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Virtual
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45th National Conference on Pediatric Health Care

2024 CDC Immunization Update: Schedule Changes for Pediatric Focused NPs

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Owner Pediatric Nurse Practitioner House Calls

Sanofi Pasteur U.S. and The United Nations Foundation's Shot@Life campaign are pleased to support this session.

National Association of Pediatric Nurse Practitioners

Stony Brook School of Nursing

Experts in pediatrics, Advocates for children. 1

1

Learning Objectives

- At the end of this presentation participants will be able to:
- Cite the best available evidence for immunization practice for children and adolescents
- Identify changes to the Advisory Committee for Immunization Practices (ACIP) schedule for 2024
- Discuss newest vaccines
- List resources to keep current with immunization best practices

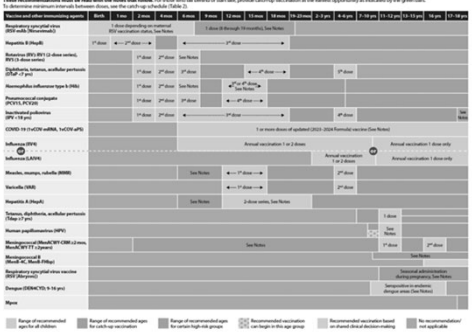
2

Speaker Disclosure

- Dr. Mary Koslap-Petraco has nothing to disclose

3

Table 1 Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024



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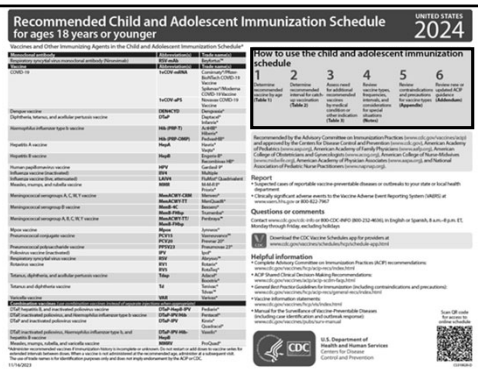
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Recommended by the Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/acip) and approved by the Centers for Disease Control and Prevention (www.cdc.gov), American Academy of Pediatrics (www.aap.org), American Academy of Family Physicians (www.aafp.org), American College of Obstetricians and Gynecologists (www.acog.org), American College of Nurse-Midwives (www.midwife.org), American Academy of Physician Associates (www.aapa.org), and National Association of Pediatric Nurse Practitioners (www.napnap.org).
Report
• Suspected cases of reportable vaccine-preventable diseases or outbreaks to your state or local health department
• Clinically significant adverse events to the Vaccine Adverse Event Reporting System (VAERS) at www.vaers.hhs.gov or 800-822-7967
Questions or comments
Contact www.cdc.gov/cdc-info or 800-CDC-INFO (800-232-4636) in English or Spanish, 8 a.m.–8 p.m. ET, Monday through Friday, excluding holidays
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• ACIP Shared Clinical Decision-Making Recommendations: www.cdc.gov/vaccines/hcp/acip-recs/index.html
• Manual for the Surveillance of Vaccine-Preventable Diseases: www.cdc.gov/vaccines/pubs/surv-manual
• General Best Practice Guidelines for Immunization (including contraindications and precautions): www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html
• Vaccine information statements: www.cdc.gov/vaccines/hcp/vis/index.html
Scan QR code for access to online schedule
U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
11/16/2023

5

Updates to Schedule After Publication

- Step 6 notes how to find latest updates

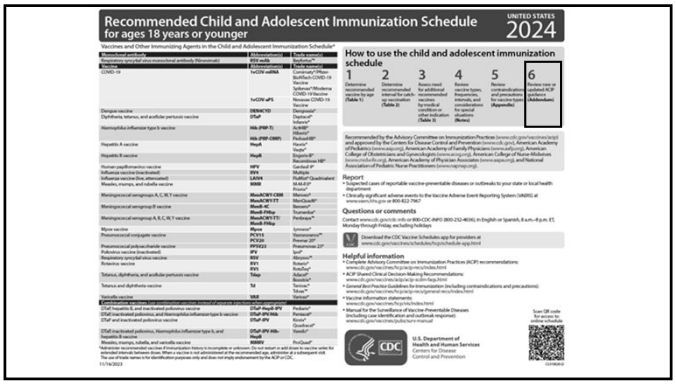
6

Thought Question

- New vaccines against which of the following pathogens were NOT added to the adult schedule?
- A. RSV
- B. Pneumococcus
- C. Mpox
- D. Meningococcus

Answer B

7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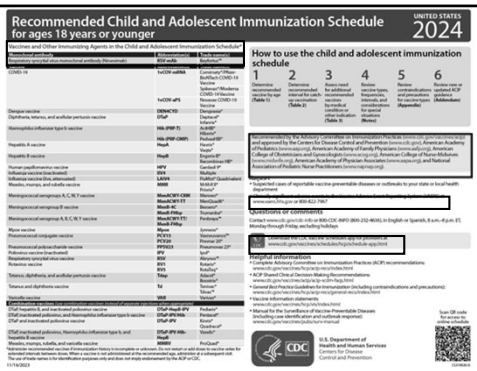
8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U.S. Department of Health and Human Services
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CDC
11/14/2023

9

Child & Adolescent General Schedule Changes

- **Added 20- valent pneumococcal conjugate vaccine** (PCV20), **Mpox vaccine** (Jynneos), **RSV monoclonal antibody** (nirsevimab), **RSV vaccine** (Abrysvo), and **meningococcal groups A, B, C, W, Y** (Penbraya)

https://www.cdc.gov/vaccines/schedules/hcp/schedule-changes.html

10

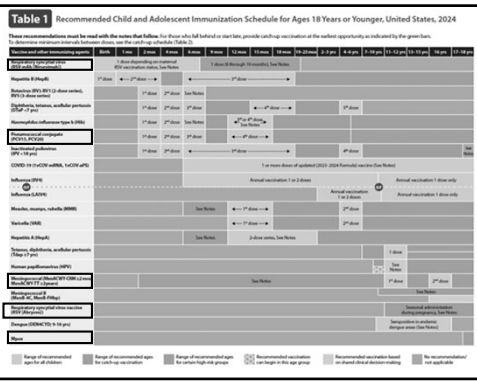


Table 1 Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024
These recommendations must be read with the notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars.
To determine minimum intervals between doses, see the catch-up schedule (Table 2).
Range of recommended ages for all children
Range of recommended ages for catch-up vaccination
Range of recommended ages for certain high-risk groups
Recommended vaccination can begin in this age group
Recommended vaccination based on shared clinical decision-making
No recommendation/ not applicable

11

Thought Question

- Specific vaccine products against which of the following pathogens were removed from the childhood immunization schedule
- A. COVID-19
- B. Meningococcus
- C. Diphtheria
- D. Tetanus
- E. Pneumococcus
- F. Two of these
- G. All of these

Answer G

12

Child & Adolescent General Schedule Changes

- **Deleted bivalent mRNA COVID-19 vaccines**, **diphtheria and tetanus Toxoid Adsorbed vaccine** (DT), **13-valent pneumococcal conjugate vaccine** (PCV13), and **meningococcal groups A, C, W, Y polysaccharide diphtheria toxoid conjugate vaccine** (MenACWY-D, Menactra)

https://www.cdc.gov/vaccines/schedules/hcp/schedule-changes.html

13

Thought Question

- On each schedule, where can you find information about which vaccines are not covered by the National Vaccine Injury Compensation Program (NVICP)?
- A. In the list of vaccines on page 1 of each schedule
- B. In the "Routine Vaccination" section of the notes for each individual vaccine
- C. In the "Additional Information" section at the beginning of the "Notes" section
- D. In the "Appendix" section of each schedule

Answer C

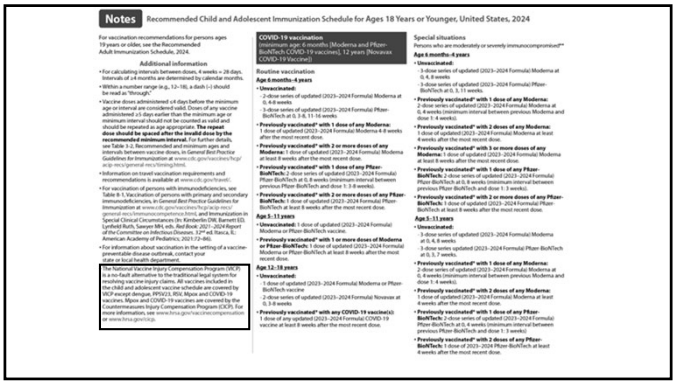
14

Child & Adolescent General Schedule Changes

- Added **RSV** and **Mpox** to the list of vaccines **excluded** from the vaccine injury compensation program (VICP)
- Added **Mpox** vaccine to the list of vaccines covered by the Countermeasures Injury Compensation Program (CICP)
- Added a new Addendum section to summarize new and updated ACIP recommendation that will occur after the 2024 child and adolescent immunization schedule is published

https://www.cdc.gov/vaccines/schedules/hcp/schedule-changes.html

15


Notes Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

For vaccination recommendations for persons ages 19 years or older, see the Recommended Adult Immunization Schedule, 2024.

Additional Information

• For calculating intervals between doses, 4 weeks = 28 days. Intervals of ≥4 months are determined by calendar months.

• Within a number range (e.g., 12–18), a dash (–) should be read as "through."

• Vaccine doses administered ≤4 days before the minimum age or interval are considered valid. Doses of any vaccine administered ≥5 days earlier than the minimum age or minimum interval should not be counted as valid and should be repeated as age appropriate. **The repeat dose should be spaced after the invalid dose by the recommended minimum interval.** For more details, see Table 3-2, Recommended and minimum ages and intervals between vaccine doses, in *General Best Practice Guidelines for Immunization* at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/timing.html.

• Information on travel vaccination requirements and recommendations is available at www.cdc.gov/travel/.

• For vaccination of persons with immunodeficiencies, see Table 8-1, Vaccination of persons with primary and secondary immunodeficiencies, in *General Best Practice Guidelines for Immunization* at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/immunocompetence.html, and Immunization in Special Clinical Circumstances (In: Kimberlin DW, Barnett ED, Lynfield Ruth, Sawyer MH, eds. *Red Book: 2021–2024 Report of the Committee on Infectious Diseases*. 32nd ed. Itasca, IL: American Academy of Pediatrics; 2021:72–84).

• For information about vaccination in the setting of a vaccine-preventable disease outbreak, contact your state or local health department.

The National Vaccine Injury Compensation Program (VICP) is a no-fault alternative to the traditional legal system for resolving vaccine injury claims. All vaccines included in the child and adolescent vaccine schedule are covered by the VICP, except hepatitis B, PPSV23, and mpox vaccines. Mpox and COVID-19 vaccines are covered by the Countermeasures Injury Compensation Program (CICP). For more information, see www.hrsa.gov/vaccinecompensation or www.hrsa.gov/cicp.

COVID-19 vaccination (minimum age: 6 months [Moderna and Pfizer-BioNTech COVID-19 vaccines], 12 years [Novavax COVID-19 Vaccine])

Routine vaccination

Age 6 months–4 years

• **Unvaccinated:**
  - 2-dose series of updated (2023–2024 Formula) Moderna at 0, 4–8 weeks
  - 3-dose series of updated (2023–2024 Formula) Pfizer-BioNTech at 0, 3–8, 11–16 weeks

• **Previously vaccinated* with 1 dose of any Moderna:** 1 dose of updated (2023–2024 Formula) Moderna 4–8 weeks after the most recent dose.

• **Previously vaccinated* with 2 or more doses of any Moderna:** 1 dose of updated (2023–2024 Formula) Moderna at least 8 weeks after the most recent dose.

• **Previously vaccinated* with 1 dose of any Pfizer-BioNTech:** 2-dose series of updated (2023–2024 Formula) Pfizer-BioNTech at 0, 8 weeks (minimum interval between previous Pfizer-BioNTech and dose 1: 3–8 weeks).

• **Previously vaccinated* with 2 or more doses of any Pfizer-BioNTech:** 1 dose of updated (2023–2024 Formula) Pfizer-BioNTech at least 8 weeks after the most recent dose.

Age 5–11 years

• **Unvaccinated:** 1 dose of updated (2023–2024 Formula) Moderna or Pfizer-BioNTech vaccine.

• **Previously vaccinated* with 1 or more doses of Moderna or Pfizer-BioNTech:** 1 dose of updated (2023–2024 Formula) Moderna or Pfizer-BioNTech at least 8 weeks after the most recent dose.

Age 12–18 years

• **Unvaccinated:**
  - 1 dose of updated (2023–2024 Formula) Moderna or Pfizer-BioNTech vaccine
  - 2-dose series of updated (2023–2024 Formula) Novavax at 0, 3–8 weeks

• **Previously vaccinated* with any COVID-19 vaccine(s):** 1 dose of any updated (2023–2024 Formula) COVID-19 vaccine at least 8 weeks after the most recent dose.

Special situations

Persons who are moderately or severely immunocompromised**

Age 6 months–4 years

• **Unvaccinated:**
  - 3-dose series of updated (2023–2024 Formula) Moderna at 0, 4, 8 weeks
  - 4-dose series of updated (2023–2024 Formula) Pfizer-BioNTech at 0, 3, 11 weeks

• **Previously vaccinated* with 1 dose of any Moderna:** 2-dose series of updated (2023–2024 Formula) Moderna at 0, 4 weeks (minimum interval between previous Moderna and dose 1: 4 weeks).

• **Previously vaccinated* with 2 doses of any Moderna:** 1 dose of updated (2023–2024 Formula) Moderna at least 4 weeks after the most recent dose.

• **Previously vaccinated* with 3 or more doses of any Moderna:** 1 dose of updated (2023–2024 Formula) Moderna at least 8 weeks after the most recent dose.

• **Previously vaccinated* with 1 dose of any Pfizer-BioNTech:** 2-dose series of updated (2023–2024 Formula) Pfizer-BioNTech at 0, 8 weeks (minimum interval between previous Pfizer-BioNTech and dose 1: 3 weeks).

• **Previously vaccinated* with 2 or more doses of any Pfizer-BioNTech:** 1 dose of updated (2023–2024 Formula) Pfizer-BioNTech at least 8 weeks after the most recent dose.

Age 5–11 years

• **Unvaccinated:**
  - 3-dose series of updated (2023–2024 Formula) Moderna at 0, 4, 8 weeks
  - 3-dose series updated (2023–2024 Formula) Pfizer-BioNTech at 0, 3, 7 weeks

• **Previously vaccinated* with 1 dose of any Moderna:** 2-dose series of updated (2023–2024 Formula) Moderna at 0, 4 weeks (minimum interval between previous Moderna and dose 1: 4 weeks).

• **Previously vaccinated* with 2 doses of any Moderna:** 1 dose of updated (2023–2024 Formula) Moderna at least 4 weeks after the most recent dose.

• **Previously vaccinated* with 1 dose of any Pfizer-BioNTech:** 2-dose series of updated (2023–2024 Formula) Pfizer-BioNTech at 0, 4 weeks (minimum interval between previous Pfizer-BioNTech and dose 1: 3 weeks).

• **Previously vaccinated* with 2 doses of any Pfizer-BioNTech:** 1 dose of 2023–2024 Pfizer-BioNTech at least 4 weeks after the most recent dose.

