CDC/IDSA Clinician Call

September 14, 2023

Welcome & Introductions

Dana Wollins, DrPH, MGC
Senior Vice President, Strategy
Infectious Diseases Society of America

• 99th in a series of calls, initiated in 2020 as a forum for information sharing among frontline clinicians caring for patients with COVID-19.

• The views and opinions expressed here are those of the presenters and do not necessarily reflect the official policy or position of the CDC or IDSA. Involvement of CDC and IDSA should not be viewed as endorsement of any entity or individual involved.

• This webinar is being recorded and can be found online at www.idsociety.org/cliniciancalls.
COVID-19 New Booster Vaccine & Variants Update; Plus Updates on RSV, Influenza & Pneumococcal Immunizations
1. Preparing for the Fall Respiratory Infection Season: What to Expect

Carlos del Rio, MD, FIDSA
IDSA President
Distinguished Professor of Medicine, Division of Infectious Diseases
Emory University School of Medicine
Professor of Epidemiology & Global Health
Rollins School of Public Health of Emory University

2. COVID-19 Updates

COVID-19 Status & Variants Update
Hannah Kirking, MD
CDR United States Public Health Service
Outbreak Response and Community Team Lead, Respiratory Viruses Epidemiology Branch
Coronavirus and Other Respiratory Viruses Division
U.S. Centers for Disease Control and Prevention

COVID-19 Vaccine Update
Ruth Link-Gelles, PhD, MPH
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Coronavirus and Other Respiratory Viruses Division
COVID-19 Vaccine Effectiveness Program Lead
U.S. Centers for Disease Control & Prevention

Keipp Talbot, MD, MPH
Professor of Medicine, Division of Infectious Diseases
And Professor of Health Policy
Vanderbilt University

3. The Latest on RSV Immunization for Adults & Children

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National Center for Immunization & Respiratory Diseases
U.S. Centers for Disease Control & Prevention

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ACIP Maternal/Pediatric RSV WG Co-Lead
Coronavirus & Other Respiratory Viruses Division
National Center for Immunization & Respiratory Diseases
U.S. Centers for Disease Control & Prevention

4. Pneumococcal Vaccine for Adults: Update on New Recommendations

Miwako Kobayashi, MD, MPH
Medical Epidemiologist
Respiratory Diseases Branch
National Center for Immunization & Respiratory Diseases
U.S. Centers for Disease Control & Prevention

5. Q&A/Discussion
Question?
Use the “Q&A” Button

Comment?
Use the “Chat” Button
Preparing for the Fall
Respiratory Infection Season: What to Expect

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COVID-19 Updates

Hannah Kirking, MD
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US Centers for Disease Control and Prevention

CDC/IDSA Clinician Call
Thursday, September 14, 2023
## Summary of COVID-19 trends by US region

<table>
<thead>
<tr>
<th>Metric</th>
<th>US</th>
<th>R1</th>
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As of September 8, 2023
COVID-19 New Hospital Admissions and Nucleic Acid Amplification Test (NAAT) Percent Positivity, by Week

As of September 8, 2023

[Graph showing weekly COVID-19 new hospital admissions and percent positivity with data points from January 11, 2020 to September 2, 2023.]

https://covid.cdc.gov/covid-data-tracker/#trends_weeklyhospitaladmissions_testpositivity_00
Increases in COVID-19 emergency department visits leveling off in some age groups

As of September 8, 2023
Change in Proportion of Hospitalizations for COVID-19

Weekly change 3 weeks ago

Weekly change 2 week ago

Weekly change last week

Current

As of September 8, 2023

Reported COVID-19 New Hospital Admissions Rate per 100,000 population in the past week

As of September 8, 2023

SARS-CoV-2 Variants – Nowcast Estimates

- EG.5, which is a sublineage of XBB.1.9.2, continues to increase in proportion.
  - Projected to comprise the largest proportion (21.5%) of circulating SARS-CoV-2 strains in the United States

- Nowcast estimates that HV.1 will be the fastest-growing lineage, representing 5.1% of viruses nationally

What is BA.2.86?

- New variant of SARS-CoV-2 initially detected in samples from people in Denmark and Israel
  - First reported August 13 with specimens collected July 31

- Contains >35 spike mutations with respect to XBB.1.5
  - Concern for greater escape from existing immunity

- US SARS-CoV-2 Interagency Group monitors risks associated with variants
  - BA.2.86 currently categorized as a Variant Being Monitored (VBM)

BA.2.86 Detections

- 15 countries reporting this sequence

- **Nine respiratory specimens** sequenced in the US from **eight states**
  - Two states with wastewater detections

- On COVID Data Tracker, BA.2.86 still remains aggregated within BA.2 until it comprises 1% of sequences for a 2-week period

- CDC monitoring internal and public sequencing data daily

*BA.2.86 data reported through 17:00 9/13/23*

BA.2.86 Assessment

• Likely low levels of community transmission of BA.2.86 in several countries, including parts of the United States.
  • Multiple individuals without epidemiologic links or travel history
• Transmissibility relative to other variants remains unknown.
  • Recent UK BA.2.86 outbreak in a long-term care facility illustrates that transmission is possible in congregate settings
• At this point, there is no evidence that this variant is causing more severe illness.

United States BA.2.86 Detection Map:
Respiratory Specimens and Wastewater Surveillance

*BA.2.86 data reported through 17:00 9/13/23
BA.2.86 Assessment

• During the ACIP meeting on September 12, major manufacturers of the 2023-2024 COVID-19 vaccine presented laboratory evidence demonstrating that their vaccines can provide protection against the virus that causes COVID-19, including the BA.2.86 variant.

• Preliminary laboratory-based research findings from the US and other countries indicate some potential impact on immunity against the new variant, BA.2.86

• We know from real-world experience with past variants that people with prior immunity (from vaccines, infection, or both) still have protection against severe COVID-19.

