IMPORTANT REMINDER: All providers must revalidate the Medical Assistance (MA) enrollment of each service location every 5 years. Providers should log into PROMISe to check the revalidation dates of each service location and submit revalidation applications at least 60 days prior to the revalidation dates. Enrollment (revalidation) applications may be found at: https://www.dhs.pa.gov/providers/Providers/Pages/PROMISe-Enrollment.aspx.

PURPOSE:

The purpose of this bulletin is to issue the Department of Human Services' (Department's) 2022 Immunization Schedule for Medical Assistance (MA) beneficiaries ages 18 years or younger.


SCOPE:

This bulletin applies to all providers enrolled in the MA Program who administer immunizations and provide services in the Fee-for-Service and managed care delivery systems.

BACKGROUND/DISCUSSION:

As stated in 55 Pa. Code § 1241.42(2), the Department of Human Services (Department) is authorized to issue immunization guidelines based on recommendations of recognized medical organizations involved in children’s health care. To ensure that children and adolescents enrolled in MA receive immunizations that conform to nationally recognized standards, the Department is updating its immunization guidelines to conform to the U.S. Department of Health and Human Services’ Centers for Disease Control and Prevention’s

COMMENTS AND QUESTIONS REGARDING THIS BULLETIN SHOULD BE DIRECTED TO:

The appropriate toll-free number for your provider type.

Visit the Office of Medical Assistance Programs website at https://www.dhs.pa.gov/providers/Providers/Pages/Health%20Care%20for%20Providers/Contact-Information-for-Providers.aspx.
Providers are to follow the attached 2022 Immunization Schedule, which is comprised of three tables and a series of related notes. The three tables are as follows:

- Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2022 (Table 1);
- Recommended Catch-up Immunization Schedule for Children and Adolescents Who Start Late or Who Are More than 1 month Behind, United States, 2022 (Table 2); and
- Recommended Child and Adolescent Immunization Schedule by Medical Indication, United States, 2022 (Table 3).

The 2022 Immunization Schedule includes new or updated Advisory Committee on Immunization Practices (ACIP) recommendations for influenza vaccine, dengue vaccine, and COVID-19 vaccine. See Morbidity and Mortality Weekly Report Volume 71, February 18, 2022, which can be found at: https://www.cdc.gov/mmwr/volumes/71/wr/pdfs/mm7107a2-H.pdf. The 2022 Immunization Schedule and ACIP guidance also includes clarification of the recommendations for Haemophilus influenzae type b vaccine (Hib); hepatitis A vaccine (HepA); hepatitis B vaccine (HepB); human papillomavirus vaccine (HPV); measles, mumps, and rubella vaccine (MMR); meningococcal serogroups A, C, W, Y vaccine (MenACWY); tetanus, diphtheria, and pertussis vaccine (Tdap); and varicella vaccine (VAR).

As explained in the Morbidity and Mortality Weekly Report Volume 71, February 18, 2022, the 2022 Immunization Schedule includes a newly created appendix that lists the contraindications and precautions for all vaccine types in the schedule. Additional changes are found throughout the immunization schedule, including the cover page, routine immunization schedule (Table 1), catch-up schedule (Table 2), medical indications for each vaccine (Table 3), the vaccine notes, and the appendix. The changes identified by ACIP are set forth below:

**Cover Page**

- Dengue vaccine (DENGVAXIA) has been added to the table of vaccine abbreviations and trade names.
- Instructions on how to use the child and adolescent immunization schedule have been updated to include a fifth step asking health care providers to review the appendix, which lists the contraindications and precautions for each vaccine type.
- Instructions on how health care providers can contact CDC with questions and comments about the schedule have been added.
- The section on helpful information was updated to include information on accessing Vaccine Information Statements.
- A QR code directing providers to the immunization schedule website has been added.
• **Table 1 (Routine Immunization Schedule)**
  - The color of the columns for children aged 4–6 years, children aged 11–12 years, and adolescents aged 16 years has been changed from gray to black to align with the color of the other age range columns. The sentence in the table header stating “School entry and adolescent vaccine age groups are shaded in gray” has been deleted.
  - **Tdap row**: The overlying text in the column for children aged 11–12 years has been changed from “Tdap” to “1 dose” to be consistent with the format used for other vaccines in the table.
  - **HPV row**: The asterisk that was previously present for children aged 9–10 years and its associated descriptive text in the table legend (i.e., “*can be used in this age group”) have been deleted. Instead, the color for children aged 9–10 years has been changed from blue to checked yellow, which is a new color in Table 1. Within the table’s legend, a new checked yellow box has been added, which now indicates that “Recommended vaccination can begin in this age group.”
  - **Dengue row**: A new row has been added with the boxes for children and adolescents aged 9–16 years highlighted in yellow to indicate the recommended age for routine dengue vaccination. The overlying text “Seropositive in endemic areas only (see notes)” has been added to the yellow boxes.