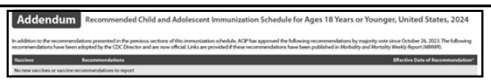
16

Thought Question

- Which of the following will be found in the "Addendum," a new section at the end of each schedule?
- A. New or updated vaccine recommendations that occur after the schedule was published
- B. The date the recommendations became effective
- C. Links to recommendations published in the Morbidity and Mortality Weekly Report (MMWR), if available
- D. All of these
- E. None of these

Answer D

17



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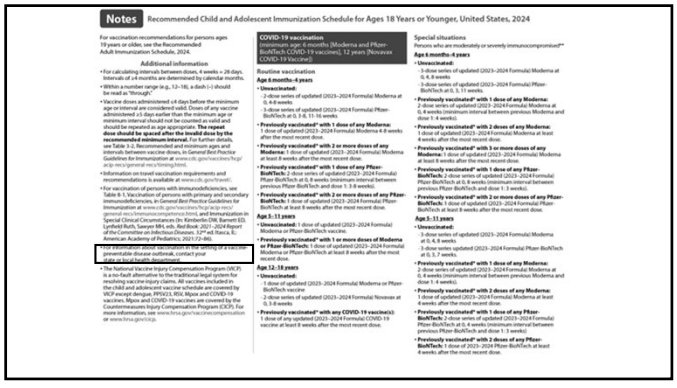


19

Case Study

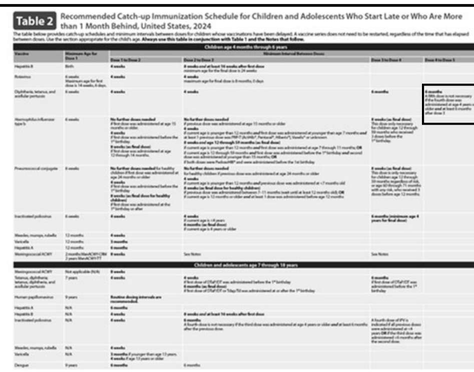
- A 5 year old comes in and has had only 4 doses of DTaP. The 4th dose was given when the child was 4 years 2 months. What does this child need today?
- A. DTaP
- B. Nothing
- C. Tdap
- D. Td

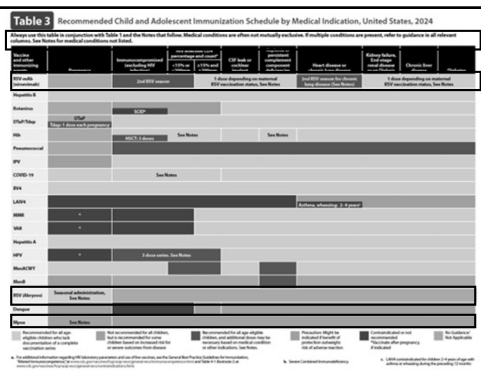
Answer B

20

Catch-Up Schedule

- DTaP
  - 5th dose is not necessary if 4th dose was administered at age 4 years or older and at least 6 months after dose 3





Thought Question

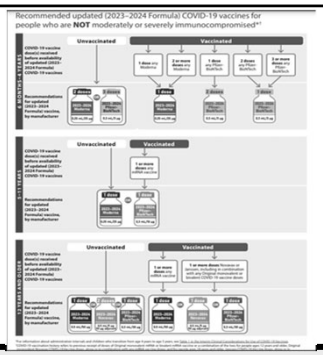
- What is the correct volume of Moderna vaccine for children 6 months through 11 years of age?
- A. 0.5ml
- B. 1 ml
- C. 0.25 ml
- D. 0.75 ml

Answer C

COVID-19 Vaccination

- The COVID-19 note was revised to provide guidance for use of updated (2023–2024 Formula) COVID-19 vaccines
- **Interim Clinical Considerations**
  - Healthcare providers who administer the Moderna COVID-19 Vaccine (2023-2024 Formula) to individuals ages 6 months through 11 years should ensure the correct volume of the vaccine (0.25 mL) is withdrawn from the vial and administered to the recipient
  - Discard vial and excess volume after extracting a single dose

25



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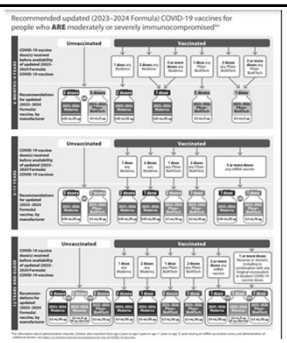


27

Thought Question

- How would V-Safe be described to a parent?
- A. FDA safety monitoring program
- B. CDC safety monitoring program
- C. Congressional monitoring program
- D. State Health Department monitoring program

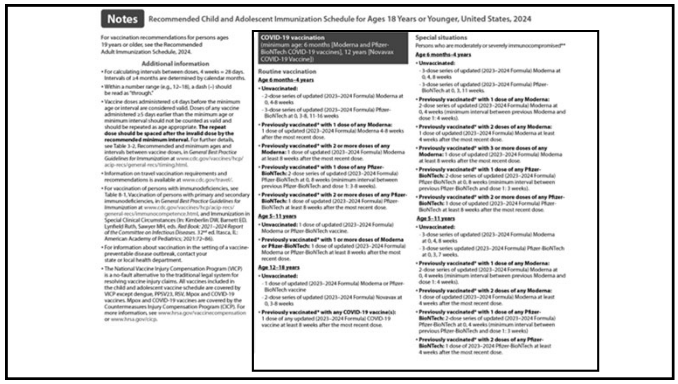
Answer B

28

Summary of recent changes (last updated February 12, 2024) COVID-19 Vaccines

- Post-vaccination reaction information updated in sections on pre-vaccination counseling and safety considerations for mRNA and Novavax vaccines to better align with EUA fact sheets for health care providers and package inserts.
- Information on the availability of the V-safe safety monitoring system for updated (2023–2024 Formula) Moderna, Novavax, and Pfizer-BioNTech COVID-19 vaccines added to the section on reporting of vaccine adverse events.

https://www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html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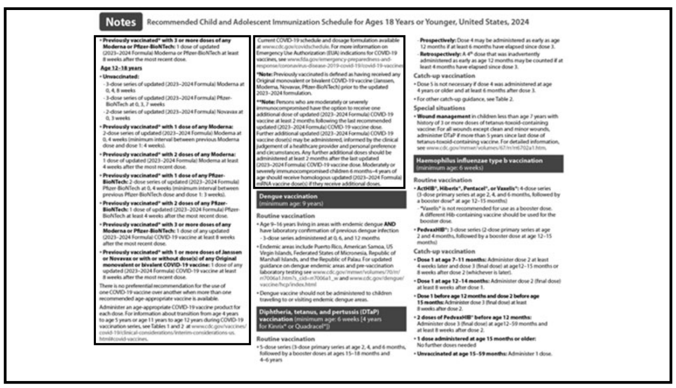
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COVID-19 Vaccine Effectiveness in Children 5-11 Years

- Updated COVID-19 vaccines were effective against COVID-19 during September 2023 – January 2024
  - Against variants from the XBB lineage
  - **This strain is included in the updated vaccine**
  - Also effective against JN.1, a new variant that has become dominant in recently
- Among children, (those who were 5-to-11 years old at the time of vaccination during Omicron), the protection against infection was **74 percent better than unvaccinated peers**
- Their comparative protection against severe illness and ICU admission stood at **76 and 85 percent**, respectively

https://www.pennmedicine.org/news/news-releases/2024/january/analysis-covid-vaccine-strongly-effective-in-young-people#:~:text=Among%20children%2C%20(those%20who%20were,76%20and%2085%20percent%2C%20respectively.

COVID-19 Vaccine Effectiveness in Adolescents

- Myocarditis and/or pericarditis was 1.8 per 100,000 (95% C.I. 0.8–3.5) among first-dose recipients and 4.3 per 100,000 (95% C.I. 2.6–6.7) in second-dose recipients
- Vaccine effectiveness against symptomatic/asymptomatic SARS-CoV-2 infection 14 days post-first dose vaccination was 91.1% (95% C.I. 89.6–92.5)
- 14 days post-second dose was 99.1% (95% C.I. 98.5–99.5). In this retrospective cohort study
- BNT162b2 vaccination was safe and was associated with a significantly lower risk of SARS-CoV-2 infection

https://www.sciencedirect.com/science/article/pii/S0264410X21016546

33

COVID-19 Vaccine Effectiveness in Children 6 Months to 4 Years

- Vaccine efficacy against symptomatic Covid-19 in children 6 months to 4 years of age was 73.2% (95% confidence interval, 43.8 to 87.6) from 7 days after dose 3

https://www.nejm.org/doi/full/10.1056/NEJMoa2211031#:~:text=The%20observed%20overall%20vaccine%20efficacy,the%20basis%20of%2034%20cases).

34

COVID-19 Vaccine Coverage

- COVID-19 vaccine coverage among Black children **(9.3%)** was lower than that among Hispanic, Asian, and other/multiple race children
- Enhanced public health efforts are needed to increase COVID-19 vaccination coverage for all children and adolescents
- Evidence based strategies
  - Vaccination providers and trusted messengers should provide culturally relevant information and vaccine recommendations and build a higher level of trust among those groups with lower coverage
  - Strong messages from trusted providers
  - Community members should serve as trusted messengers to advocate for vaccine

https://www.cdc.gov/mmwr/volumes/72/wr/mm7201a1.htm

35

Returning Unused COVID-19 Vaccines

- **Moderna**
  - Pediatric COVID-19 Vaccines for **children under age 12** (single dose vial presentation) purchased on or after **1/9/24** are now **100%** returnable
  - All privately purchased COVID-19 vaccines are 100% returnable for the entire season
  - Follow return policies in Moderna contracts or contact Moderna for more information
  - 12 and older presentations of prefilled syringe or single dose vial will still remain the same as their contract return policy
  - Need to reference their GPO or PBG contract terms that they can return once the product expires.

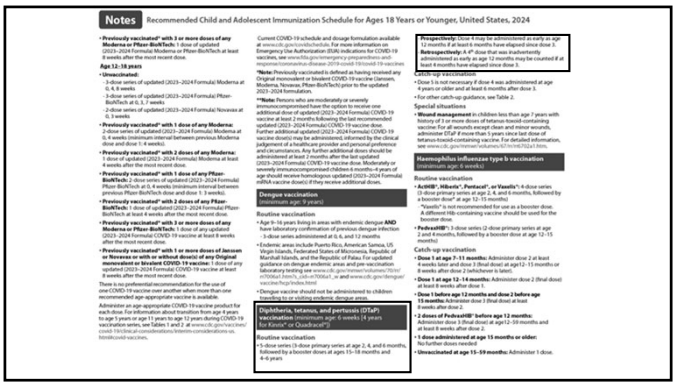
36

DTaP Vaccine

- The DTaP note was revised to clarify primary and booster doses

https://www.cdc.gov/vaccines/schedules/hcp/schedule-changes.html

37



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Age 12–18 years

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  - 3-dose series of updated (2023–2024 Formula) Pfizer-BioNTech at 0, 3, 7 weeks
  - 2-dose series of updated (2023–2024 Formula) Novavax at 0, 3 weeks
- **Previously vaccinated* with 1 dose of any Moderna:** 2-dose series of updated (2023–2024 Formula) Moderna at 0, 4 weeks (minimum interval between previous Moderna dose and dose 1: 4 weeks)
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- **Previously vaccinated* with 1 dose of any Pfizer-BioNTech:** 2-dose series of updated (2023–2024 Formula) Pfizer-BioNTech at 0, 4 weeks (minimum interval between previous Pfizer-BioNTech dose and dose 1: 3 weeks).
- **Previously vaccinated* with 2 doses of any Pfizer-BioNTech:** 1 dose of updated (2023–2024 Formula) Pfizer-BioNTech at least 4 weeks after the most recent dose.
- **Previously vaccinated* with 3 or more doses of any Moderna or Pfizer-BioNTech:** 1 dose of any updated (2023–2024 Formula) COVID-19 vaccine at least 8 weeks after the most recent dose.
- **Previously vaccinated* with 1 or more doses of Janssen or Novavax or with or without dose(s) of any Original monovalent or bivalent COVID-19 vaccine:** 1 dose of any updated (2023–2024 Formula) COVID-19 vaccine at least 8 weeks after the most recent dose.

There is no preferential recommendation for the use of one COVID-19 vaccine over another when more than one recommended age-appropriate vaccine is available.

Administer an age-appropriate COVID-19 vaccine product for each dose. For information about transition from age 4 years to age 5 years or age 11 years to age 12 years during COVID-19 vaccination series, see Tables 1 and 2 at www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html#Covid-Vaccines.

Current COVID-19 schedule and dosage formulation available at www.cdc.gov/covidschedule. For more information on Emergency Use Authorization (EUA) indications for COVID-19 vaccines, see www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/covid-19-vaccines.

***Note:** Previously vaccinated is defined as having received any Original monovalent or bivalent COVID-19 vaccine (Janssen, Moderna, Novavax, Pfizer-BioNTech) prior to the updated 2023–2024 formulations.

****Note:** Persons who are moderately or severely immunocompromised have the option to receive one additional dose of updated (2023–2024 Formula) COVID-19 vaccine at least 2 months following the last recommended updated (2023–2024 Formula) COVID-19 vaccine dose. Further additional updated (2023–2024 Formula) COVID-19 vaccine dose(s) may be administered, informed by the clinical judgement of a healthcare provider and personal preference of the patient, at least 2 months after the last dose and can be administered at least 2 months after the last updated (2023–2024 Formula) COVID-19 vaccine dose. Moderately or severely immunocompromised children 6 months–4 years of age should receive homologous updated (2023–2024 Formula) mRNA vaccine dose(s) if they receive additional doses.

Dengue vaccination (minimum age: 9 years)

Routine vaccination

- Age 9–16 years living in areas with endemic dengue **AND** have laboratory confirmation of previous dengue infection
  - 3-dose series administered at 0, 6, and 12 months
- Endemic areas include Puerto Rico, American Samoa, US Virgin Islands, Federated States of Micronesia, Republic of Marshall Islands, and the Republic of Palau. For updated guidance on dengue endemic areas and pre-vaccination laboratory testing see www.cdc.gov/mmwr/volumes/70/rr/rr7006a1.htm?s_cid=rr7006a1_w and www.cdc.gov/dengue/vaccine/hcp/index.html.
- Dengue vaccine should not be administered to children traveling to or visiting endemic dengue areas.

Diphtheria, tetanus, and pertussis (DTaP) vaccination (minimum age: 6 weeks [4 years for Kinrix® or Quadracel™])

Routine vaccination

- 5-dose series (3-dose primary series at age 2, 4, and 6 months, followed by a booster doses at ages 15–18 months and 4–6 years

Prospectively: Dose 4 may be administered as early as age 12 months if at least 6 months have elapsed since dose 3.

Retrospectively: A 4th dose that was inadvertently administered as early as age 12 months may be counted if at least 4 months have elapsed since dose 3.

Catch-up vaccination

- Dose 5 is not necessary if dose 4 was administered at age 4 years or older and at least 6 months after dose 3.
- For other catch-up guidance, see Table 2.

Special situations

- **Wound management** in children less than age 7 years with history of 3 or more doses of tetanus-toxoid-containing vaccine: For all wounds except clean and minor wounds, administer DTaP if more than 5 years since last dose of tetanus-toxoid-containing vaccine. For detailed information, see www.cdc.gov/mmwr/volumes/67/rr/rr6702a1.htm.

Haemophilus influenzae type b vaccination (minimum age: 6 weeks)

Routine vaccination

- **ActHIB®, Hiberix®, Pentacel®, or Vaxelis®:** 4-dose series (3-dose primary series at age 2, 4, and 6 months, followed by a booster dose* at age 12–15 months)

*Vaxelis® is not recommended for use as a booster dose. A different Hib-containing vaccine should be used for the booster dose.

- **PedvaxHIB®:** 3-dose series (2-dose primary series at age 2 and 4 months, followed by a booster dose at age 12–15 months)

Catch-up vaccination

- **Dose 1 at age 7–11 months:** Administer dose 2 at least 4 weeks later and dose 3 (final dose) at age12–15 months or 8 weeks after dose 2 (whichever is later).
- **Dose 1 at age 12–14 months:** Administer dose 2 (final dose) at least 8 weeks after dose 1.
- **Dose 1 before age 12 months and dose 2 before age 15 months:** Administer dose 3 (final dose) at least 8 weeks after dose 2.
- **2 doses of PedvaxHIB® before age 12 months:** Administer dose 3 (final dose) at age12–59 months and at least 8 weeks after dose 2.
- **1 dose administered at age 15 months or older:** No further doses needed
- **Unvaccinated at age 15–59 months:** Administer 1 dose.