Cao et al., https://www.biorxiv.org/content/10.1101/2023.08.30.555211v1
Murrell et al., https://www.biorxiv.org/content/10.1101/2023.08.30.555211v1
Barouch et al., prelim data posted on X (formerly Twitter)
Sato et al., https://www.biorxiv.org/content/10.1101/2023.09.07.556636v1
Sigal et al., https://www.medrxiv.org/content/10.1101/2023.09.08.23295250v1
COVID-19 Vaccine Update

Ruth Link-Gelles, PhD, MPH
CDR U.S. Public Health Service
Coronavirus and Other Respiratory Viruses Division
COVID-19 Vaccine Effectiveness Program Lead
U.S. Centers for Disease Control & Prevention
Updates to COVID-19 Vaccine Policy

2023 – 2024 (Monovalent, XBB Containing) COVID-19 Vaccine

Ruth Link-Gelles, PhD, MPH
Coronavirus and Other Respiratory Viruses Division
Centers for Disease Control and Prevention
September 14, 2023
Bivalent COVID-19 vaccine recommendations for mRNA COVID-19 vaccines

### Unvaccinated

- **6 months – 4/5 years**
  - 2 doses Moderna
  - OR
  - 3 doses Pfizer-BioNTech

- **≥5/6 years**
  - 1 dose Moderna
  - OR
  - 1 dose Pfizer-BioNTech

### Previously vaccinated

- **≥6 months**
  - 1 dose Moderna
  - OR
  - 1 dose Pfizer-BioNTech

Note: Those ages 6 months – 4 years who have previously received a single dose of Pfizer-BioNTech would need 2 additional doses. Additional doses are recommended for persons with immunocompromising conditions.
2023 – 2024 COVID-19 vaccine recommendations for mRNA COVID-19 vaccines

Unvaccinated

- 2 doses Moderna
- OR
- 3 doses Pfizer-BioNTech

6 months – 4 years

- 1 dose Moderna
- OR
- 1 dose Pfizer-BioNTech

≥ 5 years

Previously vaccinated

- 1 dose Moderna
- OR
- 1 dose Pfizer-BioNTech

≥6 months

Note: Those ages 6 months – 4 years who have previously received a single dose of Pfizer-BioNTech would need 2 additional doses. Additional doses are recommended for persons with immunocompromising conditions.
# Key changes from bivalent mRNA recommendations

<table>
<thead>
<tr>
<th>2022 – 2023 bivalent recommendations</th>
<th>2023 – 2024 vaccine recommendations</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Everyone ages <strong>6 years</strong> and older recommended for a single bivalent dose</td>
<td>Everyone ages <strong>5 years</strong> and older recommended for a single 2023 – 2024 dose</td>
<td>Eliminates complex recommendations for 5-year-olds</td>
</tr>
<tr>
<td>Two Moderna dosages authorized for 6 months – 5 years, depending on vaccination history and immune status</td>
<td>All Moderna doses in ages 6 months – 11 years are now 25 µcg</td>
<td>Reduces the number of COVID-19 vaccine products in use</td>
</tr>
<tr>
<td>Optional 2nd bivalent dose for those ages 65 years and older</td>
<td>No additional dose recommendation <strong>at this time</strong></td>
<td>Will monitor epidemiology and vaccine effectiveness to determine if additional doses are needed</td>
</tr>
</tbody>
</table>
Recommendations for children aged 6 months–4 years who are not moderately or severely immunocompromised
Recommendations for children aged 6 months – 4 years without immunocompromise

Doses recommended:

- Initial series of 2 Moderna vaccine doses OR 3 Pfizer-BioNTech vaccine doses
- At least 1 dose of 2023–2024 COVID-19 vaccine

- All doses should be homologous (i.e., from the same manufacturer)
- All Moderna doses in ages 6 months – 11 years are now 25 μg
Recommended 2023–2024 COVID-19 mRNA vaccines for people who are NOT immunocompromised, aged 6 months–4 years*

COVID-19 vaccination status as of September 2023

Unvaccinated

Vaccinated

Previously received COVID-19 vaccine(s)

Unvaccinated

Vaccinated

1 dose any Pfizer-BioNTech

2 doses any Pfizer-BioNTech

3 or more doses any Pfizer-BioNTech

1 dose any Moderna

2 doses any Moderna

1 dose any Pfizer-BioNTech

2 doses any Pfizer-BioNTech

3 or more doses any Pfizer-BioNTech

Recommendations for 2023–2024 vaccine, by manufacturer

Unvaccinated

Vaccinated

Previously received COVID-19 vaccine(s)

Recommended 2023–2024 COVID-19 mRNA vaccines for people who are NOT immunocompromised, aged 6 months–4 years*

*For information about administration intervals and people who transition from age 4 years to age 5 years during an mRNA vaccination series, see Table 1 in the Interim Clinical Considerations for Use of COVID-19 vaccines.
Recommendations for people aged 5 years and older who are not moderately or severely immunocompromised
Recommendations for people aged 5 years and older without immunocompromise

Doses recommended:

- 1 dose of 2023–2024 COVID-19 vaccine, regardless of prior vaccination history

- New harmonized age cutoff for recommendations for young children for Moderna and Pfizer-BioNTech COVID-19 vaccines
- Resulting in simplified recommendations for 5-year-olds
- All Moderna doses in ages 6 months – 11 years are now 25 μg
- 2023–2024 COVID-19 vaccine dose is recommended at least 2 months after receipt of the last COVID-19 vaccine dose
Recommended 2023–2024 COVID-19 mRNA vaccines for people who are NOT immunocompromised, aged 5–11 years*

**COVID-19 vaccination status as of September 2023**
- Unvaccinated
- Vaccinated

**Previously received COVID-19 vaccine(s)**

**Recommendations for 2023–2024 vaccine, by manufacturer**
- Moderna: 1 dose, 0.25 mL/25 µg
- Pfizer-BioNTech: 1 dose, 0.3 mL/10 µg

*For information about administration intervals and people who transition from age 4 years to age 5 years during an mRNA vaccination series, see Table 1 in the Interim Clinical Considerations for Use of COVID-19 vaccines.
Recommended 2023–2024 COVID-19 mRNA vaccines for people who are NOT immunocompromised, aged ≥12 years*

COVID-19 vaccination status as of September 2023

- **Unvaccinated**
  - 1 or more doses any mRNA

- **Vaccinated**
  - 1 or more doses Novavax or Janssen, including in combination with any mRNA vaccine dose(s)

Previously received COVID-19 vaccine(s)

- **Unvaccinated**
  - Moderna 1 dose 0.5 mL/50 µg

- **Vaccinated**
  - Moderna 1 dose 0.5 mL/50 µg
  - Pfizer-BioNTech 1 dose 0.3 mL/30 µg

*For information about administration intervals, see Table 1 in the Interim Clinical Considerations for Use of COVID-19 vaccines.
Recommendations for people who are moderately or severely immunocompromised
Recommendations for people aged ≥6 months who are moderately or severely immunocompromised

Doses recommended:

- Initial COVID-19 vaccine series*
- At least 1 2023–2024 COVID-19 vaccine dose
- May receive 1 or more additional 2023-2024 mRNA COVID-19 vaccine doses**

*Series of 3 homologous mRNA COVID-19 vaccine doses at time of initial vaccination. This could also include a history of receipt of 1 or more doses of Novavax or Janssen, including in combination with mRNA vaccine dose(s).

