



## Pneumococcal Vaccines

**Katherine A. Poehling, MD, MPH**

Pneumococcal Vaccines Work Group Chair

Advisory Committee on Immunization Practices

October 19, 2022

# Pneumococcal Vaccines Work Group

## ACIP Members

- Katherine Poehling (Chair)
- Sarah Long

## Ex Officio Members

- Jeffrey Kelman (CMS)
- Lucia Lee (FDA)
- Tina Mongeau (FDA)
- Uzo Chukwuma (IHS)
- Mamodikoe Makhene (NIH)

## CDC Lead

- Miwako Kobayashi (NCIRD)

## Liaison Representatives and Consultants

- Lynn Fisher (AAFP)
- Mark Sawyer (AAP/COID)
- Jason Goldman (ACP)
- David Nace (AGS/AMDA)
- Emily Messerli (AIM)
- Aleksandra Wierzbowski (NACI)
- James McAuley (IDSA)
- William Schaffner (NFID)
- Virginia Caine (NMA)
- Monica Farley (VAMC/Emory)
- Keith Klugman (BMGF)
- Arthur Reingold (UC Berkley)
- Lorry Rubin (CCMC)
- Richard Zimmerman (U. of Pittsburgh)

# Pneumococcal Vaccines Work Group

## **CDC Contributors**

- Adam Cohen (Respiratory Diseases Branch)
- Ryan Gierke (Respiratory Diseases Branch)
- Jennifer Farrar (Respiratory Diseases Branch)
- Nam Prasad (Respiratory Diseases Branch)
- Pedro Moro (Immunization Safety Office)
- Andrew Leidner (Immunization Services Division)
- Liz Velazquez (Immunization Services Division)
- Marc Fischer (Arctic Investigations Program)
- Noele Nelson (Division of Bacterial Diseases)
- Jessica MacNeil (ACIP Secretariat)

## **GRADE/EtR consultants**

- Doug Campos-Outcalt
- Rebecca Morgan

**In 2021, 2 new pneumococcal conjugate vaccines were licensed for use among U.S. adults.**

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

23-valent pneumococcal polysaccharide vaccine (PPSV23)

Pneumovax23<sup>®</sup>, Merck

13-valent pneumococcal conjugate vaccine (PCV13)

Prevnar13<sup>®</sup>, Pfizer

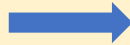
15-valent pneumococcal conjugate vaccine (PCV15)

Vaxneuvance<sup>™</sup>, Merck

20-valent pneumococcal conjugate vaccine (PCV20)



Prevnar20<sup>™</sup>, Pfizer

# Current Adult Pneumococcal Vaccine Recommendations

Previous pneumococcal vaccine history	Age/Underlying conditions	Current recommendations		
None	≥65 years, 19–64 years with CMC/IC, CSF leak, cochlear implant	PCV20	OR	PCV15+PPSV23
PPSV23 only	Any adult with indications	 PCV15 ≥1yr	OR	PCV20
PCV13 only	19–64 years with CMC/IC, CSF leak, cochlear implant	PPSV23	OR	One initial dose of PPSV23 at ≥65 years
PCV13 only	≥65 years	PPSV23	OR	One initial dose of PPSV23 at ≥65 years
PCV13 only	19–64 years with CMC/IC, CSF leak, cochlear implant	PPSV23	OR	One initial dose of PPSV23 at ≥65 years
PCV13+PPSV23 (after age 65 years)	≥65 years	No additional pneumococcal vaccine dose		

New Pneumococcal conjugate vaccines (PCV15, PCV20) are currently recommended for adults aged 19–64 years with certain underlying conditions or adults aged ≥65 years ***“who have not previously received PCV or whose previous vaccination history is unknown”***







CMC: chronic medical conditions, CSF: cerebrospinal fluid leak, IC: immunocompromising conditions

 May receive  
 Should receive



# Current Adult Pneumococcal Vaccine Recommendations

Previous pneumococcal vaccine history	Age/Underlying conditions	Current recommendations
None	>65 years, 19–64 years with	PCV20, PCV15+PPSV23
PPSV23 only		PCV20

Adults who previously received PCV13 (with or without PPSV23) are currently recommended to **“complete the previously recommended PPSV23 series”**

PCV13 only	19–64 years, CSF leak, cochlear implant	 PPSV23 <span style="color: green;">≥8wks</span>	 <span style="color: green;">≥5yrs</span>	One final dose of PPSV23 at ≥65 years	
PCV13 only	19–64, with IC	 PPSV23 <span style="color: green;">≥8wks</span>	 PPSV23 <span style="color: green;">≥5yrs</span>	 PPSV23 <span style="color: green;">≥5yrs</span>	One final dose of PPSV23 at ≥65 years
PCV13 only	≥65 years		<span style="color: green;">≥8wks (IC, CSF leak, cochlear implant)</span> <span style="color: green;">≥1yr (no conditions listed above)</span>	One final dose of PPSV23 at ≥65 years	
PCV13+PPSV23 (after age 65 years)	≥65 years	No additional pneumococcal vaccine dose			