38

Case Study

- A17 year old received 3 doses of HPV2 vaccine given at 0, 2 and 6 month intervals. What does this adolescent need today?
- A. Nothing
- B. First dose of series using HPV-9 vaccine
- C. One dose of HPV-9 vaccine
- D. One dose of HPV-9 today and a second dose in 2 months

Answer A

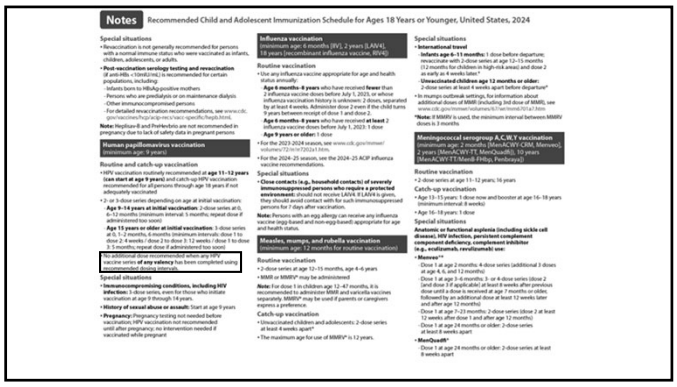
39

HPV Vaccine

- The routine vaccination section was revised to clarify additional doses are not recommended for persons who have completed HPV vaccination series with any valency using the recommended dosing intervals

https://www.cdc.gov/vaccines/schedules/hcp/schedule-changes.html

40



Notes Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

Special situations
- Revaccination is not generally recommended for persons with a normal immune status who were vaccinated as infants, children, adolescents, or adults.
- **Post-vaccination serology testing and revaccination** (if anti-HBs <10mIU/mL) is recommended for certain populations, including:
  - Infants born to HBsAg-positive mothers
  - Persons who are predialysis or on maintenance dialysis
  - Other immunocompromised persons
  - For detailed revaccination recommendations, see www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hepb.html.

Note: Heplisav-B and PreHevbrio are not recommended in pregnancy due to lack of safety data in pregnant persons

Human papillomavirus vaccination (minimum age: 9 years)

Routine and catch-up vaccination
- HPV vaccination routinely recommended at **age 11–12 years** (**can start at age 9 years**) and catch-up HPV vaccination recommended for all persons through age 18 years if not adequately vaccinated
- 2- or 3-dose series depending on age at initial vaccination:
  - **Age 9–14 years at initial vaccination**: 2-dose series at 0, 6–12 months (minimum interval: 5 months; repeat dose if administered too soon)
  - **Age 15 years or older at initial vaccination**: 3-dose series at 0, 1–2 months, 6 months (minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 12 weeks / dose 1 to dose 3: 5 months; repeat dose if administered too soon)

No additional dose recommended when any HPV vaccine series **of any valency** has been completed using recommended dosing intervals.

Special situations
- **Immunocompromising conditions, including HIV infection:** 3-dose series, even for those who initiate vaccination at age 9 through 14 years.
- **History of sexual abuse or assault:** Start at age 9 years
- **Pregnancy:** Pregnancy testing not needed before vaccination; HPV vaccination not recommended until after pregnancy; no intervention needed if vaccinated while pregnant

Influenza vaccination (minimum age: 6 months [IIV], 2 years [LAIV4], 18 years [recombinant influenza vaccine, RIV4])

Routine vaccination
- Use any influenza vaccine appropriate for age and health status annually.
  - **Age 6 months–8 years** who have received **fewer** than 2 influenza vaccine doses before July 1, 2023, or whose influenza vaccination history is unknown: 2 doses, separated by at least 4 weeks. Administer dose 2 even if the child turns 9 years between receipt of dose 1 and dose 2.
  - **Age 6 months–8 years** who have received **at least** 2 influenza vaccine doses before July 1, 2023: 1 dose
  - **Age 9 years or older:** 1 dose
- For the 2023-2024 season, see www.cdc.gov/mmwr/volumes/72/rr/rr7202a1.htm.
- For the 2024–25 season, see the 2024–25 ACIP influenza vaccine recommendations.

Special situations
- **Close contacts (e.g., household contacts) of severely immunosuppressed persons who require a protected environment:** should not receive LAIV4. If LAIV4 is given, they should avoid contact with for such immunosuppressed persons for 7 days after vaccination.

Note: Persons with an egg allergy can receive any influenza vaccine (egg-based and non-egg-based) appropriate for age and health status.

Measles, mumps, and rubella vaccination (minimum age: 12 months for routine vaccination)

Routine vaccination
- 2-dose series at age 12–15 months, age 4–6 years
- MMR or MMRV* may be administered

Note: For dose 1 in children age 12–47 months, it is recommended to administer MMR and varicella vaccines separately. MMRV* may be used if parents or caregivers express a preference.

Catch-up vaccination
- Unvaccinated children and adolescents: 2-dose series at least 4 weeks apart*
- The maximum age for use of MMRV* is 12 years.

Special situations
- **International travel**
  - **Infants age 6–11 months:** 1 dose before departure; revaccinate with 2-dose series at age 12–15 months (12 months for children in high-risk areas) and dose 2 as early as 4 weeks later.*
  - **Unvaccinated children age 12 months or older:** 2-dose series at least 4 weeks apart before departure*
- In mumps outbreak settings, for information about additional doses of MMR (including 3rd dose of MMR), see www.cdc.gov/mmwr/volumes/67/wr/mm6701a7.htm

*Note: If MMRV is used, the minimum interval between MMRV doses is 3 months

Meningococcal serogroup A,C,W,Y vaccination (minimum age: 2 months [MenACWY-CRM, Menveo], 2 years [MenACWY-TT, MenQuadfi®], 10 years [MenACWY-TT/MenB-FHbp, Penbraya])

Routine vaccination
- 2-dose series at age 11–12 years; 16 years

Catch-up vaccination
- Age 13–15 years: 1 dose now and booster at age 16–18 years (minimum interval: 8 weeks)
- Age 16–18 years: 1 dose

Special situations

Anatomic or functional asplenia (including sickle cell disease), HIV infection, persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use:
- **Menveo**™
  - Dose 1 at age 2 months: 4-dose series (additional 3 doses at age 4, 6, and 12 months)
  - Dose 1 at age 3–6 months: 3- or 4-dose series (dose 2 (and dose 3 if applicable) at least 8 weeks after previous dose until a dose is received at age 7 months or older, followed by an additional dose at least 12 weeks later and after age 12 months)
  - Dose 1 at age 7–23 months: 2-dose series (dose 2 at least 12 weeks after dose 1 and after age 12 months)
  - Dose 1 at age 24 months or older: 2-dose series at least 8 weeks apart
- **MenQuadfi**®
  - Dose 1 at age 24 months or older: 2-dose series at least 8 weeks apart

41

Thought Question

- Information about which two allergies was removed from the 2024 schedules because it is no longer applicable?
- A. Influenza vaccine and egg allergies
- B. Hib vaccine and natural rubber latex allergies
- C. Hepatitis A vaccine and neomycin allergies
- D. Hepatitis B vaccine and yeast allergies
- E. A and B

Answer E

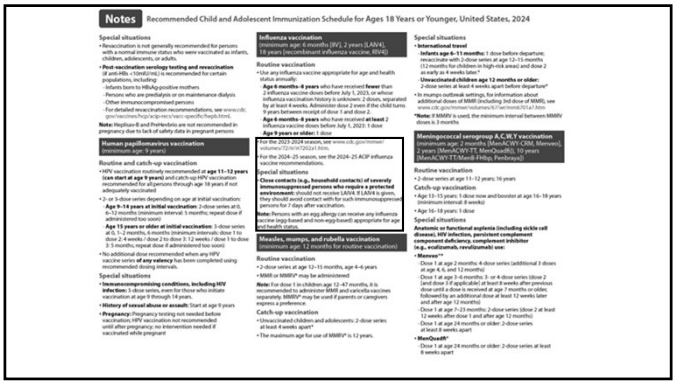
42

Influenza Vaccine

- The influenza note was updated to reflect the recommendations for the 2023-24 influenza season
- In the “Special situations” section, all bullets describing recommendations for persons with a history of egg allergy have been deleted
- A note has been added clarifying persons with a history of egg allergy of any severity can be vaccinated with any influenza vaccine indicated for the recipient’s age and health status with no additional safety considerations

https://www.cdc.gov/vaccines/schedules/hcp/schedule-changes.html

43



Notes Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

Special situations
- Revaccination is not generally recommended for persons with a normal immune status who were vaccinated as infants, children, adolescents, or adults.
- **Post-vaccination serology testing and revaccination** (if anti-HBs <10mIU/mL) is recommended for certain populations, including:
  - Infants born to HBsAg-positive mothers
  - Persons who are predialysis or on maintenance dialysis
  - Other immunocompromised persons
  - For detailed revaccination recommendations, see www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hepb.html.

Note: Heplisav-B and PreHevbrio are not recommended in pregnancy due to lack of safety data in pregnant persons

Human papillomavirus vaccination (minimum age: 9 years)

Routine and catch-up vaccination
- HPV vaccination routinely recommended at **age 11–12 years** (**can start at age 9 years**) and catch-up HPV vaccination recommended for all persons through age 18 years if not adequately vaccinated
- 2- or 3-dose series depending on age at initial vaccination:
  - **Age 9–14 years at initial vaccination**: 2-dose series at 0, 6–12 months (minimum interval: 5 months; repeat dose if administered too soon)
  - **Age 15 years or older at initial vaccination**: 3-dose series at 0, 1–2 months, 6 months (minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 12 weeks / dose 1 to dose 3: 5 months; repeat dose if administered too soon)
- No additional dose recommended when any HPV vaccine series **of any valency** has been completed using recommended dosing intervals.

Special situations
- **Immunocompromising conditions, including HIV infection:** 3-dose series, even for those who initiate vaccination at age 9 through 14 years.
- **History of sexual abuse or assault:** Start at age 9 years
- **Pregnancy:** Pregnancy testing not needed before vaccination; HPV vaccination not recommended until after pregnancy; no intervention needed if vaccinated while pregnant

Influenza vaccination (minimum age: 6 months [IIV], 2 years [LAIV4], 18 years [recombinant influenza vaccine, RIV4])

Routine vaccination
- Use any influenza vaccine appropriate for age and health status annually.
  - **Age 6 months–8 years** who have received **fewer** than 2 influenza vaccine doses before July 1, 2023, or whose influenza vaccination history is unknown: 2 doses, separated by at least 4 weeks. Administer dose 2 even if the child turns 9 years between receipt of dose 1 and dose 2.
  - **Age 6 months–8 years** who have received **at least** 2 influenza vaccine doses before July 1, 2023: 1 dose
  - **Age 9 years or older:** 1 dose

For the 2023-2024 season, see www.cdc.gov/mmwr/volumes/72/rr/rr7202a1.htm.
For the 2024–25 season, see the 2024–25 ACIP influenza vaccine recommendations.

Special situations
- **Close contacts (e.g., household contacts) of severely immunosuppressed persons who require a protected environment:** should not receive LAIV4. If LAIV4 is given, they should avoid contact with for such immunosuppressed persons for 7 days after vaccination.

Note: Persons with an egg allergy can receive any influenza vaccine (egg-based and non-egg-based) appropriate for age and health status.

Measles, mumps, and rubella vaccination (minimum age: 12 months for routine vaccination)

Routine vaccination
- 2-dose series at age 12–15 months, age 4–6 years
- MMR or MMRV* may be administered

Note: For dose 1 in children age 12–47 months, it is recommended to administer MMR and varicella vaccines separately. MMRV* may be used if parents or caregivers express a preference.

Catch-up vaccination
- Unvaccinated children and adolescents: 2-dose series at least 4 weeks apart*
- The maximum age for use of MMRV* is 12 years.

Special situations
- **International travel**
  - **Infants age 6–11 months:** 1 dose before departure; revaccinate with 2-dose series at age 12–15 months (12 months for children in high-risk areas) and dose 2 as early as 4 weeks later.*
  - **Unvaccinated children age 12 months or older:** 2-dose series at least 4 weeks apart before departure*
- In mumps outbreak settings, for information about additional doses of MMR (including 3rd dose of MMR), see www.cdc.gov/mmwr/volumes/67/wr/mm6701a7.htm

*Note: If MMRV is used, the minimum interval between MMRV doses is 3 months

Meningococcal serogroup A,C,W,Y vaccination (minimum age: 2 months [MenACWY-CRM, Menveo], 2 years [MenACWY-TT, MenQuadfi®], 10 years [MenACWY-TT/MenB-FHbp, Penbraya])

Routine vaccination
- 2-dose series at age 11–12 years; 16 years

Catch-up vaccination
- Age 13–15 years: 1 dose now and booster at age 16–18 years (minimum interval: 8 weeks)
- Age 16–18 years: 1 dose

Special situations

Anatomic or functional asplenia (including sickle cell disease), HIV infection, persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use:
- **Menveo**™
  - Dose 1 at age 2 months: 4-dose series (additional 3 doses at age 4, 6, and 12 months)
  - Dose 1 at age 3–6 months: 3- or 4-dose series (dose 2 (and dose 3 if applicable) at least 8 weeks after previous dose until a dose is received at age 7 months or older, followed by an additional dose at least 12 weeks later and after age 12 months)
  - Dose 1 at age 7–23 months: 2-dose series (dose 2 at least 12 weeks after dose 1 and after age 12 months)
  - Dose 1 at age 24 months or older: 2-dose series at least 8 weeks apart
- **MenQuadfi**®
  - Dose 1 at age 24 months or older: 2-dose series at least 8 weeks apart

44

Influenza Mortality 2023-24

- 102 pediatric deaths nation wide as of 3/10/24
- These tragic losses of life were most likely preventable since nearly **90% were unvaccinated**
- **Please keep vaccinating!**
- Influenza season is not over until 6/30/24!

https://www.cdc.gov/flu/spotlights/2023-2024/pediatric-flu-deaths.htm#:~:text=March%208%2C%202024%20%E2%80%94%20CDC%20reported,were%20not%20vaccinated%20against%20flu.

https://www.cdc.gov/flu/weekly/index.htm?ACSTrackingID=USCDC_7_3-DM124159&ACSTrackingLabel=More%20Than%20100%20Flu-related%20Deaths%20in%20Children%20Reported%20to%20CDC&deliveryName=USCDC_7_3-DM124159#PedMortality

45

Study Shows Potential Benefits of Newer Flu Vaccines

- A CDC study that examined people's immune response to various flu vaccines suggests that vaccination with non-egg-based flu vaccines might improve the antibody response to circulating flu viruses over traditional egg based vaccines
- The findings indicate that repeated vaccination with non-egg-based flu vaccines could redirect antibody responses from immune memory, offering possible insights for improving vaccination strategy
- Cell based vaccines will reduce the impact of the seasonal virus at a lesser production and distribution cost

Liu, F., Gross, F.L., Joshi, S. *et al.* Redirecting antibody responses from egg-adapted epitopes following repeat vaccination with recombinant or cell culture-based versus egg-based influenza vaccines. *Nat Commun* **15**, 254 (2024). https://doi.org/10.1038/s41467-023-44551-x

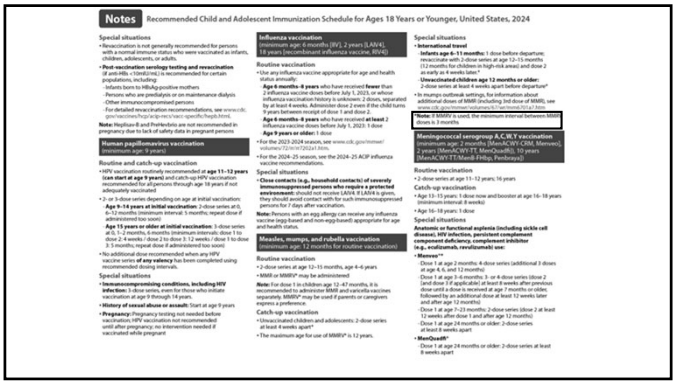
46

MMR Vaccine

- The MMR note was updated to clarify when MMRV is used for routine, catch-up vaccination, or in "Special situations", the minimum interval between doses is 3 months

https://www.cdc.gov/vaccines/schedules/hcp/schedule-changes.html

47



Notes Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

Special situations

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- **Post-vaccination serology testing and revaccination** of anti-HBs <10mIU/mL) is recommended for certain populations, including:
  - Infants born to HBsAg-positive mothers
  - Persons who are predialysis or on maintenance dialysis
  - Other immunocompromised persons
  - For detailed revaccination recommendations, see www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hepb.html.