**Further additional dose(s) may be administered, informed by the clinical judgement of a healthcare provider and personal preference and circumstances. Further additional doses should be administered at least 2 months after the last 2023-2024 COVID-19 vaccine dose.
Recommended 2023–2024 COVID-19 vaccines for people who ARE moderately or severely immunocompromised, aged 6 months–4 years*

COVID-19 vaccination status as of September 2023

<table>
<thead>
<tr>
<th>Previously received COVID-19 vaccine(s)</th>
<th>Unvaccinated</th>
<th>Vaccinated</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 dose any Pfizer-BioNTech</td>
<td></td>
<td>1 dose any Moderna</td>
</tr>
<tr>
<td>2 doses any Pfizer-BioNTech</td>
<td>2 doses any Moderna</td>
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<tr>
<td>3 or more doses any Pfizer-BioNTech</td>
<td>3 or more doses any Pfizer-BioNTech</td>
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Recommendations for 2023–2024 vaccine, by manufacturer

<table>
<thead>
<tr>
<th>Unvaccinated</th>
<th>Vaccinated</th>
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<tbody>
<tr>
<td>2023–2024 Moderna</td>
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<td>2023–2024 Moderna</td>
<td>2023–2024 Moderna</td>
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*For information about administration intervals, people who transition from age 4 years to age 5 years during an mRNA vaccination series, and administration of additional dose(s), see Table 2 in Interim Clinical Considerations for Use of COVID-19 Vaccines.
Recommended 2023–2024 COVID-19 vaccines for people who ARE moderately or severely immunocompromised, aged 5–11 years*

*For information about administration intervals, people who transition from age 4 years to age 5 years or age 11 years to age 12 years during an mRNA vaccination series, and administration of additional dose(s), see Table 2 in Interim Clinical Considerations for Use of COVID-19 Vaccines.
Recommended 2023–2024 COVID-19 vaccines for people who ARE moderately or severely immunocompromised, aged ≥12 years*

COVID-19 vaccination status as of September 2023

Previously received COVID-19 vaccine(s)

Unvaccinated

Vaccinated

1 dose any Moderna

2 doses any Moderna

1 dose any Pfizer-BioNTech

2 doses any Pfizer-BioNTech

3 or more doses any mRNA vaccine

1 or more doses of Novavax or Janssen, including in combination with any mRNA vaccine dose(s)

Vaccinated

2023–2024 Moderna

3 doses OR 2 doses

0.5 mL/50 µg

2023–2024 Pfizer-BioNTech

3 doses

0.3 mL/30 µg

2023–2024 Moderna

2 doses

0.5 mL/50 µg

2023–2024 Moderna

1 dose

0.5 mL/50 µg

2023–2024 Moderna

1 dose

0.5 mL/50 µg

2023–2024 Pfizer-BioNTech

2 doses

0.3 mL/30 µg

2023–2024 Pfizer-BioNTech

1 dose

0.3 mL/30 µg

2023–2024 Moderna

1 dose

0.5 mL/50 µg

2023–2024 Pfizer-BioNTech

1 dose

0.3 mL/30 µg

3 or more doses any mRNA vaccine

*For information about administration intervals, people who transition from age 11 years to age 12 years during an mRNA vaccination series, and administration of additional dose(s), see Table 2 in Interim Clinical Considerations for Use of COVID-19 Vaccines.
Simultaneous administration of COVID-19 and other vaccines

- In accordance with General Best Practice Guidelines for Immunization, routine administration of all age-appropriate doses of vaccines simultaneously (i.e., administering more than one vaccine on the same clinic day or “coadministration”) is recommended for children, adolescents, and adults if there are no contraindications at the time of the healthcare visit.
  - Providers may simultaneously administer COVID-19, influenza, and respiratory syncytial virus (RSV) vaccines to eligible patients; the Health Alert Network (HAN) published on September 5, 2023 may be consulted for additional information about simultaneous administration of these vaccines.
  - Simultaneous administration of COVID-19 vaccine and nirsevimab (a long-acting monoclonal antibody for certain infants and young children for prevention of RSV) is recommended
  - Coadministration of COVID-19 and RSV vaccine for older adults is acceptable
  - There are additional considerations if administering an orthopoxvirus vaccine and COVID-19 vaccine

Interim Clinical Considerations for Use of COVID-19 Vaccines | CDC
Use of Nirsevimab for the Prevention of Respiratory Syncytial Virus Disease Among Infants and Young Children: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023 | MMWR (cdc.gov)
Healthcare Providers: RSV Vaccination for Adults 60 Years of Age and Over | CDC
Interim Clinical Considerations for Use of JYNNEOS and ACAM2000 Vaccines during the 2022 U.S. Mpox Outbreak | Mpox | Poxvirus | CDC
Fall COVID-19 vaccine transition

- Vaccines with a monovalent XBB.1.5 composition will be the first COVID-19 vaccines to be available directly from the manufacturers as part of the commercial market, rather than through the United States Government (USG).

- The public will continue to be directed to Vaccines.gov to find providers offering COVID-19 vaccine.

- While providers will no longer be required to report inventory to Vaccines.gov after vaccines transition to being available on the commercial market, they will continue to be encouraged to report voluntarily. Providers are also strongly encouraged to report the minimum age (in months and years) for whom a location can administer vaccine.

- CDC will continue its efforts to make sure that all people have access to COVID-19 medical countermeasures and know where to find product now and in the future.

Inclusion of COVID-19 vaccines in Vaccines for Children (VFC) will likely result in more pediatricians stocking the vaccine.

There will be single dose vial presentations and smaller minimum order quantities:
- Directly addresses concerns from health care providers (HCPs), likely to reduce wastage, eases logistics and helps with storage capacity limitations
  - Moderna, 12+ years: single dose vial (10-pack) and manufacturer-prefilled syringes (10-pack)
  - Moderna, 6 months – 11 years: single dose vial (10-pack)
  - Novavax, 12+ years: 5-dose multi-dose vial (2 vials per carton)
  - Pfizer, 12+ years: single dose vial (10-pack), limited quantity of manufacturer-prefilled syringes (10-pack)
  - Pfizer, 5 – 11 years: single dose vial (10-pack)
  - Pfizer, 6 months – 4 years: 3-dose multi-dose vial (10-pack)

Preparation is the same or simpler than it was before:
- Moderna preparation is the same (no dilution)
- Novavax preparation is the same (no dilution)
- Pfizer preparation is simplified (currently 2 presentations require dilution; for 2023 – 2024 COVID-19 vaccine, ONLY little peds formulation require dilution)
Feasibility of vaccine implementation, cont’d