• **Table 2 (Catch-Up Immunization Schedule)**
  - **Hib row**: The text for the 4-week minimum interval between doses 2 and 3 has been revised to include recommendations for DTaP-IPV-Hib-HepB (Vaxelis). The text now reads, “if current age is younger than 12 months and first dose was administered at younger than age 7 months and at least 1 previous dose was PRP-T (ActHib, Pentacel, Hiberix), Vaxelis, or unknown.” In addition, Hib-HepB (Comvax) was deleted from the text for the 8-week minimum interval between doses 2 and 3 because this vaccine product is no longer available.
  - **Dengue row**: A new row has been added for the dengue vaccine outlining the minimum age and minimum interval between doses.

• **Table 3 (Immunization by Medical Indication Schedule)**
  - The definition of severe immunosuppression because of HIV infection has been revised to be consistent with ACIP’s General Best Practice Guidelines for Immunization (4) and now reads, “<15% or total CD4 cell count of <200/mm³.”
  - **Legend**: The text that defines the red box in the table’s legend has been edited for clarity and now reads, “Contraindicated or not recommended—vaccine should not be administered.” In addition, the text that defines the checked yellow box in the table’s legend has been edited and now reads, “Vaccination is recommended, and additional doses might be necessary based on medical condition or vaccine. See Notes.”
  - **Dengue**: A new row has been added to outline dengue vaccine recommendations by medical conditions or other indications.

• **Notes**
Additional information: The text for COVID-19 vaccination has been updated to include a hyperlink to the webpage for CDC’s interim clinical considerations for use of COVID-19 vaccines currently approved or authorized in the United States.

Dengue: This new section was added to provide details for routine dengue vaccination in areas with endemic dengue. In addition, a hyperlink referring health care providers to the latest guidance on areas with endemic dengue and prevaccination laboratory testing is included.

Hib: The note was updated to include the recommendations for routine and catch-up vaccination when DTaP-IPV-Hib-HepB (Vaxelis) is used.

HepA: The note was revised to clarify that the age for routine vaccination is age 12–23 months.

HepB: In the “Special situations” section, the text has been revised to clarify and emphasize the recommendations for postvaccination serology and revaccination.

HPV: In the “Special situations” section, the text for immunocompromising conditions has been revised to clarify that 3 doses should be administered regardless of age at initial vaccination.

Influenza: The note has been updated to reflect the recommendations for the 2021–22 influenza season. The “Special situations” section was condensed by moving information on contraindications and precautions for influenza vaccines to the newly created appendix.

MMR: The note on routine vaccination was updated to include recommendations for use of measles, mumps, rubella, and varicella vaccine (MMRV).

MenACWY: Language was added to the notes regarding the recommendation for simultaneous administration with meningococcal serogroup B vaccine (MenB). The text reads, “MenACWY vaccines may be administered simultaneously with MenB vaccines if indicated, but at a different anatomic site, when feasible.”

VAR: The note has been updated to include recommendations for using MMRV and to clarify that a second dose inadvertently administered after at least a 4-week interval may be counted as a valid dose.

Appendix (Contraindications and Precautions)

A newly created appendix listing the contraindications and precautions for each vaccine type included in the 2022 child and adolescent immunization schedule has been added. The information in the appendix is adapted from ACIP General Best Practice Guidelines for Immunization and ACIP recommendations for use of 2021–22 influenza vaccines.

For guidance on immunization recommendations, providers are advised to use the tables and the notes together. The 2022 Immunization Schedule is recommended by ACIP and approved by the CDC, the American Academy of Pediatrics (AAP), the American Academy of Family Physicians, the American College of Obstetricians and Gynecologists, the
American College of Nurse-Midwives, the American Academy of Physician Associates, and the National Association of Pediatric Nurse Practitioners.

PROCEDURE:

Providers should carefully review the 2022 Immunization Schedule for detailed information on the appropriate dosages and ages for the administration of vaccines and replace their current immunization schedule with the attached 2022 Immunization Schedule. Additional information is available from the CDC at: https://www.cdc.gov/vaccines/schedules/index.html.

The National Childhood Vaccine Injury Act requires that health care providers provide parents or patients with copies of Vaccine Information Statements before administering each dose of the vaccines listed in the schedule. Additional information is available from the CDC at: http://www.cdc.gov/vaccines/hcp/vis/index.html.

IMMUNIZATION GUIDANCE DURING COVID-19:

The CDC has updated interim guidance for Immunization Services during the COVID-19 pandemic. With reduced vaccine administration during the COVID-19 pandemic, unvaccinated or undervaccinated patients are susceptible to preventable illnesses, and communities are at risk for outbreaks. Implementation of strategies to promote adherence to the 2022 Immunization Schedule and ensure catch-up vaccination is important, especially for children. The full guidance is available at: https://www.cdc.gov/vaccines/pandemic-guidance/index.html.