Note: Heplisav-B and PreHevbrio are not recommended in pregnancy due to lack of safety data in pregnant persons.

Human papillomavirus vaccination (minimum age: 9 years)

Routine and catch-up vaccination

- HPV vaccination routinely recommended at **age 11–12 years** (**can start at age 9 years**) and catch-up HPV vaccination recommended for all persons through age 18 years if not adequately vaccinated.
- 2- or 3-dose series depending on age at initial vaccination:
  - **Age 9–14 years at initial vaccination:** 2-dose series at 0, 6–12 months (minimum interval: 5 months; repeat dose if administered too soon)
  - **Age 15 years or older at initial vaccination:** 3-dose series at 0, 1–2 months, 6 months (minimum intervals: dose 1 to dose 2: 4 weeks ; dose 2 to dose 3: 12 weeks ; dose 1 to dose 3: 5 months; repeat dose if administered too soon)
- No additional dose recommended when any HPV vaccine series **of any valency** has been completed using recommended dosing intervals.

Special situations

- **Immunocompromising conditions, including HIV infection:** 3-dose series, even for those who initiate vaccination at age 9 through 14 years.
- **History of sexual abuse or assault:** Start at age 9 years
- **Pregnancy:** Pregnancy testing not needed before vaccination; HPV vaccination not recommended until after pregnancy; no intervention needed if vaccinated while pregnant

Influenza vaccination (minimum age: 6 months [IIV], 2 years [LAIV4], 18 years [recombinant influenza vaccine, RIV4])

Routine vaccination

- Use any influenza vaccine appropriate for age and health status annually.
  - **Age 6 months–8 years** who have received **fewer** than 2 influenza vaccine doses before July 1, 2023, or whose influenza vaccination history is unknown: 2 doses, separated by at least 4 weeks. Administer dose 2 even if the child turns 9 years between receipt of dose 1 and dose 2.
  - **Age 6 months–8 years** who have received **at least** 2 influenza vaccine doses before July 1, 2023: 1 dose
  - **Age 9 years or older:** 1 dose
- For the 2023-2024 season, see www.cdc.gov/mmwr/volumes/72/rr/rr7202a1.htm.
- For the 2024–25 season, see the 2024–25 ACIP influenza vaccine recommendations.

Special situations

- **Close contacts (e.g., household contacts) of severely immunosuppressed persons who require a protected environment:** should not receive LAIV4. If LAIV4 is given, they should avoid contact with for such immunosuppressed persons for 7 days after vaccination.

Note: Persons with an egg allergy can receive any influenza vaccine (egg-based and non-egg-based) appropriate for age and health status.

Measles, mumps, and rubella vaccination (minimum age: 12 months for routine vaccination)

Routine vaccination

- 2-dose series at age 12–15 months, age 4–6 years
- MMR or MMRV* may be administered

Note: For dose 1 in children age 12–47 months, it is recommended to administer MMR and varicella vaccines separately. MMRV* may be used if parents or caregivers express a preference.

Catch-up vaccination

- Unvaccinated children and adolescents: 2-dose series at least 4 weeks apart†
- The maximum age for use of MMRV* is 12 years.

Special situations

- **International travel**
  - **Infants age 6–11 months:** 1 dose before departure; revaccinate with 2-dose series at age 12–15 months (12 months for children in high-risk areas) and dose 2 as early as 4 weeks later.*
  - **Unvaccinated children age 12 months or older:** 2-dose series at least 4 weeks apart before departure*
- In mumps outbreak settings, for information about additional doses of MMR (including 3rd dose of MMR), see www.cdc.gov/mmwr/volumes/67/wr/mm6717a5.htm.

***Note:** If MMRV is used, the minimum interval between MMRV doses is 3 months.

Meningococcal serogroup A,C,W,Y vaccination (minimum age: 2 months [MenACWY-CRM, Menveo], 2 years [MenACWY-TT, MenQuadfi], 10 years [MenACWY-TT/MenB-FHBp, Penbraya])

Routine vaccination

- 2-dose series at age 11–12 years; 16 years

Catch-up vaccination

- Age 13–15 years: 1 dose now and booster at age 16–18 years (minimum interval: 8 weeks)
- Age 16–18 years: 1 dose

Special situations

Anatomic or functional asplenia (including sickle cell disease), HIV infection, persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use:

- **Menveo™**
  - Dose 1 at age 2 months: 4-dose series (additional 3 doses at age 4, 6, and 12 months)
  - Dose 1 at age 3–6 months: 3- or 4-dose series (dose 2 [and dose 3 if applicable] at least 8 weeks after previous dose until a dose is received at age 7 months or older, followed by an additional dose at least 12 weeks later and after age 12 months)
  - Dose 1 at age 7–23 months: 2-dose series (dose 2 at least 12 weeks after dose 1 and after age 12 months)
  - Dose 1 at age 24 months or older: 2-dose series at least 8 weeks apart
- **MenQuadfi®**
  - Dose 1 at age 24 months or older: 2-dose series at least 8 weeks apart

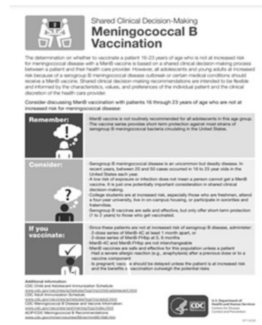
48

MenB vaccine

- Information about the use of the newly licensed meningococcal A, B, C, W, Y vaccine has been added
- Resource to assist healthcare providers with shared clinical decision-making recommendations for MenB vaccination has also been included:

https://www.cdc.gov/vaccines/hcp/admin/downloads/isd-job-aid-s cdm-mening-b-shared-clinical-decision-making.pdf

49



Shared Clinical Decision-Making
Meningococcal B Vaccination

The determination on whether to vaccinate a patient 16-23 years of age who is not at increased risk for meningococcal disease with a MenB vaccine is based on a shared clinical decision-making process between a patient and their health care provider. However, all adolescents and young adults at increased risk because of a serogroup B meningococcal disease outbreak or certain medical conditions should receive a MenB vaccine. Shared clinical decision-making recommendations are intended to be flexible and informed by the characteristics, values, and preferences of the individual patient and the clinical discretion of the health care provider.

Consider discussing MenB vaccination with patients 16 through 23 years of age who are not at increased risk for meningococcal disease:

Remember:
- MenB vaccine is not routinely recommended for all adolescents in this age group.
- The vaccine series provides short-term protection against most strains of serogroup B meningococcal bacteria circulating in the United States.

Consider:
- Serogroup B meningococcal disease is an uncommon but deadly disease. In recent years, between 20 and 50 cases occurred in 16 to 23 year olds in the United States each year.
- A low risk of exposure or infection does not mean a person cannot get a MenB vaccine. It is just one potentially important consideration in shared clinical decision-making.
- College students are at increased risk, especially those who are freshmen, attend a four-year university, live in on-campus housing, or participate in sororities and fraternities.
- Serogroup B vaccines are safe and effective, but only offer short-term protection (1 to 2 years) to those who get vaccinated.

If you vaccinate:
- Since these patients are not at increased risk of serogroup B disease, administer:
  - 2-dose series of MenB-4C at least 1 month apart, or
  - 2-dose series of MenB-FHbp at 0, 6 months
- MenB-4C and MenB-FHbp are not interchangeable
- MenB vaccines are safe and effective for this population unless a patient:
  - Had a severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component
  - Is pregnant; vacc[illegible] should be delayed unless the patient is at increased risk and the benefits o[illegible] vaccination outweigh the potential risks

Additional information:
CDC Child and Adolescent Immunization Schedule
CDC Adult Immunization Schedule
CDC Meningococcal B Disease and Vaccine Information
ACIP/CDC Meningococcal B Recommendations

50

Meningococcal ACWY Vaccine

- Information on recommendation for the use of the newly licensed meningococcal A, B, C, W, Y vaccine has also been included:
- If a patient is receiving MenACWY and MenB vaccines at the same visit, MenABCWY vaccine (Penbraya®) may be given instead
- If a patient receives MenABCWY vaccine, which includes Trumenba®, then administer:
  - Trumenba® for additional MenB dose(s) when MenACWY is **not** indicated
  - Any MenACWY vaccine when MenB **is not** indicated
  - The minimum interval between MenABCWY doses is **6 months**

https://www.cdc.gov/vaccines/vpd/mening/hcp/administering-vaccine.html

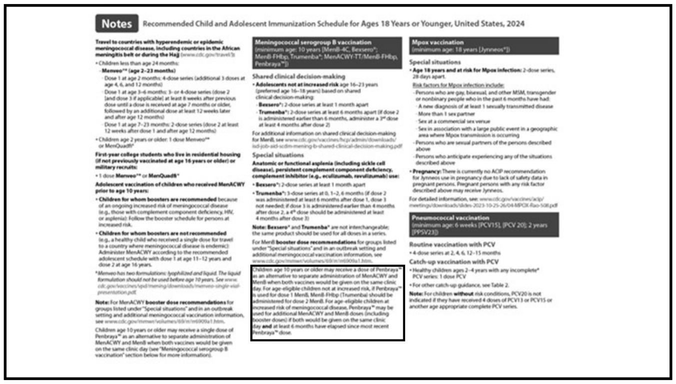
51

Meningococcal ACWY Vaccine

- MenACWY-D (Menactra) has been removed from all sections
- Administer MenACWY vaccines (Menveo® [either one- or two-vial presentation] or MenQuadfi®) to adolescents as 1 primary dose at 11 to 12 years of age. Administer 1 booster dose at 16 years of age. The minimum interval between doses is at least 8 weeks. **Liquid formulation of Menveo should not be used before age 10 years**
- Patients 2 years of age or older should receive a 2-dose primary series (Menveo® [two-vial presentation only] or MenQuadfi®) 2 months apart if they have
  - Complement component deficiencies
  - Complement inhibitor use (including Soliris® or Ultomiris®)
  - Functional or anatomic asplenia
  - HIV
  - The number of doses and schedule for patients under 2 years of age varies by vaccine product (CDC vaccines schedules app contains this information)

https://www.cdc.gov/vaccines/vpd/mening/hcp/administering-vaccine.html

52


Notes Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

Travel to countries with hyperendemic or epidemic meningococcal disease, including countries in the African meningitis belt or during the Hajj (www.cdc.gov/travel/):
- Children less than age 24 months:
  - **Menveo** (age 2–23 months)**
    - Dose 1 at age 2 months: 4-dose series (additional 3 doses at age 4, 6, and 12 months)
    - Dose 1 at age 3–6 months: 3- or 4-dose series (dose 2 [and dose 3 if applicable] at least 8 weeks after previous dose until a dose is received at age 7 months or older, followed by an additional dose at least 12 weeks later and after age 12 months)
    - Dose 1 at age 7–23 months: 2-dose series (dose 2 at least 12 weeks after dose 1 and after age 12 months)
- Children age 2 years or older: 1 dose Menveo** or MenQuadfi®

First-year college students who live in residential housing (if not previously vaccinated at age 16 years or older) or military recruits:
- 1 dose **Menveo**** or **MenQuadfi®**

Adolescent vaccination of children who received MenACWY prior to age 10 years:
- **Children for whom boosters are recommended** because of an ongoing increased risk of meningococcal disease (e.g., those with complement component deficiency, HIV, or asplenia): Follow the booster schedule for persons at increased risk.
- **Children for whom boosters are not recommended** (e.g., a healthy child who received a single dose for travel to a country where meningococcal disease is endemic): Administer MenACWY according to the recommended adolescent schedule with dose 1 at age 11–12 years and dose 2 at age 16 years.

***Menveo has two formulations: lyophilized and liquid. The liquid formulation should not be used before age 10 years. See www.cdc.gov/vaccines/vpd/mening/downloads/menveo-single-vial-presentation.pdf*

Note: For MenACWY **booster dose recommendations** for groups listed under "Special situations" and in an outbreak setting and additional meningococcal vaccination information, see www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm.

Children age 10 years or older may receive a single dose of Penbraya™ as an alternative to separate administration of MenACWY and MenB when both vaccines would be given on the same clinic day (see "Meningococcal serogroup B vaccination" section below for more information).

Meningococcal serogroup B vaccination
(minimum age: 10 years [MenB-4C, Bexsero®; MenB-FHbp, Trumenba®; MenACWY-TT/MenB-FHbp, Penbraya™])

Shared clinical decision-making
- **Adolescents not at increased risk** age 16–23 years (preferred age 16–18 years) based on shared clinical decision-making:
  - **Bexsero®:** 2-dose series at least 1 month apart
  - **Trumenba®:** 2-dose series at least 6 months apart (if dose 2 is administered earlier than 6 months, administer a 3rd dose at least 4 months after dose 2)

For additional information on shared clinical decision-making for MenB, see www.cdc.gov/vaccines/hcp/admin/downloads/isd-job-aid-scdm-mening-b-shared-clinical-decision-making.pdf

Special situations
Anatomic or functional asplenia (including sickle cell disease), persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use:
- **Bexsero®:** 2-dose series at least 1 month apart
- **Trumenba®:** 3-dose series at 0, 1–2, 6 months (if dose 2 was administered at least 6 months after dose 1, dose 3 not needed; if dose 3 is administered earlier than 4 months after dose 2, a 4th dose should be administered at least 4 months after dose 3)

Note: Bexsero® and **Trumenba®** are not interchangeable; the same product should be used for all doses in a series.

For MenB **booster dose recommendations** for groups listed under "Special situations" and in an outbreak setting and additional meningococcal vaccination information, see www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm.

Children age 10 years or older may receive a dose of Penbraya™ as an alternative to separate administration of MenACWY and MenB when both vaccines would be given on the same clinic day. For age-eligible children not at increased risk, if Penbraya™ is used for dose 1 MenB, MenB-FHbp (Trumenba) should be administered for dose 2 MenB. For age-eligible children at increased risk of meningococcal disease, Penbraya™ may be used for additional MenACWY and MenB doses (including booster doses) if both would be given on the same clinic day **and** at least 6 months have elapsed since most recent Penbraya™ dose.

Mpox vaccination
(minimum age: 18 years [Jynneos®])

Special situations
- **Age 18 years and at risk for Mpox infection:** 2-dose series, 28 days apart.

Risk factors for Mpox infection include:
- Persons who are gay, bisexual, and other MSM, transgender or nonbinary people who in the past 6 months have had:
  - A new diagnosis of at least 1 sexually transmitted disease
  - More than 1 sex partner
  - Sex at a commercial sex venue
  - Sex in association with a large public event in a geographic area where Mpox transmission is occurring
- Persons who are sexual partners of the persons described above
- Persons who anticipate experiencing any of the situations described above
- **Pregnancy:** There is currently no ACIP recommendation for Jynneos use in pregnancy due to lack of safety data in pregnant persons. Pregnant persons with any risk factor described above may receive Jynneos.

For detailed information, see: www.cdc.gov/vaccines/acip/meetings/downloads/slides-2023-10-25-26/04-MPOX-Rao-508.pdf

Pneumococcal vaccination
(minimum age: 6 weeks [PCV15], [PCV 20]; 2 years [PPSV23])

Routine vaccination with PCV
- 4-dose series at 2, 4, 6, 12–15 months

Catch-up vaccination with PCV
- Healthy children ages 2–4 years with any incomplete* PCV series: 1 dose PCV
- For other catch-up guidance, see Table 2.

Note: For children **without** risk conditions, PCV20 is not indicated if they have received 4 doses of PCV13 or PCV15 or another age appropriate complete PCV series.