CMC: chronic medical conditions, CSF: cerebrospinal fluid leak, IC: immunocompromising conditions

 May receive  
 Should receive

# Adults Who Were Previously Recommended to Receive **PCV13** and PPSV23

	19–64 years	≥65 years
None of the conditions listed below	No recommendation	PPSV23 and <b>PCV13</b> * based on shared clinical decision-making
Chronic medical conditions† (CMC)	PPSV23	
Cochlear implant, CSF leak	Both <b>PCV13</b> * and PPSV23	Both <b>PCV13</b> * and PPSV23
Immunocompromising conditions	Both <b>PCV13</b> * and PPSV23, repeat PPSV23 after 5 years	

PCV13: 13-valent pneumococcal conjugate vaccine, PCV15: 15-valent pneumococcal conjugate vaccine, PCV20: 20-valent pneumococcal conjugate vaccine, PPSV23: 23-valent pneumococcal polysaccharide vaccine

\*If not previously given; †Examples include alcoholism, chronic heart/liver/lung disease, diabetes, cigarette smoking  
<https://www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf>

# Policy Questions

Question 1	Question 2	Question 3
U.S. adults aged <b>≥19 years</b>	U.S. adults aged <b>19–64 years</b> with an immunocompromising condition, cerebrospinal fluid leak, or cochlear implant	U.S. adults aged <b>≥65 years</b>
Who previously received <b>PCV13 only</b>	Who previously received <b>both PCV13 and PPSV23</b>	Who previously received <b>both PCV13 and PPSV23</b>
Should they be recommended to receive a dose of PCV20 to complete their pneumococcal vaccine series?		Should they be recommended to receive a dose of PCV20?

PCV13=13-valent pneumococcal conjugate vaccine, PCV20=20-valent pneumococcal conjugate vaccine,



# Policy Questions

Adults who have **NOT** completed their  
recommended pneumococcal vaccine series

Question 1	Question 2	Question 3
U.S. adults aged <b>≥19 years</b>	U.S. adults aged <b>19–64 years</b> with an immunocompromising condition, cerebrospinal fluid leak, or cochlear implant	U.S. adults aged <b>≥65 years</b>
Who previously received <b>PCV13 only</b>	Who previously received <b>both PCV13 and PPSV23</b>	Who previously received <b>both PCV13 and PPSV23</b>
Should they be recommended to receive a dose of PCV20 to <b>complete</b> their pneumococcal vaccine series?		Should they be recommended to receive a dose of PCV20?

PCV13=13-valent pneumococcal conjugate vaccine, PCV20=20-valent pneumococcal conjugate vaccine,

