

Pneumococcal Vaccines

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Pneumococcal Vaccines Work Group Chair
Advisory Committee on Immunization Practices
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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)
- Cora Hoover (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)
- Diepreye Ayabina (Division of Bacterial Diseases)
- 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)

GRADE/EtR consultants

- Doug Campos-Outcalt
- Rebecca Morgan

Serotypes contained in pneumococcal vaccines

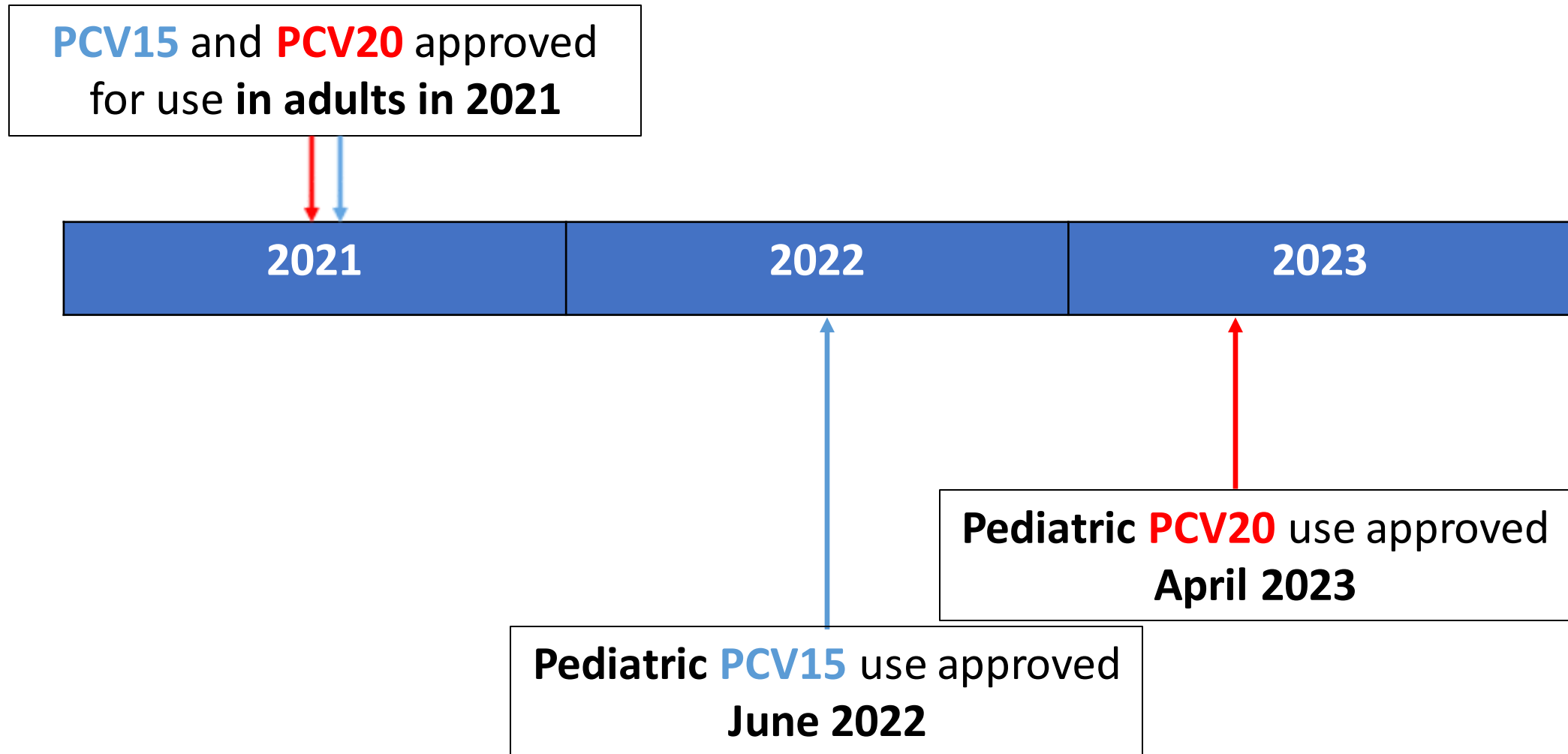
	1	3	4	5	6A	6B	7 F	9V	14	18 C	19 A	19 F	23 F	22 F	33 F	8	10 A	11 A	12 F	15 B	2	9N	17 F	20
PCV13																								
PCV15																								
PCV20																								
PPSV23																								