53

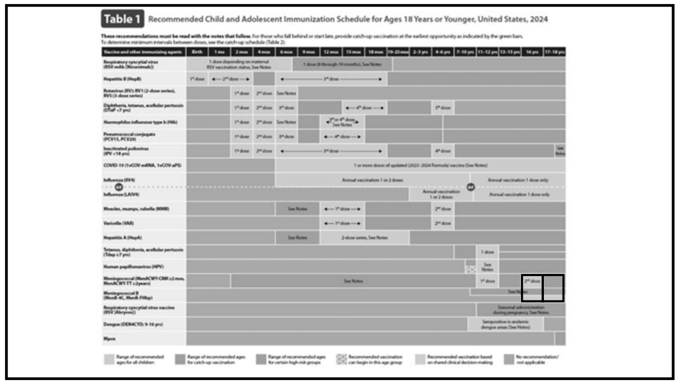


Table 1 Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

These recommendations must be read with the notes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars. To determine minimum intervals between doses, see the catch-up schedule (Table 2).

Age columns: Birth, 1 mo, 2 mos, 4 mos, 6 mos, 9 mos, 12 mos, 15 mos, 18 mos, 19–23 mos, 2–3 yrs, 4–6 yrs, 7–10 yrs, 11–12 yrs, 13–15 yrs, 16 yrs, 17–18 yrs

Vaccine and other immunizing agents	Schedule entries (left to right across age columns)
Respiratory syncytial virus (RSV-mAb [Nirsevimab])	1 dose depending on maternal RSV vaccination status, See Notes; 1 dose (8 through 19 months), See Notes
Hepatitis B (HepB)	1st dose; ←2nd dose→; ←3rd dose→
Rotavirus (RV): RV1 (2-dose series), RV5 (3-dose series)	1st dose; 2nd dose; See Notes
Diphtheria, tetanus, acellular pertussis (DTaP <7 yrs)	1st dose; 2nd dose; 3rd dose; ←4th dose→; 5th dose
Haemophilus influenzae type b (Hib)	1st dose; 2nd dose; See Notes; ←3rd or 4th dose, See Notes→
Pneumococcal conjugate (PCV15, PCV20)	1st dose; 2nd dose; 3rd dose; ←4th dose→
Inactivated poliovirus (IPV <18 yrs)	1st dose; 2nd dose; ←3rd dose→; 4th dose; See Notes
COVID-19 (1vCOV-mRNA, 1vCOV-aPS)	1 or more doses of updated (2023–2024 Formula) vaccine (See Notes)
Influenza (IIV4) or Influenza (LAIV4)	Annual vaccination 1 or 2 doses; Annual vaccination 1 dose only (IIV4). Annual vaccination 1 or 2 doses; Annual vaccination 1 dose only (LAIV4)
Measles, mumps, rubella (MMR)	See Notes; ←1st dose→; 2nd dose
Varicella (VAR)	←1st dose→; 2nd dose
Hepatitis A (HepA)	See Notes; 2-dose series, See Notes
Tetanus, diphtheria, acellular pertussis (Tdap ≥7 yrs)	1 dose
Human papillomavirus (HPV)	See Notes
Meningococcal (MenACWY-CRM ≥2 mos, MenACWY-TT ≥2years)	See Notes; 1st dose; 2nd dose
Meningococcal B (MenB-4C, MenB-FHbp)	See Notes
Respiratory syncytial virus vaccine (RSV [Abrysvo])	Seasonal administration during pregnancy, See Notes
Dengue (DEN4CYD; 9-16 yrs)	Seropositive in endemic dengue areas (See Notes)
Mpox	

Range of recommended ages for all children; Range of recommended ages for catch-up vaccination; Range of recommended ages for certain high-risk groups; Recommended vaccination can begin in this age group; Recommended vaccination based on shared clinical decision-making; No recommendation/not applicable

54

Mpox Vaccine

- An Mpox note was added to provide guidance for use of Jynneos in adolescents age 18 years based on sexual risk factors:
  - Sex partner in the past 2 weeks who was diagnosed with mpox
  - Gay, bisexual, or other man who has sex with men or a transgender, nonbinary, or gender-diverse person who in the past 6 months has had any of the following:
  - New diagnosis of one or more sexually transmitted diseases (e.g., chlamydia, gonorrhea, or syphilis)
  - More than one sex partner

https://www.cdc.gov/poxvirus/mpox/vaccines/vaccine-recommendations.html

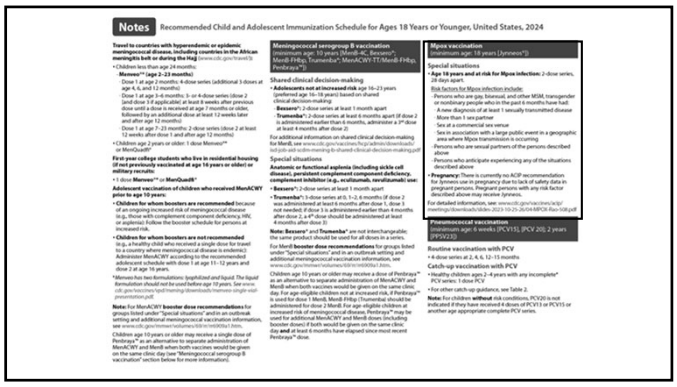
55

Mpox Risk Factors

- Any of the following in the past 6 months:
  - Sex at a commercial sex venue (like a sex club or bathhouse)
  - Sex related to a large commercial event or in a geographic area (city or county for example) where mpox virus transmission is occurring
  - Sex in exchange for money or other items
- Sex partner with any of the above risks
- Anticipate experiencing any of the above scenarios
- HIV or other causes of immune suppression and have had recent or anticipate future risk of mpox exposure from any of the above scenarios
- Work in settings where you may be exposed to mpox:
  - Work with orthopoxviruses in a laboratory

https://www.cdc.gov/poxvirus/mpox/vaccines/vaccine-recommendations.html

56



Notes Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

Travel to countries with hyperendemic or epidemic meningococcal disease, including countries in the African meningitis belt or during the Hajj (www.cdc.gov/travel/)

- Children less than age 24 months:
  - **Menveo**™ **(age 2–23 months)**
    - Dose 1 at age 2 months: 4-dose series (additional 3 doses at age 4, 6, and 12 months)
    - Dose 1 at age 3–6 months: 3- or 4-dose series (dose 2 [and dose 3 if applicable] at least 8 weeks after previous dose until a dose is received at age 7 months or older, followed by an additional dose at least 12 weeks later and after age 12 months)
    - Dose 1 at age 7–23 months: 2-dose series (dose 2 at least 12 weeks after dose 1 and after age 12 months)
- Children age 2 years or older: 1 dose Menveo[**] or MenQuadfi®

First-year college students who live in residential housing (if not previously vaccinated at age 16 years or older) or military recruits:

- 1 dose **Menveo**™ or **MenQuadfi**®

Adolescent vaccination of children who received MenACWY prior to age 10 years:

- **Children for whom boosters are recommended** because of an ongoing increased risk of meningococcal disease (e.g., those with complement component deficiency, HIV, or asplenia): Follow the booster schedule for persons at increased risk.
- **Children for whom boosters are not recommended** (e.g., a healthy child who received a single dose for travel to a country where meningococcal disease is endemic): Administer MenACWY according to the recommended adolescent schedule with dose 1 at age 11–12 years and dose 2 at age 16 years.

*Menveo has two formulations: lyophilized and liquid. The liquid formulation should not be used before age 10 years. See www.cdc.gov/vaccines/vpd/mening/downloads/menveo-single-vial-presentation.pdf.

Note: For MenACWY **booster dose recommendations** for groups listed under "Special situations" and in an outbreak setting and additional meningococcal vaccination information, see www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm.

Children age 10 years or older may receive a single dose of Penbraya™ as an alternative to separate administration of MenACWY and MenB when both vaccines would be given on the same clinic day (see "Meningococcal serogroup B vaccination" section below for more information).

Meningococcal serogroup B vaccination
(minimum age: 10 years [MenB-4C, Bexsero®; MenB-FHBp, Trumenba®; MenACWY-TT/MenB-FHBp, Penbraya™])

Shared clinical decision-making

- **Adolescents not at increased risk** age 16–23 years (preferred age 16–18 years) based on shared clinical decision-making
  - **Bexsero**®: 2-dose series at least 1 month apart
  - **Trumenba**®: 2-dose series at least 6 months apart (if dose 2 is administered earlier than 6 months, administer a 3rd dose at least 4 months after dose 2)

For additional information on shared clinical decision-making for MenB, see www.cdc.gov/vaccines/hcp/admin/downloads/ed-pub-add-vcdm-mening-b-shared-clinical-decision-making.pdf

Special situations

Anatomic or functional asplenia (including sickle cell disease), persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use:

- **Bexsero**®: 2-dose series at least 1 month apart
- **Trumenba**®: 3-dose series at 0, 1–2, 6 months (if dose 2 was administered at least 6 months after dose 1, dose 3 not needed; if dose 3 is administered earlier than 4 months after dose 2, a 4th dose should be administered at least 4 months after dose 3)

Note: Bexsero® and **Trumenba**® are not interchangeable; the same product should be used for all doses in a series.

For MenB **booster dose recommendations** for groups listed under "Special situations" and in an outbreak setting and additional meningococcal vaccination information, see www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm.

Children age 10 years or older may receive a dose of Penbraya™ as an alternative to separate administration of MenACWY and MenB when both vaccines would be given on the same clinic day. For age-eligible children not at increased risk, if Penbraya™ is used for dose 1 MenB, MenB-FHbp (Trumenba) should be administered for dose 2 MenB. For age-eligible children at increased risk of meningococcal disease, Penbraya™ may be used for additional MenACWY and MenB doses (including booster doses) if both would be given on the same clinic day **and** at least 6 months have elapsed since most recent Penbraya™ dose.

Mpox vaccination
(minimum age: 18 years [Jynneos™])

Special situations

- **Age 18 years and at risk for Mpox infection:** 2-dose series, 28 days apart.

Risk factors for Mpox infection include:

- Persons who are gay, bisexual, and other MSM, transgender or nonbinary people who in the past 6 months have had:
  - A new diagnosis of at least 1 sexually transmitted disease
  - More than 1 sex partner
  - Sex at a commercial sex venue
  - Sex in association with a large public event in a geographic area where Mpox transmission is occurring
- Persons who are sexual partners of the persons described above
- Persons who anticipate experiencing any of the situations described above

- **Pregnancy:** There is currently no ACIP recommendation for Jynneos use in pregnancy due to lack of safety data in pregnant persons. Pregnant persons with any risk factor described above may receive Jynneos.

For detailed information, see www.cdc.gov/vaccines/acip/meetings/downloads/slides-2023-10-25-26/04-MPOX-Rao-508.pdf

Pneumococcal vaccination
(minimum age: 6 weeks [PCV15], [PCV 20]; 2 years [PPSV23])

Routine vaccination with PCV

- 4-dose series at 2, 4, 6, 12–15 months

Catch-up vaccination with PCV

- Healthy children ages 2–4 years with any incomplete* PCV series: 1 dose PCV
- For other catch-up guidance, see Table 2.

Note: For children **without** risk conditions, PCV20 is not indicated if they have received 4 doses of PCV13 or PCV15 or another age appropriate complete PCV series.

57

Pneumococcal Vaccine

- **PCV13 has been deleted from all sections**
- The routine vaccination, catch-up vaccination, and "Special situations" sections have been updated with the new recommendations for use of 15-valent pneumococcal conjugate vaccine (PCV15), PCV20, and PPSV23
- Chronic kidney disease, chronic liver disease, and moderate persistent or severe persistent asthma were added to the list of medical conditions that increase the risk for invasive pneumococcal disease

https://www.cdc.gov/vaccines/schedules/hcp/schedule-changes.html

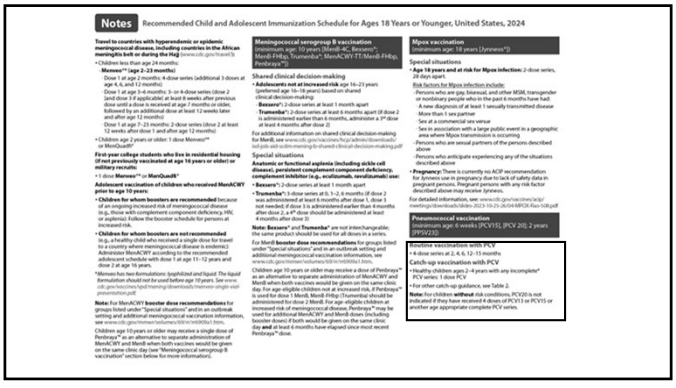
58

Pneumococcal

- **PCV15** or **PCV20** is recommended for children aged 2-23 months
- For children ≥2 years with incomplete PCV vaccination, **PCV15** or **PCV20** is recommended to complete series in:
  - Healthy children up to 59 months
  - Children with risk conditions up to 71 months
- For children aged ≥2 years with any risk condition who have received the following PCVs:
  - ≥1 dose(s) of PCV20: No additional doses of any pneumococcal vaccine
  - PCV13 or PCV15 (but not PCV20): **PCV20** and/or **PPSV23**
- For children aged 6-18 years with any risk condition who have not received any dose of PCV13, PCV15, or PCV20:
  - A single dose of **PCV15** followed by **PPSV23** at least 8 weeks later (if not previously given)
  - A single does of **PCV20**

https://www.cdc.gov/vaccines/vpd/pneumo/index.html

59



Notes Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

Travel to countries with hyperendemic or epidemic meningococcal disease, including countries in the African meningitis belt or during the Hajj (www.cdc.gov/travel/)

- Children less than age 24 months:
  - **Menveo**™ **(age 2–23 months)**
    - Dose 1 at age 2 months: 4-dose series (additional 3 doses at age 4, 6, and 12 months)
    - Dose 1 at age 3–6 months: 3- or 4-dose series (dose 2 [and dose 3 if applicable] at least 8 weeks after previous dose until a dose is received at age 7 months or older, followed by an additional dose at least 12 weeks later and after age 12 months)
    - Dose 1 at age 7–23 months: 2-dose series (dose 2 at least 12 weeks after dose 1 and after age 12 months)
- Children age 2 years or older: 1 dose Menveo[**] or MenQuadfi®

First-year college students who live in residential housing (if not previously vaccinated at age 16 years or older) or military recruits:

- 1 dose **Menveo**™ or **MenQuadfi**®

Adolescent vaccination of children who received MenACWY prior to age 10 years:

- **Children for whom boosters are recommended** because of an ongoing increased risk of meningococcal disease (e.g., those with complement component deficiency, HIV, or asplenia): Follow the booster schedule for persons at increased risk.
- **Children for whom boosters are not recommended** (e.g., a healthy child who received a single dose for travel to a country where meningococcal disease is endemic): Administer MenACWY according to the recommended adolescent schedule with dose 1 at age 11–12 years and dose 2 at age 16 years.

*Menveo has two formulations: lyophilized and liquid. The liquid formulation should not be used before age 10 years. See www.cdc.gov/vaccines/vpd/mening/downloads/menveo-single-vial-presentation.pdf.

Note: For MenACWY **booster dose recommendations** for groups listed under "Special situations" and in an outbreak setting and additional meningococcal vaccination information, see www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm.

Children age 10 years or older may receive a single dose of Penbraya™ as an alternative to separate administration of MenACWY and MenB when both vaccines would be given on the same clinic day (see "Meningococcal serogroup B vaccination" section below for more information).

Meningococcal serogroup B vaccination
(minimum age: 10 years [MenB-4C, Bexsero®; MenB-FHBp, Trumenba®; MenACWY-TT/MenB-FHBp, Penbraya™])

Shared clinical decision-making

- **Adolescents not at increased risk** age 16–23 years (preferred age 16–18 years) based on shared clinical decision-making
  - **Bexsero**®: 2-dose series at least 1 month apart
  - **Trumenba**®: 2-dose series at least 6 months apart (if dose 2 is administered earlier than 6 months, administer a 3rd dose at least 4 months after dose 2)

For additional information on shared clinical decision-making for MenB, see www.cdc.gov/vaccines/hcp/admin/downloads/ed-pub-add-vcdm-mening-b-shared-clinical-decision-making.pdf

Special situations

Anatomic or functional asplenia (including sickle cell disease), persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use:

- **Bexsero**®: 2-dose series at least 1 month apart
- **Trumenba**®: 3-dose series at 0, 1–2, 6 months (if dose 2 was administered at least 6 months after dose 1, dose 3 not needed; if dose 3 is administered earlier than 4 months after dose 2, a 4th dose should be administered at least 4 months after dose 3)

Note: Bexsero® and **Trumenba**® are not interchangeable; the same product should be used for all doses in a series.