- Storage and handling will be the SAME as it is now
  - Moderna: Frozen until expiration; 30 days at refrigerator storage
  - Novavax: Stable at 2-8°C (refrigerator storage); 9-month shelf life; use within 12 hours of first puncture
  - Pfizer: Ultra-cold storage until expiration; 10 weeks at refrigerator storage
    • Ultra-cold storage continues to be a challenge; most provider offices do not have a unit

- Dose volume for Pfizer is simplified (all doses are 0.3mL)

- Moderna now only has two presentations, reducing the chance for errors
Available data from COVID-19 vaccine manufacturers

- **Moderna**
  - Clinical trial data
    - Randomized 101 patients to monovalent XBB.1.5 containing dose or bivalent BA.4/5 + XBB.1.5 containing dose
    - Patients that received the monovalent XBB.1.5 containing dose demonstrated an increase in neutralizing antibodies, with similar levels of neutralization across several XBB sub-variants
    - Reported reactogenicity was similar to or lower than that reported from previous doses

- **Novavax**
  - Preclinical data
    - Macaques boosted with XBB.1.5 demonstrated increased neutralizing response across several XBB pseudoviruses

- **Pfizer-BioNTech**
  - Preclinical data
    - Mice boosted with XBB.1.5 demonstrated increased neutralizing response across several XBB pseudoviruses
Calculating Risk: Myocarditis and COVID-19 vaccines

- Limited data to inform myocarditis risk after bivalent COVID-19 vaccine booster dose
  - Myocarditis rates following booster doses in adolescent and young adult males are lower than rates following primary series, but estimates are limited by fewer numbers of doses for both the bivalent boosters and the previous monovalent boosters administered in VSD

- Myocarditis risk lower with longer time between doses
  - Rates of myocarditis lower with extended interval between dose 1 and dose 2 for primary series
  - Longer interval between updated doses may also impact myocarditis rates

- Most individuals with myocarditis/pericarditis have fully recovered at follow-up

- The risk of adverse cardiac outcomes were 1.8 – 5.6 times higher after SARS-CoV-2 infection than after mRNA COVID-19 vaccination among males ages 12-17 years

4 https://www.cdc.gov/mmwr/volumes/71/wr/mm7114e1.htm?s_cid=mm7114e1_w
Summary

Public Health Problem

- COVID-19 burden is currently lower than at previous points in the pandemic, however the absolute number of hospitalizations and deaths is still high.
- Although hospitalization rates are currently low in some age groups, we have seen rates increase in recent weeks and anticipate further increases as we enter respiratory virus season.
- Infants and older adults have the highest COVID-19-associated hospitalization rates.
- Children and adults with no underlying medical conditions still experience severe illness due to COVID-19.
- Post-COVID Conditions are common following SARS-CoV-2 infection, decrease with time since infection, and have decreased since the start of the pandemic.
- People of racial and ethnic minority groups continue to be disproportionately impacted by COVID-19.
- High proportions of underlying conditions may put certain groups at increased risk for severe outcomes due to COVID-19.
Summary and Work Group Interpretation: Public Health Burden

- The burden of COVID-19 varies by age and underlying condition status with those ages ≥65 years and those with multiple underlying conditions having the highest risk of severe outcomes due to COVID-19.
- COVID-19 burden is currently lower than at previous points in the pandemic, however there are still thousands of hospitalizations and hundreds of deaths each week.
- Children and adults ages 5 – 49 years had the lowest hospitalization rates overall.
  - Severe outcomes occur in this age group, including in people with no underlying medical conditions.
- Although hospitalization rates are currently low, we have seen rates increase in recent weeks and anticipate further increases as we enter respiratory virus season.
- Majority of U.S. population has some level of immunity due to infection, vaccination, or both.
  - Vaccine and infection-induced immunity wane and new variants have emerged, suggesting that susceptibility remains and may increase over time.
- Racial and ethnic minority groups have been disproportionately affected by COVID-19.
Summary and Work Group Interpretation: Benefits and Risks

- Monovalent XBB containing COVID-19 vaccines increase the immune response against the currently circulating variants
- Last year’s updated vaccine was effective at preventing medically attended COVID-19, hospitalization due to COVID-19, and death due to COVID-19
- COVID-19 vaccines have a high degree of safety
  - Unlikely that updating the formulation would increase adverse event rates
- Benefits are anticipated in all age groups; benefits of COVID-19 vaccines vary by age, and incidence of COVID-19 hospitalizations
- Benefits outweigh risks in age groups for which there is a risk of myocarditis
- Modeling projects more hospitalization and deaths averted when updated doses are universally recommended compared to no recommendation or recommended only for persons ≥65 years
Summary and Work Group Interpretation:
Considerations Regarding a Universal vs. Non-universal Policy

- Work Group considered non-universal policy options, with considerable discussion around the magnitude of benefits in the young, healthy population.

- As part of these deliberations, Work Group requested additional data on severe illness due to COVID-19 in those with and without underlying conditions:
  - No group that clearly had no risk of severe illness.
  - The vast majority of the US population has an underlying condition that would qualify under a risk-based recommendation.
    - Prevalence of overweight and obesity alone is >70% of adults.
  - Risk-based recommendation would not allow access to COVID-19 vaccines for all that wanted them.

- Shared clinical decision making could create barriers to vaccination and may not effectively target those at highest risk.

- COVID-19 epidemiology remains uncertain and non-universal recommendations would need to be quickly revisited if there was an increase in burden.

- Still substantial COVID-19 disease burden and simple, stable recommendations may increase vaccine coverage over time.

- Work Group emphasized that COVID-19 recommendations should be reviewed on an ongoing basis as more is learned about COVID-19 seasonality and disease burden in the future.

1 National Health Statistics Reports; [https://stacks.cdc.gov/view/cdc/106273](https://stacks.cdc.gov/view/cdc/106273)
Summary and Work Group Interpretation: COVID-19 vaccine recommendations for children

- Burden of severe illness due to COVID-19 is **lowest** among children ages 5 – 17 years
- Despite lower burden relative to other age groups, **hundreds** of deaths due to COVID-19 occurred in this age group in 2021 and 2022
  - **Half** of pediatric COVID-19 deaths were in individuals with **no underlying conditions**
- Number of COVID-19 hospitalizations and deaths in this age group are **comparable** to the burden seen in other vaccine preventable diseases for which there are universal recommendations
- **Potential additional benefits of vaccination**, such as prevention of post-COVID conditions and potential for reduced school absenteeism
- Risk of myocarditis appears **lower** than the risk observed following primary series doses
  - Potentially lower due to increased interval between doses
  - Certainty is limited by relatively lower sample size of booster recipients in VSD
- Future COVID-19 epidemiology remains **uncertain** and the low disease burden we are currently seeing may not last
- After a robust discussion, Work Group was supportive of a universal recommendation **at this time**
For more information, contact CDC
1-800-CDC-INFO (232-4636)

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.