Providers are also to follow guidance issued by the AAP regarding the provision of well-child visits during the COVID-19 pandemic. Since the onset of the pandemic, a decrease in well-child visits has resulted in delays in vaccinations, screenings, and referrals. Pediatricians should identify children who have missed well-child visits and/or recommended vaccinations and work with families to bring children up to date given the potential for other vaccine preventable disease outbreaks. Consistent with previous guidance, all well-child care should occur in person whenever possible and within the child’s medical home where continuity of care may be established and maintained. For practices that have successfully implemented telehealth to provide appropriate elements of the well-child exam virtually, these telehealth visits should continue to be supported, followed by a timely in-person visit. The full guidance is available at: https://services.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/clinical-guidance/guidance-on-providing-pediatric-well-care-during-covid-19/.

ATTACHMENT:

Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, UNITED STATES, 2022
# Recommended Child and Adolescent Immunization Schedule

**for ages 18 years or younger**

## Vaccines in the Child and Adolescent Immunization Schedule*

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Abbreviation(s)</th>
<th>Trade name(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dengue vaccine</td>
<td>DEN4CYD</td>
<td>Dengvaxia*</td>
</tr>
<tr>
<td>Diphtheria, tetanus, and acellular pertussis vaccine</td>
<td>DTaP</td>
<td>Daptacel® Infanrix*</td>
</tr>
<tr>
<td>Diphtheria, tetanus vaccine</td>
<td>DT</td>
<td>No trade name</td>
</tr>
<tr>
<td><em>Haemophilus influenza</em> type b vaccine</td>
<td>Hib (PRP-T)</td>
<td>ActHIB* Hibrix* PedvaxHIB*</td>
</tr>
<tr>
<td></td>
<td>Hib (PRP-OMP)</td>
<td></td>
</tr>
<tr>
<td>Hepatitis A vaccine</td>
<td>HepA</td>
<td>Havrix* Vaqta*</td>
</tr>
<tr>
<td>Hepatitis B vaccine</td>
<td>HepB</td>
<td>Engerix-B* Recombivax HB*</td>
</tr>
<tr>
<td>Human papillomavirus vaccine</td>
<td>HPV</td>
<td>Gardasil 9*</td>
</tr>
<tr>
<td>Influenza vaccine (inactivated)</td>
<td>IIV4</td>
<td>Multiple</td>
</tr>
<tr>
<td>Influenza vaccine (live, attenuated)</td>
<td>LAIV4</td>
<td>FluMist* Quadrivalent</td>
</tr>
<tr>
<td>Measles, mumps, and rubella vaccine</td>
<td>MMR</td>
<td>M-M-R II*</td>
</tr>
<tr>
<td>Meningococcal serogroups A, C, W, Y vaccine</td>
<td>MenACWY-D</td>
<td>Menactra*</td>
</tr>
<tr>
<td></td>
<td>MenACWY-CRM</td>
<td>Menveo*</td>
</tr>
<tr>
<td></td>
<td>MenACWY-TT</td>
<td>MenQuadri*</td>
</tr>
<tr>
<td>Meningococcal serogroup B vaccine</td>
<td>MenB-4C</td>
<td>Bexsero*</td>
</tr>
<tr>
<td></td>
<td>MenB-FHbp</td>
<td>Trumenba*</td>
</tr>
<tr>
<td>Pneumococcal 13-valent conjugate vaccine</td>
<td>PCV13</td>
<td>Pneumovax 23*</td>
</tr>
<tr>
<td>Pneumococcal 23-valent polysaccharide vaccine</td>
<td>PPSV23</td>
<td></td>
</tr>
<tr>
<td>Poliovirus vaccine (inactivated)</td>
<td>IPV</td>
<td>iPOL*</td>
</tr>
<tr>
<td>Rotavirus vaccine</td>
<td>RV1</td>
<td>Rotarix* RotaTeq*</td>
</tr>
<tr>
<td></td>
<td>RV5</td>
<td></td>
</tr>
<tr>
<td>Tetanus, diphtheria, and acellular pertussis vaccine</td>
<td>Tdap</td>
<td>Adacel<em>Boostrix</em></td>
</tr>
<tr>
<td>Tetanus and diphtheria vaccine</td>
<td>Td</td>
<td>Tenivac* Tdax*</td>
</tr>
<tr>
<td>Varicella vaccine</td>
<td>VAR</td>
<td>Varivax*</td>
</tr>
</tbody>
</table>