For MenB **booster dose recommendations** for groups listed under "Special situations" and in an outbreak setting and additional meningococcal vaccination information, see www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm.

Children age 10 years or older may receive a dose of Penbraya™ as an alternative to separate administration of MenACWY and MenB when both vaccines would be given on the same clinic day. For age-eligible children not at increased risk, if Penbraya™ is used for dose 1 MenB, MenB-FHbp (Trumenba) should be administered for dose 2 MenB. For age-eligible children at increased risk of meningococcal disease, Penbraya™ may be used for additional MenACWY and MenB doses (including booster doses) if both would be given on the same clinic day **and** at least 6 months have elapsed since most recent Penbraya™ dose.

Mpox vaccination
(minimum age: 18 years [Jynneos™])

Special situations

- **Age 18 years and at risk for Mpox infection:** 2-dose series, 28 days apart.

Risk factors for Mpox infection include:

- Persons who are gay, bisexual, and other MSM, transgender or nonbinary people who in the past 6 months have had:
  - A new diagnosis of at least 1 sexually transmitted disease
  - More than 1 sex partner
  - Sex at a commercial sex venue
  - Sex in association with a large public event in a geographic area where Mpox transmission is occurring
- Persons who are sexual partners of the persons described above
- Persons who anticipate experiencing any of the situations described above

- **Pregnancy:** There is currently no ACIP recommendation for Jynneos use in pregnancy due to lack of safety data in pregnant persons. Pregnant persons with any risk factor described above may receive Jynneos.

For detailed information, see www.cdc.gov/vaccines/acip/meetings/downloads/slides-2023-10-25-26/04-MPOX-Rao-508.pdf

Pneumococcal vaccination
(minimum age: 6 weeks [PCV15], [PCV 20]; 2 years [PPSV23])

Routine vaccination with PCV

- 4-dose series at 2, 4, 6, 12–15 months

Catch-up vaccination with PCV

- Healthy children ages 2–4 years with any incomplete* PCV series: 1 dose PCV
- For other catch-up guidance, see Table 2.

Note: For children **without** risk conditions, PCV20 is not indicated if they have received 4 doses of PCV13 or PCV15 or another age appropriate complete PCV series.

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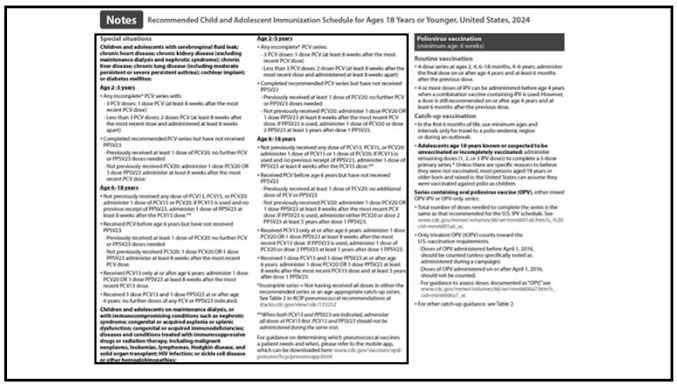


Notes Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

Special situations

Children and adolescents with cerebrospinal fluid leak; chronic heart disease; chronic kidney disease (excluding maintenance dialysis and nephrotic syndrome); chronic liver disease; chronic lung disease (including moderate persistent or severe persistent asthma); cochlear implant; or diabetes mellitus:

Age 2–5 years

- Any incomplete* PCV series with:
  - 3 PCV doses: 1 dose PCV (at least 8 weeks after the most recent PCV dose)
  - Less than 3 PCV doses: 2 doses PCV (at least 8 weeks after the most recent dose and administered at least 8 weeks apart)
- Completed recommended PCV series but have not received PPSV23
  - Previously received at least 1 dose of PCV20: no further PCV or PPSV23 doses needed
  - Not previously received PCV20: administer 1 dose PCV20 OR 1 dose PPSV23 administer at least 8 weeks after the most recent PCV dose.

Age 6–18 years

- Not previously received any dose of PCV13, PCV15, or PCV20: administer 1 dose of PCV15 or PCV20. If PCV15 is used and no previous receipt of PPSV23, administer 1 dose of PPSV23 at least 8 weeks after the PCV15 dose.**
- Received PCV before age 6 years but have not received PPSV23
  - Previously received at least 1 dose of PCV20: no further PCV or PPSV23 doses needed
  - Not previously received PCV20: 1 dose PCV20 OR 1 dose PPSV23 administer at least 8 weeks after the most recent PCV dose.
- Received PCV13 only at or after age 6 years: administer 1 dose PCV20 OR 1 dose PPSV23 at least 8 weeks after the most recent PCV13 dose.
- Received 1 dose PCV13 and 1 dose PPSV23 at or after age 6 years: no further doses of any PCV or PPSV23 indicated.

Children and adolescents on maintenance dialysis, or with immunocompromising conditions such as nephrotic syndrome; congenital or acquired asplenia or splenic dysfunction; congenital or acquired immunodeficiencies; diseases and conditions treated with immunosuppressive drugs or radiation therapy, including malignant neoplasms, leukemias, lymphomas, Hodgkin disease, and solid organ transplant; HIV infection; or sickle cell disease or other hemoglobinopathies:

Age 2–5 years

- Any incomplete* PCV series:
  - 3 PCV doses: 1 dose PCV (at least 8 weeks after the most recent PCV dose)
  - Less than 3 PCV doses: 2 doses PCV (at least 8 weeks after the most recent dose and administered at least 8 weeks apart)
- Completed recommended PCV series but have not received PPSV23
  - Previously received at least 1 dose of PCV20: no further PCV or PPSV23 doses needed
  - Not previously received PCV20: administer 1 dose PCV20 OR 1 dose PPSV23 at least 8 weeks after the most recent PCV dose. If PPSV23 is used, administer 1 dose of PCV20 or dose 2 PPSV23 at least 5 years after dose 1 PPSV23.

Age 6–18 years

- Not previously received any dose of PCV13, PCV15, or PCV20: administer 1 dose of PCV15 or 1 dose of PCV20. If PCV15 is used and no previous receipt of PPSV23, administer 1 dose of PPSV23 at least 8 weeks after the PCV15 dose.**
- Received PCV before age 6 years but have not received PPSV23
  - Previously received at least 1 dose of PCV20: no additional dose of PCV or PPSV23
  - Not previously received PCV20: administer 1 dose PCV20 OR 1 dose PPSV23 at least 8 weeks after the most recent PCV dose. If PPSV23 is used, administer either PCV20 or dose 2 PPSV23 at least 5 years after dose 1 PPSV23.
- Received PCV13 only at or after age 6 years: administer 1 dose PCV20 OR 1 dose PPSV23 at least 8 weeks after the most recent PCV13 dose. If PPSV23 is used, administer 1 dose of PCV20 or dose 2 PPSV23 at least 5 years after dose 1 PPSV23.
- Received 1 dose PCV13 and 1 dose PPSV23 at or after age 6 years: administer 1 dose PCV20 OR 1 dose PPSV23 at least 8 weeks after the most recent PCV13 dose and at least 5 years after dose 1 PPSV23.

*Incomplete series = Not having received all doses in either the recommended series or an age-appropriate catch-up series. See Table 2 in ACIP pneumococcal recommendations at stacks.cdc.gov/view/cdc/133252

**When both *PCV13 and PPSV23 are indicated, administer all doses of PCV13 first. PCV13 and PPSV23 should not be administered during the same visit.*

For guidance on determining which pneumococcal vaccines a patient needs and when, please refer to the mobile app, which can be downloaded here: www.cdc.gov/vaccines/vpd/pneumo/hcp/pneumoapp.html

Poliovirus vaccination (minimum age: 6 weeks)

Routine vaccination

- 4-dose series at ages 2, 4, 6–18 months, 4–6 years; administer the final dose on or after age 4 years and at least 6 months after the previous dose.
- 4 or more doses of IPV can be administered before age 4 years when a combination vaccine containing IPV is used. However, a dose is still recommended on or after age 4 years and at least 6 months after the previous dose.

Catch-up vaccination

- In the first 6 months of life, use minimum ages and intervals only for travel to a polio-endemic region or during an outbreak.
- **Adolescents age 18 years known or suspected to be unvaccinated or incompletely vaccinated:** administer remaining doses (1, 2, or 3 IPV doses) to complete a 3-dose primary series.* Unless there are specific reasons to believe they were not vaccinated, most persons aged 18 years or older born and raised in the United States can assume they were vaccinated against polio as children.

Series containing oral poliovirus vaccine (OPV), either mixed OPV-IPV or OPV-only series:

- Total number of doses needed to complete the series is the same as that recommended for the U.S. IPV schedule. See www.cdc.gov/mmwr/volumes/66/wr/mm6601a6.htm?s_%20cid=mm6601a6_w.
- Only trivalent OPV (tOPV) counts toward the U.S. vaccination requirements.
  - Doses of OPV administered before April 1, 2016, should be counted (unless specifically noted as administered during a campaign).
  - Doses of OPV administered on or after April 1, 2016, should not be counted.
  - For guidance to assess doses documented as "OPV," see www.cdc.gov/mmwr/volumes/66/wr/mm6601a6.htm?s_cid=mm6601a6_w.
- For other catch-up guidance, see Table 2.

61

Polio Vaccine

- The "Catch up" vaccination has been revised to include updated recommendations for adolescents age 18 years
- Recommendations for adolescents age 18 years who are at increased risk for exposure to poliovirus and have completed the primary series have also added
- Adults who received any childhood vaccines in the United States almost certainly were vaccinated for polio

https://www.cdc.gov/vaccines/vpd/polio/hcp/recommendations.html

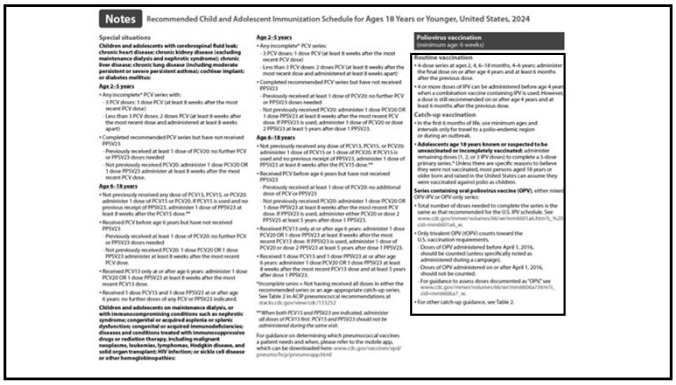
62

Polio Vaccine

- Adults who are known to be unvaccinated or incompletely vaccinated should receive and complete the polio vaccination series with IPV (0, 1 & 6 months).
- Adults who are fully vaccinated but are at increased risk for exposure to poliovirus, including certain international travelers, laboratory workers, and healthcare workers, may receive a single lifetime booster dose of IPV

https://www.cdc.gov/vaccines/vpd/polio/hcp/recommendations.html

63



Notes Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

Special situations

Children and adolescents with cerebrospinal fluid leak; chronic heart disease; chronic kidney disease (excluding maintenance dialysis and nephrotic syndrome); chronic liver disease; chronic lung disease (including moderate persistent or severe persistent asthma); cochlear implant; or diabetes mellitus:

Age 2–5 years

- Any incomplete* PCV series with:
  - 3 PCV doses: 1 dose PCV (at least 8 weeks after the most recent PCV dose)
  - Less than 3 PCV doses: 2 doses PCV (at least 8 weeks after the most recent dose and administered at least 8 weeks apart)
- Completed recommended PCV series but have not received PPSV23
  - Previously received at least 1 dose of PCV20: no further PCV or PPSV23 doses needed
  - Not previously received PCV20: administer 1 dose PCV20 OR 1 dose PPSV23 at least 8 weeks after the most recent PCV dose.

Age 6–18 years

- Not previously received any dose of PCV13, PCV15, or PCV20: administer 1 dose of PCV15 or PCV20. If PCV15 is used and no previous receipt of PPSV23, administer 1 dose of PPSV23 at least 8 weeks after the PCV15 dose.**
- Received PCV before age 6 years but have not received PPSV23
  - Previously received at least 1 dose of PCV20: no further PCV or PPSV23 doses needed
  - Not previously received PCV20: administer 1 dose PCV20 OR 1 dose PPSV23 at least 8 weeks after the most recent PCV dose. If PPSV23 is used, administer either PCV20 or dose 2 PPSV23 at least 5 years after dose 1 PPSV23.
- Received PCV13 only at or after age 6 years: administer 1 dose PCV20 OR 1 dose PPSV23 at least 8 weeks after the most recent PCV13 dose. If PPSV23 is used, administer 1 dose of PCV20 or dose 2 PPSV23 at least 5 years after dose 1 PPSV23.
- Received 1 dose PCV13 and 1 dose PPSV23 at or after age 6 years: administer 1 dose PCV20 OR 1 dose PPSV23 at least 8 weeks after the most recent PCV13 dose and at least 5 years after dose 1 PPSV23.

*Incomplete series = Not having received all doses in either the recommended series or an age-appropriate catch-up series. See Table 2 in ACIP pneumococcal recommendations at stacks.cdc.gov/view/cdc/133252

**When both *PCV13 and PPSV23 are indicated, administer all doses of PCV13 first. PCV13 and PPSV23 should not be administered during the same visit.*

For guidance on determining which pneumococcal vaccines a patient needs and when, please refer to the mobile app, which can be downloaded here: www.cdc.gov/vaccines/vpd/pneumo/hcp/pneumoapp.html

Poliovirus vaccination (minimum age: 6 weeks)

Routine vaccination

- 4-dose series at ages 2, 4, 6–18 months, 4–6 years; administer the final dose on or after age 4 years and at least 6 months after the previous dose.
- 4 or more doses of IPV can be administered before age 4 years when a combination vaccine containing IPV is used. However, a dose is still recommended on or after age 4 years and at least 6 months after the previous dose.

Catch-up vaccination

- In the first 6 months of life, use minimum ages and intervals only for travel to a polio-endemic region or during an outbreak.
- **Adolescents age 18 years known or suspected to be unvaccinated or incompletely vaccinated:** administer remaining doses (1, 2, or 3 IPV doses) to complete a 3-dose primary series.* Unless there are specific reasons to believe they were not vaccinated, most persons aged 18 years or older born and raised in the United States can assume they were vaccinated against polio as children.

Series containing oral poliovirus vaccine (OPV), either mixed OPV-IPV or OPV-only series:

- Total number of doses needed to complete the series is the same as that recommended for the U.S. IPV schedule. See www.cdc.gov/mmwr/volumes/66/wr/mm6601a6.htm?s_%20cid=mm6601a6_w.
- Only trivalent OPV (tOPV) counts toward the U.S. vaccination requirements.
  - Doses of OPV administered before April 1, 2016, should be counted (unless specifically noted as administered during a campaign).
  - Doses of OPV administered on or after April 1, 2016, should not be counted.
  - For guidance to assess doses documented as "OPV," see www.cdc.gov/mmwr/volumes/66/wr/mm6601a6.htm?s_cid=mm6601a6_w.
- For other catch-up guidance, see Table 2.