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COVID-19 and COVID-19 Vaccines: Clinical Considerations

Keipp Talbot, MD, MPH
Professor of Medicine, Division of Infectious Diseases
And Professor of Health Policy
Vanderbilt University
We still have a lot to learn

i.e., recommendations will likely continue to change overtime.
When is COVID-19 season?

- Still awaiting to see what the season will be –
  - Year-round
  - Bimodal – summer and winter
  - Winter

- Until then the decision has been to give the COVID-19 vaccine around the time of the influenza and RSV vaccines
Bye-Bye Booster

- No longer giving “boosters”
- Currently giving the 2023-2024 Vaccine
Novovax COVID-19 Vaccine

• SARS-CoV-2 spike protein + Matrix-M adjuvant.
  • Matrix M-adjuvant contains saponin extracts from the bark of the Soapbark tree.

• New XBB variant vaccine has not yet been FDA approved
Special Timing of Vaccination

• Recently received the bivalent booster:
  • wait 2 month before receiving the new updated vaccine.

• Pregnancy
  • No need to wait for a specific trimester
  • Immunize with the 2023-2024 COVID-19 vaccine now
What if immunocompromised?

- Okay to give a dose followed by a second dose later.
- Not clear if this will be needed every year.
VAERS

VAERS Vaccine Adverse Event Reporting System

Completion Status

- Patient Information
- Reporter Information
- Facility Information
- Vaccine Information
- Additional Information

Report an Adverse Event - Patient Information

Note: Fields marked with an * are essential and should be completed.

Item 1

Patient first name:

Patient last name:

Street address:

City:
State:
County:
Zip code:
Phone:
Email:

Item 2

Date of birth (MM/DD/YYYY or MM/YYYY)

Sex:
- Male
- Female
- Unknown

Item 3

Date of vaccination (MM/DD/YYYY or MM/YYYY)

Time:
- AM
- PM

vaers.hhs.gov
The Latest on RSV Immunization for Adults & Children

Amadea Britton, MD, SM
Medical Officer
Vaccine Effectiveness & Policy Team
Surveillance & Prevention Branch
Coronavirus & Other Respiratory Viruses Division
National Center for Immunization & Respiratory Diseases
U.S. Centers for Disease Control & Prevention

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IDSA Vice President
Attending, Division of Infectious Diseases
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CDR, U.S. Public Health Service
ACIP Maternal/Pediatric RSV WG Co-Lead
Coronavirus & Other Respiratory Viruses Division
National Center for Immunization & Respiratory Diseases
U.S. Centers for Disease Control & Prevention
New Respiratory Syncytial Virus (RSV) Vaccines for Older Adults: General Information and Clinical Guidance

CDC/IDSA Clinician Call
September 14, 2023

Amadea Britton, MD, SM
Annual RSV Burden Among Adults Ages 65 Years and Older

- **900,000–1,400,000** medical encounters
- **60,000–160,000** hospitalizations
- **6,000–10,000** deaths

RSV Vaccines

Efficacy and safety
In June 2023, CDC’s Advisory Committee on Immunization Practices (ACIP) recommended the first two RSV vaccines for older adults.

- **RSVPreF3** (*Arexvy, GSK*) is a 1-dose adjuvanted (ASo1E) recombinant prefusion F protein (preF) vaccine.

- **RSVpreF** (*Abrysvo, Pfizer*) is a 1-dose recombinant preF vaccine.

[Source](https://www.cdc.gov/mmwr/volumes/72/wr/mm7229a4.htm)
Vaccine Efficacy (VE): GSK

- Randomized, double-blinded, placebo-controlled phase 3 clinical trial
  - 17 countries
  - 24,973 participants
- VE against RSV-associated lower respiratory tract disease (LRTD):
  - Season 1: 82.6%
  - Season 2: 56.1%
  - Combined Season 1 & 2 (Interim): 74.5%

https://www.cdc.gov/mmwr/volumes/72/wr/mm7229a4.htm
Vaccine Efficacy (VE): Pfizer

- Randomized, double-blinded, placebo-controlled phase 3 clinical trial
  - 7 countries
  - 36,862 participants
- VE against RSV-associated lower respiratory tract disease (LRTD)*:
  - Season 1: 88.9%
  - Season 2 (Interim): 78.6%
  - Combined Season 1 & 2 (Interim): 84.4%

*Based on trial efficacy against RSV LRTI with at least three lower respiratory signs/symptoms
https://www.cdc.gov/mmwr/volumes/72/wr/mm7229a4.htm
Vaccine Safety

- Six cases of **inflammatory neurologic events** reported in clinical trials.

- It is **unknown** at this time whether these events occurred by chance, or whether RSV vaccination increases the risk of these events.

- Imbalance in the small number of **atrial fibrillation events**; more cases among vaccine recipients, compared with placebo recipients.

[https://www.cdc.gov/mmwr/volumes/72/wr/mm7229a4.htm](https://www.cdc.gov/mmwr/volumes/72/wr/mm7229a4.htm)
Recommendations and clinical guidance for use of RSV vaccines in older adults
ACIP and CDC recommend that adults ages 60 years and older may receive a single dose of RSV vaccine using shared clinical decision making.
Chronic Underlying Medical Conditions Associated with Increased Risk of Severe RSV Disease

- Lung disease
- Cardiovascular disease
- Moderate or severe immune compromise
- Diabetes Mellitus
- Neurologic or neuromuscular conditions
- Kidney disorders
- Liver disorders
- Hematologic disorders

Other conditions that might increase the risk for severe disease

https://www.cdc.gov/mmwr/volumes/72/wr/mm7229a4.htm
Other Factors Associated with Increased Risk of Severe RSV Disease

- Residence in a nursing home or other long-term care facility (LTCF)
- Frailty
- Advanced age

https://www.cdc.gov/mmwr/volumes/72/wr/mm7229a4.htm
**Vaccination Timing: 2023-2024 Season**

**Summer:**
Offer RSV vaccination as early as vaccine is available

Continue to offer vaccination throughout the RSV season to eligible adults who remain unvaccinated

[Link to CDC MMWR](https://www.cdc.gov/mmwr/volumes/72/wr/mm7229a4.htm)
Coadministration with all other adult vaccines is acceptable.

There are currently limited data available on immunogenicity of coadministration of RSV vaccines and other vaccines.

In general, coadministration of RSV and seasonal influenza vaccines met non-inferiority criteria for immunogenicity.*

However, RSV and influenza antibody titers were generally somewhat lower with coadministration; the clinical significance of this is unknown.

Additional studies on immunogenicity of coadministration of RSV with other adult vaccines are in process.