Pneumococcal conjugate vaccines (PCVs): PCV13, PCV15, PCV20

Pneumococcal polysaccharide vaccine (PPSV): PPSV23

- PCV15 non-PCV13: serotypes **22F** and **33F**
- PCV20 non-PCV15: serotypes **8, 10A, 11A, 12F, and 15B**
- PPSV23 non-PCV20: serotypes **2, 9N, 17F, and 20**

Extended indication for PCV20 use among children approved on April 27, 2023



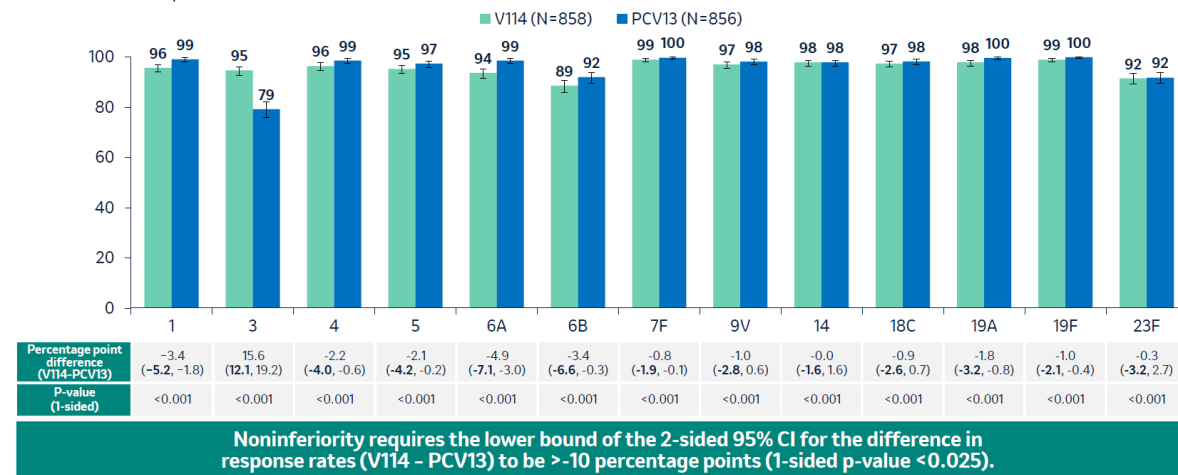
Both PCV15 and PCV20 were approved based on safety and immunogenicity data compared with PCV13

- No direct PCV15 vs PCV20 comparison
- Unknown clinical implications:
 - Numerically lower antibody responses vs PCV13
 - Numerically higher antibody response against serotype 3 in PCV15 vs PCV13

V114-029: Pivotal, 3+1

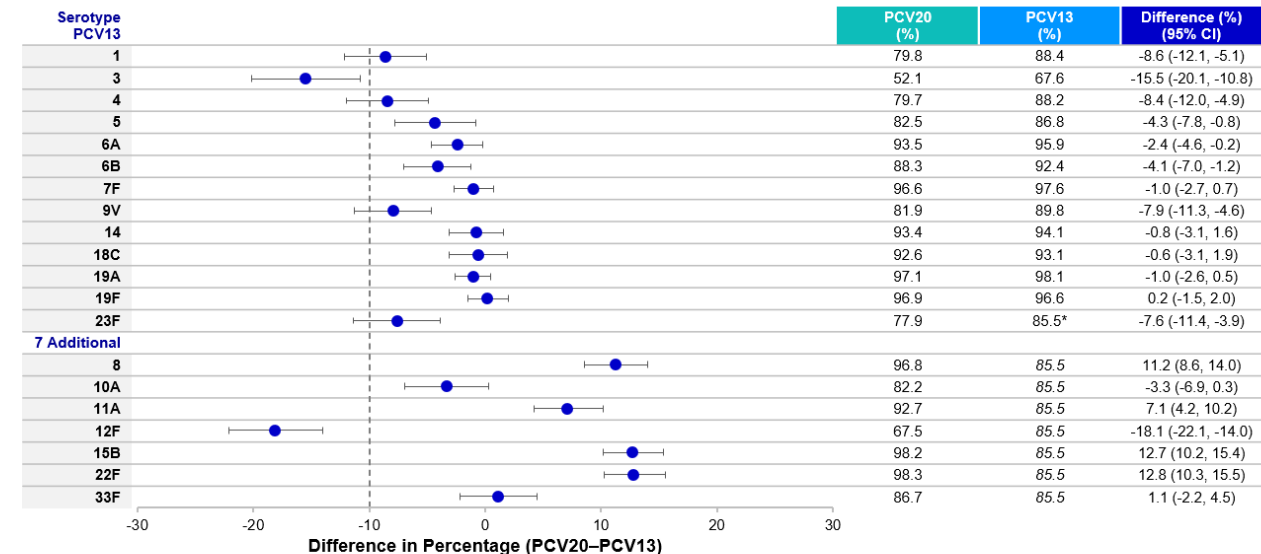
PD3: V114 is noninferior to PCV13 for all 13 shared serotypes based on the proportion of responders (IgG ≥ 0.35 $\mu\text{g/mL}$)

