPSV23 (≥1 dose, %)	PCV13 (≥1 dose, %)	PPSV23 and PCV13 (%)
Immunocompromising Conditions					
Yes	16,813,636	71.2	53.8	55.2	37.8
No	8,945,341	48.4	32.1	38.2	21.9
Underlying Conditions					
Yes	21,665,388	67.7	50.2	53.5	35.0
No	4,093,589	39.9	25.4	32.5	18

# Pneumococcal Vaccination Rates in Adults by Race & Ethnicity

## Reimbursement Claims Submitted to Centers for Medicare & Medicaid (CMS) for Pneumococcal Vaccination from 2010-2019, by Race & Ethnicity

Race/Ethnicity Category	Total Enrolled Beneficiaries	Any Pneumococcal Vaccine	PPSV23 (≥1 dose, %)	PCV13 (≥1 dose, %)	PPSV23 and PCV13 (%)
White	21,911,116	65.0	47.8	51.2	33.9
Black	1,803,442	49.3	35.1	34.9	20.8
Asian	525,916	59.6	43.2	41.9	25.5
Hispanic	400,149	46.1	32.2	30.1	16.2
American Indian/Alaskan Native	121,697	57.4	38.2	40.2	21.0
Other Race	452,338	60.3	43.8	45.6	29.1

# Pharmacist's Role

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## Identify

- Evaluate patients for pneumococcal disease risk factors
- Screen patients for pneumococcal vaccine eligibility

## Educate

- Inform patients of the benefit of pneumococcal vaccines
- Provide resources for pneumococcal vaccine information

## Immunize

- Administer pneumococcal vaccines to eligible patients
- Participate in campaigns to increase vaccination efforts



# Key Takeaways

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- Pneumococcal disease is a preventable condition with significant morbidity and mortality in high-risk patient populations
- Currently available vaccines have demonstrated strong efficacy and safety in the prevention of invasive pneumococcal disease for patients identified as being high-risk
- As of 2021, ACIP and the CDC recommend all eligible patients receive pneumococcal vaccination with PCV20 or PCV15 + PPSV23
- Pharmacists have a unique role to implement current ACIP pneumococcal vaccination recommendations in eligible populations upon transitions of care as well as in the outpatient setting

# Assessment Questions

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Q1: Which of the following are associated with increased risk of developing pneumococcal disease?

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- A. Age  $\geq$  65
- B. Cigarette smoking
- C. Asplenia
- D. All the above

Correct Response: Which of the following are associated with increased risk of developing pneumococcal disease?

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- A. Age  $\geq$  65
- B. Cigarette smoking
- C. Asplenia
- D. **All the above**

Which of the following patients are not eligible candidates for 20-valent pneumococcal conjugate vaccine (PCV20)?

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- A. 24-year-old female with past medical history of sickle cell disease
- B. 50-year-old male with hypertension
- C. 65-year-old male with no active comorbidities or significant past medical history
- D. 86-year-old female with diabetes mellitus and chronic kidney disease

Which of the following patients are not eligible candidates for 20-valent pneumococcal conjugate vaccine (PCV20)?

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- A. 24-year-old female with past medical history of sickle cell disease
- B. 50-year-old male with hypertension**
- C. 65-year-old male with no active comorbidities or significant past medical history
- D. 86-year-old female with diabetes mellitus and chronic kidney disease

# Which of the following statements is correct regarding available pneumococcal vaccines?

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- A. The pneumococcal vaccines currently available include three pneumococcal conjugate vaccines and one pneumococcal polysaccharide vaccine.
- B. The pneumococcal vaccines currently recommended by ACIP for adults include 13-valent pneumococcal conjugate vaccine and 23-valent pneumococcal polysaccharide vaccine.
- C. The 13-valent pneumococcal vaccine protects against all of the same serotypes as the 15-valent pneumococcal conjugate vaccine.
- D. The 15-valent and 20-valent pneumococcal conjugate vaccines have higher adverse events compared to the 13-valent pneumococcal conjugate vaccine.

## Which of the following statements is correct regarding available pneumococcal vaccines?

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- A. The pneumococcal vaccines currently available include three pneumococcal conjugate vaccines and one pneumococcal polysaccharide vaccine.
- B. The pneumococcal vaccines currently recommended by ACIP for adults include 13-valent pneumococcal conjugate vaccine and 23-valent pneumococcal polysaccharide vaccine.
- C. The 13-valent pneumococcal vaccine protects against all of the same serotypes as the 15-valent pneumococcal conjugate vaccine.
- D. The 15-valent and 20-valent pneumococcal conjugate vaccines have higher adverse events compared to the 13-valent pneumococcal conjugate vaccine.



# What spacing recommendation between vaccines is correct?

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- A. A 24-year-old female with sickle cell disease should receive one dose of PCV20 followed by a dose of PPSV23 in one year.
- B. A 50-year-old male with lymphoma should receive one dose of PCV15 today followed by one dose of PPSV23 8 weeks later.
- C. A 65-year-old male with no active comorbidities who received one dose of PCV15 1 year ago should receive a dose of PCV13 today.
- D. An 86-year-old female with diabetes mellitus and chronic kidney disease with no history of pneumococcal vaccination should receive one dose of PPSV23 today.

## What spacing recommendation between vaccines is correct?

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- A. A 24-year-old female with sickle cell disease should receive one dose of PCV20 followed by a dose of PPSV23 in one year.
- B. A 50-year-old male with lymphoma should receive one dose of PCV15 today followed by one dose of PPSV23 8 weeks later.
- C. A 65-year-old male with no active comorbidities who received one dose of PCV15 1 year ago should receive a dose of PCV13 today.
- D. An 86-year-old female with diabetes mellitus and chronic kidney disease with no history of pneumococcal vaccination should receive one dose of PPSV23 today.

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# Thank You!

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