* Pre-specified non-inferiority criteria for immune responses were met across trials, with the exception of the FluA/Darwin H3N2 strain after simultaneous administration of RSVPreF3 vaccine (Arexvy by GSK) and adjuvanted quadrivalent inactivated influenza vaccine. 
Summary
RSV can cause serious illness in older adults.

Underlying medical conditions and other factors are associated with increased risk of severe RSV.

Two RSV vaccines are licensed.

Adults ages 60 years and older may receive a single dose of RSV vaccine, using shared clinical decision-making.

Coadministration with RSV and other adult vaccines is acceptable.
Acknowledgements

Michael Melgar
Lauren Roper
Hannah Rosenblum
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Tara Anderson
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Manisha Patel
Sarah Meyer
Neil Murthy
Patricia Wodi
Sara Oliver
Kara Jacobs Slifka
Nimalie Stone
Theresa Rowe
Jeneita Bell
Melissa Schaefer

For more information, contact CDC
1-800-CDC-INFO (232-4636)

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Pediatric RSV Disease and Vaccines

Tina Q. Tan, MD, FAAP, FIDSA, FPIDS
Professor of Pediatrics, Northwestern University Feinberg School of Medicine
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Medical Director, International Patient and Destination Services Program
Ann & Robert H. Lurie Children’s Hospital of Chicago, Chicago, IL
Vice-President, Infectious Diseases Society of America Board of Directors
Conflict of Interest Disclosures

- Advisor/Consultant:
  - Merck, Sanofi Pasteur, GSK, Pfizer, IliAD, Moderna, Novavax

- Research Funding:
  - GSK, AstraZeneca
RSV Epidemiology

- RSV is one of the most common causes of acute respiratory tract infection in people of all ages.
- RSV typically circulates in Fall, Winter, and Spring – usually October to end of March in US.
- Each year in the United States, RSV leads to approximately:
  - 2.1 million outpatient (non-hospitalization) visits among children younger than 5 years of age - vast majority of cases occur in full-term, healthy infants under 6 months of age
  - 58,000-80,000 hospitalizations among children younger than 5 years of age
  - 60,000-120,000 hospitalizations among adults 65 years and older
  - 6,000-10,000 deaths among adults 65 years and older
  - 100–300 deaths in children younger than 5 years of age

RSV in Infants and Children
Risk Factors for Severe Illness

• Premature birth
• Very young infants, especially those ≤6 months of age
• ≤ 2 years with chronic lung disease or congenital heart disease
• Weakened immune system
• Neuromuscular disorders, including those who have difficulty swallowing or clearing mucus secretions

Most infants with RSV infection are otherwise healthy term infants in the first 2-3 months of life

RSV Cases in US 9/11/21-9/26/23

https://www.cdc.gov/surveillance/nrevss/rsv/natl-trend.html
• RSV hospitalization rates at peak of surge were 4.9/100,000 vs. 1.5/100,000 prepandemic.

• There were 3 to 4 times the number of infants and children being hospitalized compared to prior years with an increased number of older children requiring hospitalization.

• There were 1.5 to 2 times the number of adults being hospitalized compared to prior years.
Outlook for RSV 2023-2024

Some Australian states and Territories have seen almost 10 times the number of RSV cases compared to 2022.
Recommendations and Clinical Guidance for Use of Nirsevimab in Infants and Young Children

CDC/IDSA Clinical Call
September 14, 2023

CDR Jefferson Jones MD MPH FAAP, USPHS
Co-Lead, Respiratory Syncytial Virus Vaccines - Pediatric/Maternal Work Group
Coronavirus and Other Respiratory Viruses Division
National Center for Immunization and Respiratory Diseases
### Nirsevimab efficacy estimates from clinical trials

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Efficacy estimate*</th>
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</thead>
<tbody>
<tr>
<td><strong>Benefits</strong></td>
<td></td>
</tr>
<tr>
<td>Medically attended RSV LRTI</td>
<td>79.0% (95% CI: 68.5%–86.1%)</td>
</tr>
<tr>
<td>RSV LRTI with hospitalization</td>
<td>80.6% (95% CI: 62.3%–90.1%)</td>
</tr>
<tr>
<td>RSV LRTI with ICU admission</td>
<td>90.0% (95% CI: 16.4%–98.8%)</td>
</tr>
<tr>
<td>Death due to RSV respiratory illness</td>
<td>None recorded</td>
</tr>
<tr>
<td>All-cause medically attended-LRTI</td>
<td>34.8% (95% CI: 23.0–44.7%)</td>
</tr>
<tr>
<td>All-cause LRTI-associated hospitalization</td>
<td>44.9% (95% CI: 24.9%–59.6%)</td>
</tr>
</tbody>
</table>

*Pooled phase 2b (excluding underdosed) and phase 3 trial estimate comparing nirsevimab arm to placebo arm


ACIP Recommendations

- Infants aged <8 months born during or entering their first RSV season are recommended to receive one dose of nirsevimab (50 mg for infants <5 kg and 100 mg for infants ≥5 kg)

- Children aged 8–19 months who are at increased risk of severe RSV disease and entering their second RSV season are recommended to receive one dose of nirsevimab (200 mg)
Timing of nirsevimab

- Providers should target administration\(^1\):
  - In the first week of life for infants born shortly before and during the season
  -Shortly before the start of the RSV season for infants aged <8 months
  -Shortly before the start of the RSV season for children aged 8–19 months who are at increased risk of severe RSV disease

- Based on pre-pandemic patterns, this means nirsevimab could be administered in most of the continental United States from October through the end of March

- Because timing of the onset, peak, and decline of RSV activity may vary, providers can adjust administration schedules based on local epidemiology

- Providers in tropical climates and Alaska should consult state, local, or territorial guidance on timing of nirsevimab administration

\(^1\) While optimal timing for nirsevimab administration is shortly before the season, nirsevimab may be given at any time during the RSV season for age-eligible infants and children who have not yet received a dose
In accordance with CDC’s general best practices for immunizations, simultaneous administration of nirsevimab with age-appropriate vaccines is recommended.

In clinical trials, when nirsevimab was given concomitantly with routine childhood vaccines, the safety and reactogenicity profile of the coadministered regimen was similar to the childhood vaccines given alone.

When coadministered, nirsevimab is not expected to interfere with the immune response to vaccines.