Observed response (%)



Error bars indicate 95% CIs; CI=confidence interval, IgG=immunoglobulin G

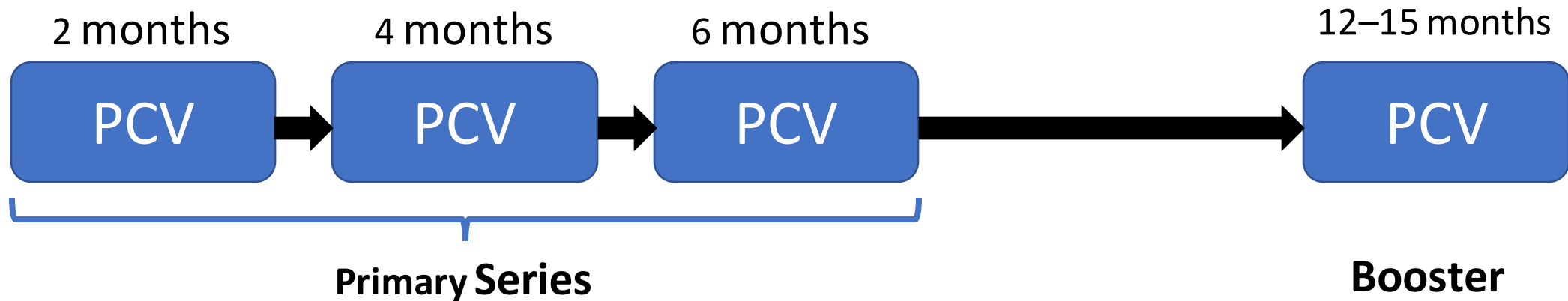
Post Dose 3: Percentage with Predefined IgG Concentrations 14 Serotypes Met Noninferiority (Difference in %)



*The 7 additional serotypes are compared to the percentage for serotype 23F after Dose 3 (lowest in PCV13 group, excluding serotype 3).
Predefined IgG concentration ≥ 0.35 $\mu\text{g/mL}$ for all serotypes except ≥ 0.23 $\mu\text{g/mL}$, ≥ 0.10 $\mu\text{g/mL}$ and ≥ 0.12 $\mu\text{g/mL}$ for serotypes 5, 6B and 19A respectively.