64

Respiratory Syncytial Virus

- A note was added to provide details on the use of nirsevimab in infants and young children

https://www.cdc.gov/vaccines/schedules/hcp/schedule-changes.html

65

RSV Routine Administration

- Routine immunization-Infants born **October – March** in most of the continental United States*
- **Mother did not receive RSV vaccine** OR **mother's RSV vaccination status is unknown**: administer 1 dose nirsevimab within 1 week of birth in hospital or outpatient setting
- **Mother received RSV vaccine less than 14 days prior to delivery**: administer 1 dose nirsevimab within 1 week of birth in hospital or outpatient setting
- **Mother received RSV vaccine at least 14 days prior to delivery**: nirsevimab not needed but can be considered in rare circumstances at the discretion of healthcare providers (see special populations and situations at www.cdc.gov/vaccines/vpd/rsv/hcp/child-faqs.html)

66

RSV Routine Administration

- Infants born **April–September** in most of the continental United States*
- **Mother did not receive RSV vaccine** OR **mother's RSV vaccination status is unknown**: Administer 1 dose nirsevimab shortly before start of RSV season*
- **Mother received RSV vaccine less than 14 days prior to delivery**: administer 1 dose nirsevimab shortly before start of RSV season*
- **Mother received RSV vaccine at least 14 days prior to delivery**: nirsevimab not needed but can be considered in rare circumstances at the discretion of healthcare providers(see special populations and situations at www.cdc.gov/vaccines/vpd/rsv/hcp/child-faqs.html)

67

Respiratory Syncytial Virus

- Information describing timing of immunization including guidance for jurisdictions with RSV seasonality that differs from most of the continental United States was added
- Providers in jurisdictions with RSV seasonality that differs from most of the continental United States (e.g., Alaska, jurisdiction with tropical climate) should follow guidance from public health authorities (e.g., CDC, health departments) or regional medical centers on timing of administration based on local RSV seasonality
- Although optimal timing of administration is just before the start of the RSV season, nirsevimab may also be administered during the RSV season to infants and children who are age-eligible

https://www.cdc.gov/vaccines/vpd/rsv/index.html

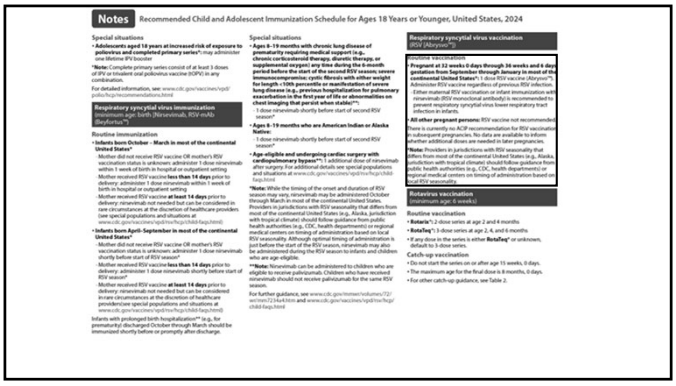
68

Respiratory Syncytial Virus Vaccination

- A note was added to provide details on the use of RSV vaccine during pregnancy
- **Abrysvo** is the only RSV recommended for use during pregnancy
- Information describing timing of vaccination including guidance for jurisdictions with RSV seasonality that differs from most of the continental United States has also been included
  - Follow guidance from public health authorities (e.g., CDC, health departments) or regional medical centers on timing of administration based on local RSV seasonality

https://www.cdc.gov/vaccines/vpd/rsv/index.html

69



Notes Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

Special situations

- **Adolescents aged 18 years at increased risk of exposure to poliovirus and completed primary series*** may administer one lifetime IPV booster

***Note:** Complete primary series consist of at least 3 doses of IPV or trivalent oral poliovirus vaccine (tOPV) in any combination.

For detailed information, see: www.cdc.gov/vaccines/vpd/policy/hcp/recommendations.html

Respiratory syncytial virus immunization (minimum age: birth [Nirsevimab, RSV-mAb] [Beyfortus™])

Routine immunization

- **Infants born October – March in most of the continental United States***
  - Mother did not receive RSV vaccine OR mother's RSV vaccination status is unknown: administer 1 dose nirsevimab within 1 week of birth in hospital or outpatient setting
  - Mother received RSV vaccine **less than 14 days** prior to delivery: administer 1 dose nirsevimab within 1 week of birth in hospital or outpatient setting
  - Mother received RSV vaccine **at least 14 days** prior to delivery: nirsevimab not needed but can be considered in rare circumstances at the discretion of healthcare providers (see special populations and situations at www.cdc.gov/vaccines/vpd/mvc/hcp/child-faqs.html)
- **Infants born April–September in most of the continental United States***
  - Mother did not receive RSV vaccine OR mother's RSV vaccination status is unknown: administer 1 dose nirsevimab shortly before start of RSV season*
  - Mother received RSV vaccine **less than 14 days** prior to delivery: administer 1 dose nirsevimab shortly before start of RSV season*
  - Mother received RSV vaccine **at least 14 days** prior to delivery: nirsevimab not needed but can be considered in rare circumstances at the discretion of healthcare providers(see special populations and situations at www.cdc.gov/vaccines/vpd/mvc/hcp/child-faqs.html)

Infants with prolonged birth hospitalization** (e.g., for prematurity) discharged October through March should be immunized shortly before or promptly after discharge.

Special situations

- **Ages 8–19 months with chronic lung disease of prematurity requiring medical support (e.g., chronic corticosteroid therapy, diuretic therapy, or supplemental oxygen) during the 6-month period before the start of the second RSV season; severe immunocompromise; cystic fibrosis with either weight for length <10th percentile or manifestation of severe lung disease (e.g., previous hospitalization for pulmonary exacerbation in the first year of life or abnormalities on chest imaging that persist when stable)**:**
  - 1 dose nirsevimab shortly before start of second RSV season*
- **Ages 8–19 months who are American Indian or Alaska Native:**
  - 1 dose nirsevimab shortly before start of second RSV season*
- **Age-eligible and undergoing cardiac surgery with cardiopulmonary bypass**:** 1 additional dose of nirsevimab after surgery. For additional details see special populations and situations at www.cdc.gov/vaccines/vpd/mvc/hcp/child-faqs.html

***Note:** While the timing of the onset and duration of RSV season may vary, nirsevimab may be administered October through March in most of the continental United States. Providers in jurisdictions with RSV seasonality that differs from most of the continental United States (e.g., Alaska, jurisdiction with tropical climate) should follow guidance from public health authorities (e.g., CDC, health department(s) or regional medical centers on timing of administration based on local RSV seasonality. Although optimal timing of administration is just before the start of the RSV season, nirsevimab may also be administered during the RSV season to infants and children who are age-eligible.

****Note:** Nirsevimab can be administered to children who are eligible to receive palivizumab. Children who have received nirsevimab should not receive palivizumab for the same RSV season.

For further guidance, see www.cdc.gov/mmwr/volumes/72/wr/mm7234a4.htm and www.cdc.gov/vaccines/vpd/mvc/hcp/child-faqs.html

Respiratory syncytial virus vaccination (RSV [Abrysvo™])

Routine vaccination

- **Pregnant at 32 weeks 0 days through 36 weeks and 6 days (solution from September through January in most of the continental United States*):** 1 dose RSV vaccine (Abrysvo™). Administer RSV vaccine regardless of previous RSV infection.
  - Either maternal RSV vaccination or infant immunization with nirsevimab (RSV monoclonal antibody) is recommended to prevent respiratory syncytial virus lower respiratory tract infection in infants.
- **All other pregnant persons:** RSV vaccine not recommended

There is currently no ACIP recommendation for RSV vaccination during subsequent pregnancies. No data are available to inform whether additional pregnancies are safe or beneficial.

***Note:** Providers in jurisdictions with RSV seasonality that differs from most of the continental United States (e.g., Alaska, jurisdiction with tropical climate) should follow guidance from public health authorities (e.g., CDC, health department(s) or regional medical centers on timing of administration based on local RSV seasonality.

Rotavirus vaccination (minimum age: 6 weeks)

Routine vaccination

- **RotaTeq®:** 3-dose series at age 2, 4, and 6 months
- **Rotarix®:** 2-dose series at age 2 and 4 months
- If any dose in the series is either **RotaTeq®** or unknown, default to 3-dose series.

Catch-up vaccination

- Do not start the series on or after age 15 weeks, 0 days.
- The maximum age for the final dose is 8 months, 0 days.
- For other catch-up guidance, see Table 2.

70

71

Result Analysis — Internal

Association between RSV and wheezing

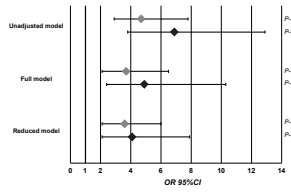
Odds of wheezing in children in RSV and severe RSV groups (US)

*In reduced models on US children, the odds of wheezing were **3.1 times higher in the RSV group** and **4.1 times higher in the severe RSV group** compared to the Reference group. Statistical power was insufficient to conduct these analyses on the PICU RSV group.*

Overall, these results suggest that RSV infection may be associated with wheezing in this cohort of US children.

Sample size: 300 children including 150 in the Reference group, 150 in the RSV group, and 81 in the Severe RSV group

Associations between RSV infection and wheezing compared to Reference group



Variables included in full (F) and reduced (R) models	RSV group	Severe RSV group
Children's age	F	
Parent's age at childbirth		F
Month of birth	F	
Children's chronic diseases	F, R	F, R
Mother's chronic diseases	F, R	F, R
Gestational age at birth	F	F
Sex at birth		F
Breastfeeding duration	F	
Pets at home		
Contact with siblings	F	F
Smoking household		
Collective day-care		F

Q20. *Has your child ever had wheezing or whistling in the chest at any time in the past? (single choice)*

carenity

72

Tdap Vaccination

- The Tdap note was revised to clarify that the Tdap dose recommended at age 11–12 years is the adolescent Tdap booster dose

https://www.cdc.gov/vaccines/schedules/hcp/schedule-changes.html

73

Notes Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

Tetanus, diphtheria, and pertussis (Tdap) vaccination
(minimum age: 11 years for routine vaccination, 7 years for catch-up vaccination)

Routine vaccination
- **Age 11–12 years:** 1 dose Tdap (adolescent booster)
- **Pregnancy:** 1 dose Tdap during each pregnancy, preferably in early part of gestational weeks 27–36.

Note: Tdap may be administered regardless of the interval since the last tetanus- and diphtheria-toxoid-containing vaccine.

Catch-up vaccination
- **Age 13–18 years who have not received Tdap:** 1 dose Tdap (adolescent booster)
- **Age 7–18 years not fully vaccinated* with DTaP:** 1 dose Tdap as part of the catch-up series (preferably the first dose); if additional doses are needed, use Td or Tdap.
- **Tdap administered at age 7–10 years:**
  - **Age 7–9 years** who receive Tdap should receive the adolescent Tdap booster dose at age 11–12 years.
  - **Age 10 years** who receive Tdap do not need the adolescent Tdap booster dose at age 11–12 years.
- **DTaP inadvertently administered on or after age 7 years:**
  - **Age 7–9 years:** DTaP may count as part of catch-up series. Administer adolescent Tdap booster dose at age 11–12 years.
  - **Age 10–18 years:** Count dose of DTaP as the adolescent Tdap booster dose.
- For other catch-up guidance, see Table 2.

Special situations
- **Wound management** in persons age 7 years or older with history of 3 or more doses of tetanus-toxoid-containing vaccine: For clean and minor wounds, administer Tdap or Td if more than 10 years since last dose of tetanus-toxoid-containing vaccine; for all other wounds, administer Tdap or Td if more than 5 years since last dose of tetanus-toxoid-containing vaccine. Tdap is preferred for persons age 11 years or older who have not previously received Tdap or whose Tdap history is unknown. If a tetanus-toxoid-containing vaccine is indicated for a pregnant adolescent, use Tdap.
- For detailed information, see www.cdc.gov/mmwr/volumes/69/wr/mm6903a5.htm.

*Fully vaccinated = 5 valid doses of DTaP OR 4 valid doses of DTaP if dose 4 was administered at age 4 years or older

Varicella vaccination
(minimum age: 12 months)

Routine vaccination
- 2-dose series at age 12–15 months, 4–6 years
- VAR or MMRV may be administered*
- Dose 2 may be administered as early as 3 months after dose 1 (a dose inadvertently administered after at least 4 weeks may be counted as valid)

***Note:** For dose 1 in children age 12–47 months, it is recommended to administer MMR and varicella vaccines separately. MMRV may be used if parents or caregivers express a preference.

Catch-up vaccination
- Ensure persons age 7–18 years without evidence of immunity (see *MMWR* at www.cdc.gov/mmwr/pdf/rr/rr5604.pdf) have a 2-dose series:
  - **Age 7–12 years:** Routine interval: 3 months (a dose inadvertently administered after at least 4 weeks may be counted as valid)
  - **Age 13 years and older:** Routine interval: 4–8 weeks (minimum interval: 4 weeks)
  - The maximum age for use of MMRV is 12 years.

11/16/2023 Centers for Disease Control and Prevention | Recommended Child and Adolescent Immunization Schedule, United States, 2024

74

Appendix

- COVID-19 row: added new rows describing the contraindications and precautions to mRNA and protein subunit COVID-19 vaccination
- DTaP and DT row: deleted DT because this vaccine is no longer distributed in the United States.
- Hib row: removed history of severe allergic reaction to dry natural latex from the "Contraindicated or Not Recommended" column
- Meningococcal ACWY row: Menactra has been removed because this product is no longer distributed in the United States

https://www.cdc.gov/vaccines/schedules/hcp/schedule-changes.html

75

Appendix Recommended Child and Adolescent Immunization Schedule for Ages 18 Years or Younger, United States, 2024

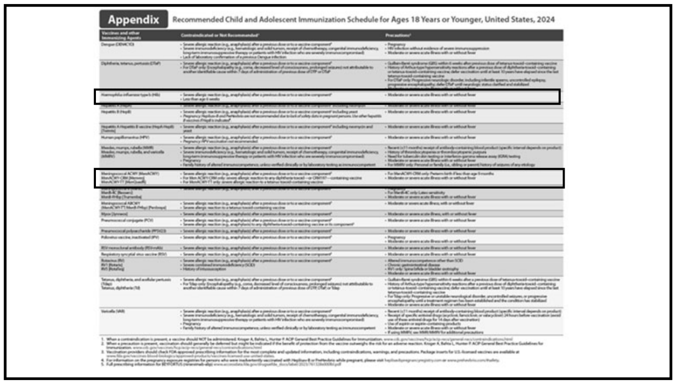
Guide to Contraindications and Precautions to Commonly Used Vaccines

Adapted from Table 4-1 in Advisory Committee on Immunization Practices (ACIP) General Best Practice Guidelines for Immunization: Contraindication and Precautions, Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices—United States, 2023–24 Influenza Season | MMWR (cdc.gov), Contraindications and Precautions for COVID-19 Vaccination, **and** Contraindications and Precautions for JYNNEOS Vaccination