# Policy Questions

Adults who have completed their recommended pneumococcal vaccine series

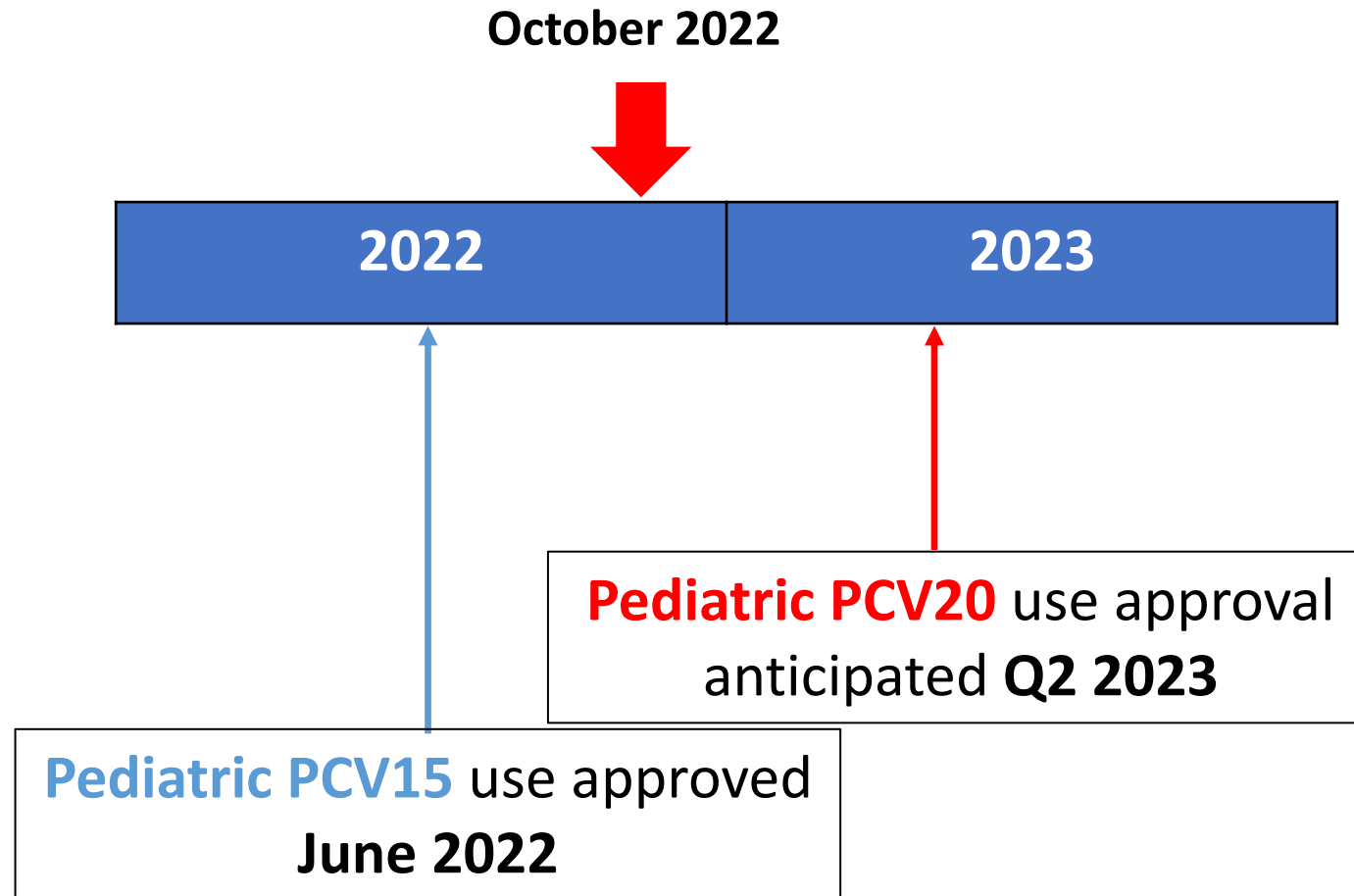
Question 1	Question 2	Question 3
U.S. adults aged <b>≥19 years</b>	U.S. adults aged <b>19–64 years</b> with an immunocompromising condition, cerebrospinal fluid leak, or cochlear implant	U.S. adults aged <b>≥65 years</b>
Who previously received <b>PCV13 only</b>	Who previously received <b>both PCV13 and PPSV23</b>	Who previously received <b>both PCV13 and PPSV23</b>
Should they be recommended to receive a dose of PCV20 to complete their pneumococcal vaccine series?		Should they be recommended to receive a dose of PCV20?

PCV13=13-valent pneumococcal conjugate vaccine, PCV20=20-valent pneumococcal conjugate vaccine,

# Guiding Principles Proposed by the Work Group

- Decisions on policy options should be supported by best-available evidence
- Simplifying existing pneumococcal vaccine recommendations could help improve vaccine coverage among adults
- Disparities in pneumococcal disease burden and vaccine coverage should be reduced
- Timely recommendations for each new vaccine should be made after FDA licensure

# Context: Approval of PCV20 use among Children Anticipated in 2023



# Context: New Adult Pneumococcal Vaccines in Advanced Stages of Development

	1	3	4	5	6 A	6 B	7 F	9 V	1 4	1 8 C	1 9 A	1 9 F	2 3 F	2 2 F	3 3 F	8	1 0 A	1 1 A	1 2 F	1 5 B	2	9 N	1 7 F	2 0	2 0 B	1 5 A	1 5 C	1 6 F	2 3 A	2 3 B	2 4 F	3 1	3 5 B			
PCV13																																				
PCV15																																				
PCV20																																				
PPSV23																																				
AFX3772																																				
V116																																				

## 24-valent pneumococcal vaccine

AFX3772, GSK

- Completed phase 1/2 study for adults<sup>1</sup>

## 21-valent pneumococcal conjugate vaccine

V116, Merck

- Completed phase 1/2 study for adults<sup>2</sup>
- Phase 3 immunobridging studies in adults are currently ongoing

1. Chichili et al. Vaccine 2022; 2. Platt et al. Lancet ID 2022.

# Today's Pneumococcal Vaccines Session Outline

Introduction

Dr. Katherine Poehling  
(ACIP, WG Chair)

Cost-effectiveness analysis of PCV20 use among adults who previously received PCV13

Dr. Charles Stoecker  
(Tulane University)

Summary of Work Group Interpretation of EtR and proposed recommendations

Dr. Miwako Kobayashi  
(CDC/NCIRD)

Proposed updates to clinical guidance on pneumococcal vaccine use among adults

Dr. Miwako Kobayashi  
(CDC/NCIRD)

For more information, contact CDC  
1-800-CDC-INFO (232-4636)  
TTY: 1-888-232-6348 [www.cdc.gov](http://www.cdc.gov)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