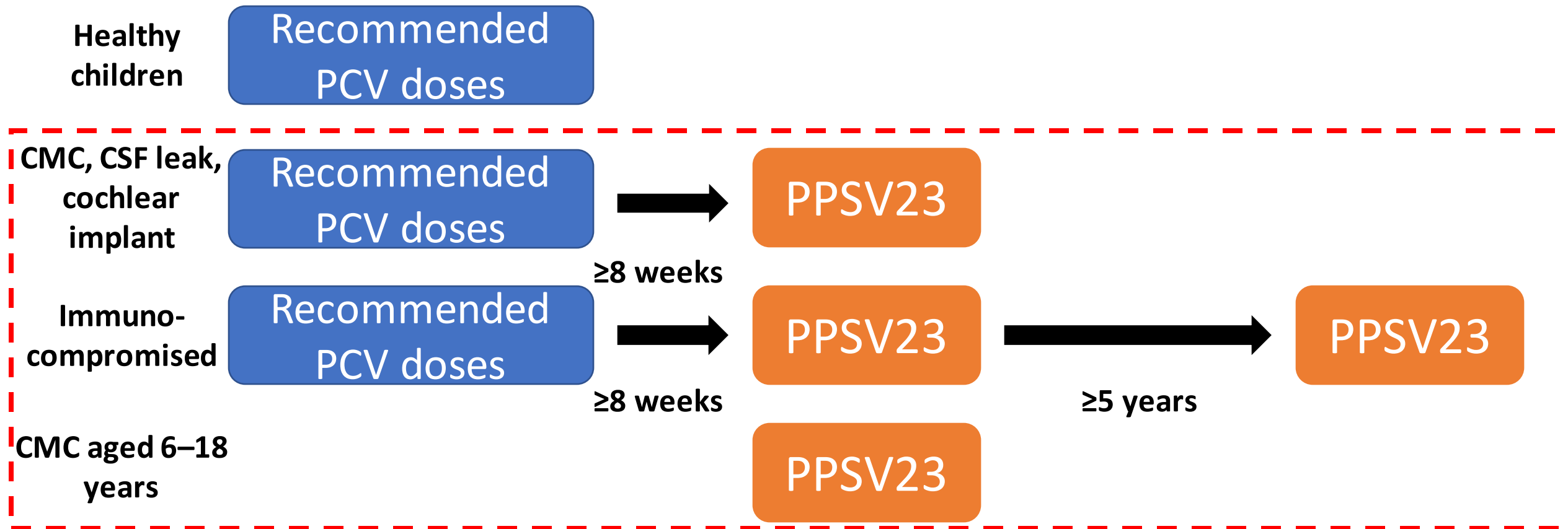
All children under age 2 years have the same pneumococcal vaccine recommendations

- 3 primary series and a booster="3+1" schedule



Currently, either **PCV13** or **PCV15** can be used

Children with certain underlying conditions are recommended to **receive PPSV23** in addition to the recommended PCV doses



Note: Excludes catch-up vaccination schedules.

CMC=chronic medical conditions, including chronic heart disease, chronic lung disease, diabetes mellitus

CSF=cerebrospinal fluid

[Use of 15-Valent Pneumococcal Conjugate Vaccine Among U.S. Children: Updated Recommendations of the Advisory Committee on Immunization Practices — United States, 2022 | MMWR \(cdc.gov\)](#)

Current Risk-Based Pneumococcal Vaccine Recommendations

	Children	Adults
Alcoholism		
Chronic heart disease		
Chronic lung disease		
Chronic liver disease		
Cigarette smoking		
Diabetes mellitus		
Cerebrospinal fluid leak		
Cochlear implant		
Chronic renal failure or nephrotic syndrome		
Congenital or acquired asplenia, or splenic dysfunction		
Congenital or acquired immunodeficiency		
Diseases and conditions treated with immunosuppressive drugs or radiation therapy		
HIV infection		
Sickle cell disease or other hemoglobinopathies		
Solid organ transplant		

- **Children:** Including asthma **if treated with high-dose oral corticosteroid therapy.**
 - **Adults:** Includes chronic obstructive pulmonary disease, emphysema, and **asthma.**
- **Should we expand the indication for asthma in children?**

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Cochlear implant		
Chronic renal failure or nephrotic syndrome		
Congenital or acquired asplenia, or splenic dysfunction		
Congenital or acquired immunodeficiency		
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HIV infection		
Sickle cell disease or other hemoglobinopathies		
Solid organ transplant		

Should we add “chronic liver disease” as part of pediatric risk-based recommendation?

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Chronic renal failure or nephrotic syndrome		
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Should we expand the indication to those with stage 2–5 chronic kidney disease?

Policy questions considered by the Work Group

- Should **PCV20** be recommended as an option for pneumococcal conjugate vaccination **according to currently recommended dosing and schedules, for U.S. children aged <2 years?**
- Should **PCV20 without PPSV23** be recommended as an option for pneumococcal vaccination **for U.S. children aged 2–18 years with underlying medical conditions that increase the risk of pneumococcal disease?**

Today's Pneumococcal Vaccines session outline

Introduction

Dr. Katherine Poehling
(ACIP, WG Chair)

Economic analysis and public health impact of PCV20
use in children

Dr. Charles Stoecker
(Tulane University)

Comparison of cost-effectiveness analyses on PCV20
use in children

Dr. Ayabina Diepreye
(CDC/NCIRD)

Summary of WG interpretation of EtR and policy
options

Dr. Miwako Kobayashi
(CDC/NCIRD)

VFC resolution

Dr. Jeanne Santoli
(CDC/NCIRD)