Children aged 8–19 months recommended to receive nirsevimab when entering their second RSV season because of increased risk of severe disease

- Children with chronic lung disease of prematurity who required medical support (chronic corticosteroid therapy, diuretic therapy, or supplemental oxygen) any time during the 6-month period before the start of the second RSV season
- Children with severe immunocompromise
- Children with cystic fibrosis who have manifestations of severe lung disease (previous hospitalization for pulmonary exacerbation in the first year of life or abnormalities on chest imaging that persist when stable) or weight-for-length <10th percentile
- American Indian and Alaska Native children
Pneumococcal Vaccine for Adults: Update on New Recommendations

Miwako Kobayashi, MD, MPH
Medical Epidemiologist
Respiratory Diseases Branch
National Center for Immunization & Respiratory Diseases
U.S. Centers for Disease Control & Prevention
Disclosures

None
Pneumococcal Disease in U.S. Adults

- Before the COVID-19 pandemic, each year pneumococcus caused approximately¹:
  - 100,000 pneumonia hospitalizations
  - 30,000 invasive pneumococcal disease (IPD) cases
  - 3,000 deaths from IPD

- In late 2022 when resurgence of non-SARS-CoV-2 respiratory virus infections was reported in the United States, IPD incidence exceeded pre-COVID-19 baseline incidence in children and young adults³

IPD= invasve pneumococcal disease defined as pneumococcal infection in a normally sterile site

1. Kobayashi October 2021 ACIP meeting presentation
2. Centers for Disease Control and Prevention Unpublished Data
Two pneumococcal vaccines were available for use in the United States before 2021

<table>
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<td>PPSV23</td>
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</table>

23-valent pneumococcal polysaccharide vaccine (PPSV23) — Pneumovax23®

13-valent pneumococcal conjugate vaccine (PCV13) — Prevnar13®
PCV13 use in children not only reduced vaccine-type IPD incidence in children who received the vaccine....
But also in adults, including adults aged ≥65 years, likely due to indirect effects
Pneumococcal conjugate vaccines (PCVs) provide direct and indirect protection
Pneumococcal conjugate vaccines (PCVs) provide direct and indirect protection
In 2021, **2 new pneumococcal conjugate vaccines** were licensed for use among U.S. adults.

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<td>PPSV23</td>
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</table>

- 23-valent pneumococcal polysaccharide vaccine (PPSV23) Pneumovax23®
- 13-valent pneumococcal conjugate vaccine (PCV13) Prevnar13®
- 15-valent pneumococcal conjugate vaccine (PCV15) Vaxneuvance™
- 20-valent pneumococcal conjugate vaccine (PCV20) Prevnar20®
Additional serotypes contained in PCV15 and PCV20 caused about 15% and 27% of IPD cases in adults, respectively.

PCV15 non-PCV13 serotypes: 22F, 33F
PCV20 non-PCV15 serotypes: 8, 10A, 11A, 12F, 15B
PPSV23 non-PCV20 serotype: 2, 9N, 17F, 20
CDC Active Bacterial Core surveillance

Additional serotypes contained in PCV15 and PCV20 caused about 15% and 27% of IPD cases in adults, respectively.
Timeline of ACIP votes on new pneumococcal vaccine use for adults

<table>
<thead>
<tr>
<th>ACIP meeting</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 2021</td>
<td>PCV15/PCV20 use for adults <em>who have not previously received PCV</em> or whose previous pneumococcal vaccination history is unknown</td>
</tr>
<tr>
<td>October 2022</td>
<td>PCV20 use for adults who have <em>previously received PCV13</em></td>
</tr>
</tbody>
</table>
October 2021 ACIP recommendations simplified the previous recommendations for adults aged ≥65 years

<table>
<thead>
<tr>
<th>None of the conditions listed below</th>
<th>Previous Recommendation</th>
<th>New Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic medical conditions† (CMC)</td>
<td>PCV13* based on shared clinical decision-making, PPSV23 for all</td>
<td>PCV20 OR PCV15 and PPSV23</td>
</tr>
<tr>
<td>Cochlear implant, CSF leak</td>
<td>Both PCV13* and PPSV23</td>
<td></td>
</tr>
<tr>
<td>Immunocompromising conditions</td>
<td></td>
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</tr>
</tbody>
</table>


*If not previously given; †Examples include alcoholism, chronic heart/liver/lung disease, diabetes, cigarette smoking

October 2021 ACIP recommendations simplified the previous recommendations for adults aged 19–64 years with risk conditions

<table>
<thead>
<tr>
<th>None of the conditions listed below</th>
<th>Previous Recommendations</th>
<th>New Recommendations</th>
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</thead>
<tbody>
<tr>
<td>Chronic medical conditions† (CMC)</td>
<td>PPSV23</td>
<td>No recommendation</td>
</tr>
<tr>
<td>Cochlear implant, CSF leak</td>
<td>Both PCV13* and PPSV23</td>
<td>PCV20 OR PCV15 and PPSV23</td>
</tr>
<tr>
<td>Immunocompromising conditions</td>
<td>Both PCV13* and PPSV23, repeat PPSV23 after 5 years</td>
<td></td>
</tr>
</tbody>
</table>


*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
## Adults who started the series with PCV13 were recommended to complete with PPSV23

<table>
<thead>
<tr>
<th>Underlying conditions</th>
<th>Age 19–64 years</th>
<th>Age ≥65 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>PCV13 Previously not recommended</td>
<td>PCV13</td>
</tr>
<tr>
<td>Chronic medical conditions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CSF leak, cochlear implant</td>
<td>PCV13</td>
<td>PPSV23 ≥5yrs</td>
</tr>
<tr>
<td>Immuno-compromised</td>
<td>PCV13</td>
<td>PPSV23 ≥5yrs</td>
</tr>
</tbody>
</table>

Use of 15-Valent Pneumococcal Conjugate Vaccine and 20-Valent Pneumococcal Conjugate Vaccine Among U.S. Adults: Updated Recommendations of the Advisory Committee on Immunization Practices — United States, 2022 | MMWR (cdc.gov)
# Pneumococcal Vaccines: PCVs vs. PPSV23

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>PCV</th>
<th>PPSV23</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Vaccine Composition</td>
<td>Capsular polysaccharides</td>
<td>Capsular polysaccharide</td>
</tr>
<tr>
<td></td>
<td>conjugated to <strong>CRM197 Carrier Protein</strong></td>
<td>antigens</td>
</tr>
<tr>
<td>Mechanism of action</td>
<td>T-cell <strong>dependent</strong></td>
<td>T-cell <strong>independent</strong></td>
</tr>
<tr>
<td>Memory B cell production</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

PCV: pneumococcal conjugate vaccine, PPSV23: 23-valent pneumococcal polysaccharide vaccine
# Pneumococcal Vaccines: PCVs vs. PPSV23