Vaccines and other Immunizing Agents	Contraindicated or Not Recommended[1]	Precautions[2]
COVID-19 mRNA vaccines [Pfizer-BioNTech, Moderna]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a component of an mRNA COVID-19 vaccine[4]	• Diagnosed non-severe allergy (e.g., urticaria beyond the injection site) to a component of an mRNA COVID-19 vaccine[4]; or non-severe, immediate (onset less than 4 hours) allergic reaction after administration of a previous dose of an mRNA COVID-19 vaccine • Myocarditis or pericarditis within 3 weeks after a dose of any COVID-19 vaccine • Multisystem inflammatory syndrome in children (MIS-C) or multisystem inflammatory syndrome in adults (MIS-A) • Moderate or severe acute illness, with or without fever
COVID-19 protein subunit vaccine [Novavax]	• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a component of a Novavax COVID-19 vaccine[4]	• Diagnosed non-severe allergy (e.g., urticaria beyond the injection site) to a component of Novavax COVID-19 vaccine[4]; or non-severe, immediate (onset less than 4 hours) allergic reaction after administration of a previous dose of a Novavax COVID-19 vaccine • Myocarditis or pericarditis within 3 weeks after a dose of any COVID-19 vaccine • Multisystem inflammatory syndrome in children (MIS-C) or multisystem inflammatory syndrome in adults (MIS-A) • Moderate or severe acute illness, with or without fever
Influenza, egg-based, inactivated injectable (IIV4)	• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IIV, ccIIV, RIV, or LAIV of any valency) • Severe allergic reaction (e.g., anaphylaxis) to any vaccine component[3] (excluding egg)	• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Moderate or severe acute illness with or without fever
Influenza, cell culture-based inactivated injectable (ccIIV4) [Flucelvax Quadrivalent]	• Severe allergic reaction (e.g., anaphylaxis) to any ccIIV of any valency, or to any component[3] of ccIIV4	• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any egg-based IIV, RIV, or LAIV of any valency. If using ccIIV4, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions. May consult an allergist. • Moderate or severe acute illness with or without fever
Influenza, recombinant injectable (RIV4) [Flublok Quadrivalent]	• Severe allergic reaction (e.g., anaphylaxis) to any RIV of any valency, or to any component[3] of RIV4	• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any egg-based IIV, ccIIV, or LAIV of any valency. If using RIV4, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions. May consult an allergist. • Moderate or severe acute illness with or without fever
Influenza, live attenuated (LAIV4) [Flumist Quadrivalent]	• Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IIV, ccIIV, RIV, or LAIV of any valency) • Severe allergic reaction (e.g., anaphylaxis) to any vaccine component[3] (excluding egg) • Children age 2–4 years with a history of asthma or wheezing • Anatomic or functional asplenia • Immunocompromised due to any cause including, but not limited to, medications and HIV infection • Close contacts or caregivers of severely immunosuppressed persons who require a protected environment • Pregnancy • Cochlear implant • Active communication between the cerebrospinal fluid (CSF) and the oropharynx, nasopharynx, nose, ear or any other cranial CSF leak • Children and adolescents receiving aspirin or salicylate-containing medications • Received influenza antiviral medications oseltamivir or zanamivir within the previous 48 hours, peramivir within the previous 5 days, or baloxavir within the previous 17 days	• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Asthma in persons age 5 years old or older • Persons with underlying medical conditions other than those listed under contraindications that might predispose to complications after wild-type influenza virus infection, e.g., chronic pulmonary, cardiovascular (except isolated hypertension), renal, hepatic, neurologic, hematologic, or metabolic disorders (including diabetes mellitus) • Moderate or severe acute illness with or without fever

1. When a contraindication is present, a vaccine should **NOT** be administered. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization.
2. When a precaution is present, vaccination should generally be deferred but might be indicated if the benefit of protection from the vaccine outweighs the risk for an adverse reaction. Kroger A, Bahta L, Hunter P. ACIP General Best Practice Guidelines for Immunization.
3. Vaccination providers should check FDA-approved prescribing information for the most complete and updated information, including contraindications, warnings, and precautions. See Package inserts for U.S.-licensed vaccines.
4. See package inserts and FDA EUA fact sheets for a full list of vaccine ingredients. mRNA COVID-19 vaccines contain polyethylene glycol (PEG).

76



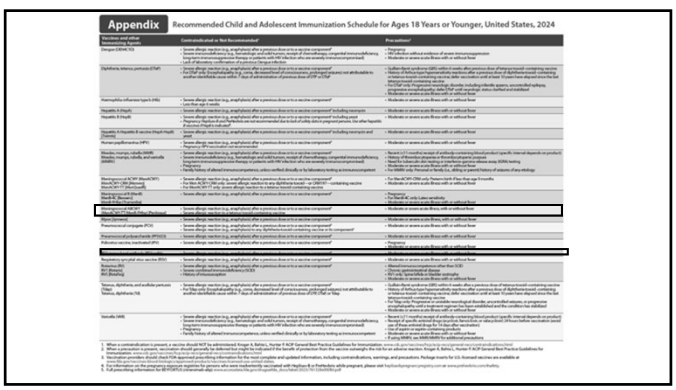
77

Appendix

- Meningococcal ABCWY row: added a new row describing the contraindications and precautions to MenABCWY vaccination
- RSV-mAb (nirsevimab) row: added a new row describing the contraindications and precautions to nirsevimab immunization.
- RSV row: added a new row describing the contraindications and precautions to RSV vaccination

https://www.cdc.gov/vaccines/schedules/hcp/schedule-changes.html

78



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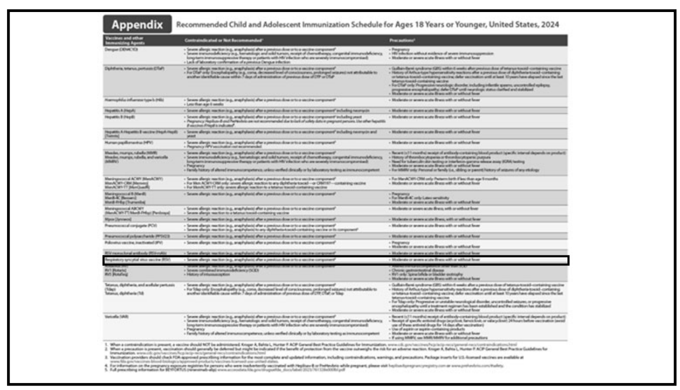


80

Table 3 New Legend Definitions

81

Vaccines Available Worldwide

- Cholera vaccine (Vaxchora™)
  - Aged 2–64 who are traveling to an area of active cholera transmission
  - Reduces the chance of moderate and severe diarrhea in people by 90% at 10 days after vaccination and by 80% at 3 months after vaccination
  - Unknown how long protection lasts beyond 3–6 months after vaccination
- Malaria vaccine (Mosquiris™) *'Best thing since bed nets' WHO*
  - 4 doses from around 5 months of age
  - children aged 5–17 months who received 4 doses of RTS,S/AS01, vaccine efficacy against malaria was 36% over 4 years of follow-up

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7227679/

https://www.who.int/news-room/questions-and-answers/item/q-a-on-rts-s-malaria-vaccine#:~:text=Malaria%20vaccines%20should%20be%20provided,age%20based%20on%20operational%20considerations.

https://www.cdc.gov/cholera/vaccines.html

82

Vaccines Available Worldwide

- Ebola Vaccine (ERVEBO™)
  - Age 12 months and older as a single dose administration
  - 97.5% effective at stopping EBOV transmission compared to no vaccination
- Dengue Vaccine
  - Age 9 through 16 years who have a previous history of laboratory-confirmed dengue infection
  - **Only children with laboratory-confirmed evidence of previous dengue infection should be vaccinated**

https://www.cdc.gov/vaccines/vpd/dengue/public/index.html#:~:text=The%20dengue%20vaccine%20is%20approved,dengue%20infection%20should%20be%20vaccinated.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8659338/#ppat.1010078.ref004

https://www.cdc.gov/vhf/ebola/clinicians/vaccine/index.html

83

Vaccines in Development

- Nipah Vaccine
  - UK trial is first step to developing a vaccine against Nipah virus – a devastating disease mostly found in South-East Asia – that can be fatal in up to 75% of cases
- HIV Vaccine
  - First trial using the germline targeting approach was successful in phase 1 clinical trials

https://www.iavi.org/our-work/hiv-vaccines/

https://www.ox.ac.uk/news/2024-01-11-first-human-vaccine-trial-deadly-nipah-virus-launched

84

Case Study

A 6 year old comes in for catch-up DTaP vaccine. They has only had 2 doses but now the mom tells you the child had encephalopathy following the first dose of DTaP. What do you do?

A. Give DTaP

B. Give Tdap

C. Give nothing

D. Give Td

Answer D

85

ACIP Updates February 28-29, 2024

- Recommendations for an additional dose of the current COVID-19 vaccine in people age 65 years and older
  - 3 month interval since last does
- Use of chikungunya vaccine in certain travelers and laboratory workers
  - Age 18 years and older traveling to a country or territory where there is a chikungunya outbreak
- Approval for off-label use of Td (tetanus-diphtheria) vaccine in VFC-eligible children younger than age 7 years with a contraindication to pertussis vaccination
  - Allowing off-label use of Td (tetanus-reduced diphtheria) vaccine (licensed for age 7 years and older), following the same schedule that would be used for DTaP in this age group

https://www.cdc.gov/vaccines/acip/meetings/slides-2024-02-28-29.html

86

Challenges to Global Vaccine Coverage

- **According to the World Health Organization, global vaccine coverage dropped from 86% in 2019 to 81% in 2021 (the lowest since 2009).[1]**
- **During the pandemic, 67 million children missed out on routine immunizations.[2]**
- **In 2022, coverage rose to 84%,[1] but progress is uneven—14.3 million children did not receive any vaccines.[3]**

87

The Solution? Access

Vaccines are one of the most cost-effective ways to save the lives of children.

Vaccines currently help save a child's life every 8 seconds.[5]

88

voices for vaccines

Introducing VFV

89

What is VFV?

Voices for Vaccines is a family-led organization that serves as a catalyst to spark positive peer-to-peer conversations about vaccines and the diseases they prevent by:

- supporting communities, building networks, and developing fact-based content
- enabling parents to make healthy and informed decisions about vaccinations for their children and communities

90

What we do:

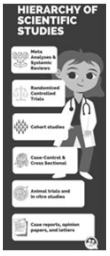
We bring families into the work of immunization access and advocacy through:

- Statewide immunization coalitions
- Family networks to train in advocacy and access work
- Online resources for families

91

Family Training

- Vaccines 101 online course
- Vax Ambassador monthly meetings



92

Vax Talk outreach

Monthly podcast

- Up to 20,000 downloads per month
- Co-hosted with pediatrician Dr. Nathan Boonstra
- Features the best public health guests (including Chelsea Clinton!)

93

Immunization Action Coalition Has Rebranded!!

We are now Immunize.org

94

Vision

Immunize.org, like IAC, remains dedicated to eliminating vaccine-preventable diseases through optimal vaccination across the lifespan.

95

Core activities focus:

- Websites (Immunize.org, vaccineinformation.org)
- E-newsletters (*IZ Express*) and Social Media
- Educational resources (PDFs, Ask the Experts)
- Policy advocacy (patient/provider barriers)
- Coalitions/National Adult and Influenza Immunization Summit (NAIIS, the Summit)

96

Immunize.org has been overhauled!

- Continued access to:
  - Curated links to the latest clinical resources
  - Vaccination guidance from CDC, FDA, and major professional organizations
  - Vaccine Information Statement (VIS) translations in numerous languages
  - More than 1,000 Ask the Experts answers to clinical questions about vaccines
  - Access to bookmarks—all of their links remain the same
- New features!
  - A homepage navigation guide to introduce visitors to new search options
  - New mobile responsive design: comfortable viewing and navigation from smartphones
  - Enhanced search tools: use built-in filters or enter keywords and phrases to narrow searches
  - Featured resources showcased at a glance on the home page
  - A streamlined subscription process for the weekly email newsletter, IZ Express

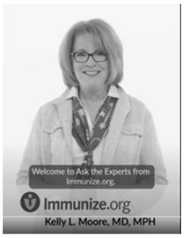
Immunize.org

97

97

Communications

- *IZ Express* (~55,000 subscribers)
  - New look/name January 2022
  - **>30%** open rate 2022 YTD (18% in 2021, industry standard 22%)
- *Network News* (~600 subscribers)
  - Coalition-focused monthly newsletter
- Ask the Experts
  - Moving into social media
  - Video answers



Immunize.org

98

98

Some of Immunize.org's Resources

- **Stay ahead of the game**! Subscribe to our updates! - http://www.immunize.org/subscribe/
- **IZ Express** – weekly update on all IZ issues, with ~55,000 opt-in subscribers - https://www.immunize.org/express/
- **Ask The Experts** - Experts Answer Questions About Vaccines - https://www.immunize.org/askexperts/
- Comprehensive databank of **Clinical resources and Handouts for Providers, Patients & Staff** - https://www.immunize.org/handouts/
- **Vaccine Information Statements** – translated in more than 20 different languages - https://www.immunize.org/vis/
- **Standing Orders** Templates for Administering Vaccines for all routinely ACIP-recommended vaccines - https://www.immunize.org/standing-orders/

Immunize.org

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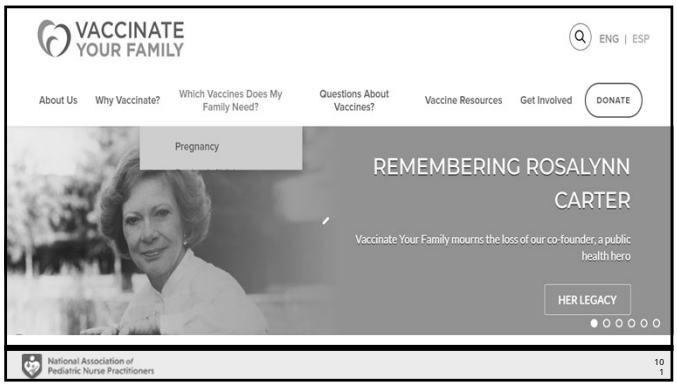
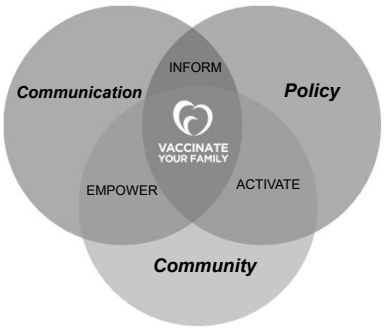


101

Vaccinate Your Family is at the Center of the Vaccine Ecosystem



102

Advocacy & Outreach Activities

- Peer-led support group
- SQUAD ™ leadership committee
- Personal stories gallery on VYF website
- Patient video testimonials
- Speaking engagements at NCICP, VCN, etc.
- Policymaker meetings
- Remembrance events
- Satellite media tour, radio public service announcements
- Op-Eds

SQUAD™ SQuaring Up Against Disease

We share personal stories along with evidence-based information to help empower people to make informed decisions about their health.

"When I decided to speak out about my story and the importance of vaccination, I had no idea how to start. Connecting to Vaccinate Your Family provided me with the tools to reach a broader audience and helped to get me in front of the right people. Having their team as a resource and partner has been invaluable."

- Maria Young, COVID survivor

103

Federal Policy – State of the ImmUnion

Each year, VYF publishes its *State of the ImmUnion* report, outlining:

HOW we're doing in terms of vaccinating key U.S. populations.

WHO isn't getting vaccinated and why

WHAT Congress should do to address disparities and barriers to vaccination

WHERE resources should be directed to improve and protect vaccination rates

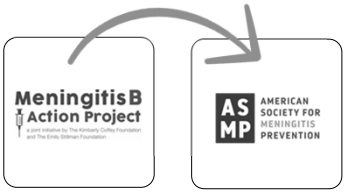
104

105

106

Meet the American Society for Meningitis Prevention

Formerly the Meningitis B Action Project



107

MENINGITIS PREVENTION CAN BE COMPLICATED.

MP PREVENTION

The American Society for Meningitis Prevention (ASMP) can help. ASMP works to empower all people to take action to prevent meningococcal meningitis. Their work includes:

1. Patient and parent education. Educate adolescents, young adults, and their parents about how to prevent meningitis.
2. Healthcare provider education. Mobilize providers to prioritize comprehensive meningitis prevention.
3. Policy advancement. Achieve comprehensive national, state, and school meningitis prevention policies.
4. Vaccination equity. Improve equitable access to meningitis prevention.
5. Advocacy training. Catalyze a national network of meningitis advocates.

Learn more about their work and how to get involved at meningitisprevention.org.

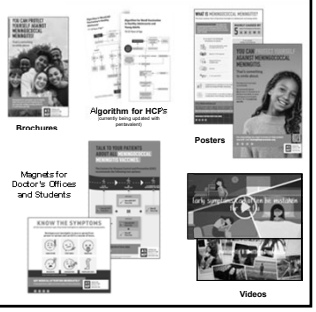
108

How Can ASMP Help You?

ASMP can help you ensure no other life is unnecessarily lost to meningococcal meningitis.

- **Educational resources** for healthcare professionals, patients and their parents
- **Availability for speaking engagements** including webinars and grand rounds
- **Educational videos** for waiting rooms

info@meningitisprevention.org



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110

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111