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>PCV</th>
<th>PPSV23</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Duration of protection</strong></td>
<td>No decline for 5 yrs(^1)</td>
<td>Variable findings, waning reported as early as 2 <strong>years</strong> since vaccination(^2)</td>
</tr>
<tr>
<td><strong>Vaccine Effectiveness vs. Vaccine-type IPD</strong></td>
<td>Supported by clinical efficacy/effectiveness data</td>
<td>Supported by clinical efficacy/effectiveness data; limited effectiveness reported in immunocompromised adults(^3)</td>
</tr>
<tr>
<td><strong>Vaccine Effectiveness vs. Vaccine-type non-invasive/non-bacteremic pneumonia</strong></td>
<td>Supported by clinical efficacy data • <strong>Moderate</strong> protection (45%: 95% CI 14 to 63)(^4)</td>
<td><strong>Variable</strong> clinical effectiveness data • Modest protection (18%: 95% CI -4 to 35%) from a meta-analysis(^5)</td>
</tr>
</tbody>
</table>

4. Bonten et al. NEJM 2015
5. Farrar et al. [https://www.medrxiv.org/content/10.1101/2022.10.06.22280772v1.full](https://www.medrxiv.org/content/10.1101/2022.10.06.22280772v1.full)
New ACIP Recommendations

- For adults who have started their pneumococcal vaccine series with PCV13 but have not received all recommended PPSV23 doses, administer either:
  - a single dose of PCV20, or
  - ≥1 dose of PPSV23

- For adults aged ≥65 years who have completed their recommended vaccine series with both PCV13 and PPSV23,
  - shared clinical decision-making is recommended regarding use of a supplemental PCV20 dose
Updated CDC Guidance for Implementation

- Adults aged ≥19 years who have received PPSV23 only

Recommended to receive a dose of either PCV20 or PCV15 at an interval ≥1 year after receipt of the last PPSV23 dose.
New CDC Guidance for Implementation

- **Adults who have received PCV7 only**
  Follow the recommendations for adults who have not received a pneumococcal vaccine or whose vaccination history is unknown.

- **Adults aged ≥19 years who are hematopoietic stem cell transplant (HSCT) recipients**
  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.
  - 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 adults are less likely to respond to PPSV23.
  - A patient’s clinical team is best informed to determine the appropriate timing of vaccination.
A Summary of Current Adult Pneumococcal Vaccine Recommendations Published Last Week

Pneumococcal Vaccine for Adults Aged ≥19 Years: Recommendations of the Advisory Committee on Immunization Practices, United States, 2023
Pneumococcal Vaccine Timing for Adults

Make sure your patients are up to date with pneumococcal vaccination.

### Adults ≥65 years old

**Complete pneumococcal vaccine schedules**

<table>
<thead>
<tr>
<th>Prior vaccines</th>
<th>Option A</th>
<th>Option B</th>
</tr>
</thead>
<tbody>
<tr>
<td>None*</td>
<td>PCV20</td>
<td>PCV15</td>
</tr>
<tr>
<td>PPSV23 only at any age</td>
<td>≥1 year PCV23</td>
<td>≥1 year PCV15</td>
</tr>
<tr>
<td>PCV13 only at any age</td>
<td>≥1 year PCV20</td>
<td>≥1 year PPSV23</td>
</tr>
<tr>
<td>PCV13 at any age &amp; PPSV23 at ≥65 yrs</td>
<td>≥5 years PCV20</td>
<td>≥5 years PPSV23</td>
</tr>
</tbody>
</table>

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[Image links: PneumoRecs VaxAdvisor Mobile App for Vaccine Providers](https://www.cdc.gov)

- [Shared Clinical Decision-Making: PCV20 Vaccination for Adults 65 Years or Older—February 2, 2023](https://www.cdc.gov)
Conclusion and Future Directions

- New, higher-valency PCVs (PCV15, PCV20), were recommended for adults in 2021.

- A recent MMWR *Recommendations and Reports* article provides updated recommendations and guidance for adult pneumococcal vaccination.

- ACIP recommended use of PCV15 (2022) and PCV20 (2023) use in children.
  - Indirect effects may decrease incremental benefits of PCV15/PCV20 use in adults.

- New pneumococcal vaccines (e.g., 21- and 24-valency) are in advanced stages of development.
Acknowledgements

• ACIP and the Pneumococcal Vaccines Work Group

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Q&A/ Discussion
Program Links:

- This webinar is being recorded and can be found with the slides online at https://www.idsociety.org/cliniciancalls
- Vaccine FAQ: https://www.idsociety.org/covid-19-real-time-learning-network/vaccines/vaccines-information--faq/

Dr. Kirking

- https://covid.cdc.gov/covid-data-tracker/#trends_weeklyhospitaladmissions_testpositivity_00
- https://covid.cdc.gov/covid-data-tracker/#variant-proportions
- https://www.biorxiv.org/content/10.1101/2023.08.30.555211v1
- https://www.biorxiv.org/content/10.1101/2023.08.30.555211v1
- https://www.biorxiv.org/content/10.1101/2023.09.07.556636v1
- https://www.medrxiv.org/content/10.1101/2023.09.08.23295250v1
Selected Resources

Dr. Link-Gelles
- https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html
- https://emergency.cdc.gov/han/2023/han00498.asp
- https://www.cdc.gov/mmwr/volumes/72/wr/mm7234a4.htm
- https://www.cdc.gov/poxvirus/mpox/clinicians/vaccines/vaccine-considerations.html
- https://www.vaccines.gov/

Dr. Talbot
- vaers.hhs.gov

Dr. Britton
- https://www.cdc.gov/mmwr/volumes/72/wr/mm7229a4.htm

Dr. Jones
- https://www.accessdata.fda.gov/spl/data/2f08fa60-f674-432d-801b-1f9514bd9b39/2f08fa60-f674-432d-801b-1f9514bd9b39.xml
Selected Resources

Dr. Kobayashi
- https://www.cdc.gov/mmwr/volumes/71/wr/mm7104a1.htm
- https://terrance.who.int/mediacentre/data/sage/SAGE_eYB_October_2020.pdf?ua=1
- https://www.medrxiv.org/content/10.1101/2022.10.06.22280772v1.full
- https://www.cdc.gov/mmwr/volumes/72/rr/rr7203a1.htm
- https://www.cdc.gov/vaccines/vpd/pneumo/hcp/pneumoapp.html

Other Resources:
Bridge Program: https://www.cdc.gov/vaccines/programs/bridge/index.html
Vaccine for Children Program: https://www.cdc.gov/vaccines/programs/vfc/index.html
Respiratory Virus Updates: https://www.cdc.gov/respiratory-viruses/whats-new/index.html
An online community bringing together information and opportunities for discussion on latest research, guidelines, tools and resources from a variety of medical subspecialties around the world.

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-- library of all past calls available --

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