### Combination vaccines (use combination vaccines instead of separate injections when appropriate)

- DTaP, hepatitis B, and inactivated poliovirus vaccine: DTaP-HepB-IPV Pediarix®
- DTaP, inactivated poliovirus, and *Haemophilus influenza* type b vaccine: DTaP-IPV/Hib Pentacel®
- DTaP and inactivated poliovirus vaccine: DTaP-IPV Kinerix® Quadracel®
- DTaP, inactivated poliovirus, *Haemophilus influenza* type b, and hepatitis B vaccine: DTaP-IPV-Hib-HepB Vaxelis®
- Measles, mumps, rubella, and varicella vaccine: MMRV ProQuad®

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*Administrator recommended vaccines if immunization history is incomplete or unknown. Do not restart or add doses to vaccine series for extended intervals between doses. When a vaccine is not administered at the recommended age, administer at a subsequent visit. The use of trade names is for identification purposes only and does not imply endorsement by the ACIP or CDC.

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**How to use the child and adolescent immunization schedule**

1. Determine recommended vaccine by age (Table 1)
2. Determine recommended interval for catch-up vaccination (Table 2)
3. Assess need for additional recommended vaccines by medical condition or other indication (Table 3)
4. Review vaccine types, frequencies, intervals, and considerations for special situations (Notes)
5. Review contraindications and precautions for vaccine types (Appendix)

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**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

Download the CDC Vaccine Schedules app for providers at www.cdc.gov/vaccines/schedules/hcp/schedule-app.html

### Helpful information

- Complete Advisory Committee on Immunization Practices (ACIP) recommendations: www.cdc.gov/vaccines/hcp/acip-recs/index.html
- 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/vac/serv/index.html

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Table 1: Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2022

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).

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Birth</th>
<th>1 mo</th>
<th>2 mos</th>
<th>4 mos</th>
<th>6 mos</th>
<th>9 mos</th>
<th>12 mos</th>
<th>15 mos</th>
<th>18 mos</th>
<th>19–23 mos</th>
<th>2–3 yrs</th>
<th>4–6 yrs</th>
<th>7–10 yrs</th>
<th>11–12 yrs</th>
<th>13–15 yrs</th>
<th>16 yrs</th>
<th>17–18 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B (HepB)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>3rd dose</td>
<td>4th dose</td>
<td>5th dose</td>
<td></td>
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<tr>
<td>Rotavirus (RV): RV1 (2-dose series), RV5 (3-dose series)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>See Notes</td>
<td></td>
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<tr>
<td>Diphtheria, tetanus, acellular pertussis (DTaP &lt;7 yrs)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>3rd dose</td>
<td>4th dose</td>
<td>5th dose</td>
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<tr>
<td>Haemophilus influenzae type b (Hib)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>See Notes</td>
<td>3rd or 4th dose</td>
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<td></td>
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<tr>
<td>Pneumococcal conjugate (PCV13)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>3rd dose</td>
<td>4th dose</td>
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<tr>
<td>Inactivated poliovirus (IPV &lt;18 yrs)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>3rd dose</td>
<td>4th dose</td>
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<tr>
<td>Influenza (IIV4)</td>
<td>Annual vaccination 1 or 2 doses</td>
<td>Annual vaccination 1 dose only</td>
<td></td>
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<tr>
<td>Influenza (LAIV4)</td>
<td>Annual vaccination 1 or 2 doses</td>
<td>Annual vaccination 1 dose only</td>
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<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td>See Notes</td>
<td>1st dose</td>
<td>2nd dose</td>
<td></td>
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<tr>
<td>Varicella (VAR)</td>
<td>See Notes</td>
<td>1st dose</td>
<td>2nd dose</td>
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<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td>See Notes</td>
<td>2-dose series, See Notes</td>
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<tr>
<td>Tetanus, diphtheria, acellular pertussis (Tdap ≥7 yrs)</td>
<td>1 dose</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Human papillomavirus (HPV)</td>
<td>See Notes</td>
<td>1st dose</td>
<td>2nd dose</td>
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<tr>
<td>Meningococcal (MenACWY-D ≥9 mos, MenACWY-CRM ≥2 mos, MenACWY-TT ≥2 years)</td>
<td>See Notes</td>
<td>1st dose</td>
<td>2nd dose</td>
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<tr>
<td>Meningococcal B (MenB-4C, MenB-FHbp)</td>
<td>See Notes</td>
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<tr>
<td>Pneumococcal polysaccharide (PPSV23)</td>
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<tr>
<td>Dengue (DEN4CYD; 9-16 yrs)</td>
<td>Seropositive in endemic areas only (See Notes)</td>
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</tbody>
</table>
## Table 2

### Recommended Catch-up Immunization Schedule for Children and Adolescents Who Start Late or Who Are More than 1 Month Behind, United States, 2022

The table below provides catch-up schedules and minimum intervals between doses for children whose vaccinations have been delayed. A vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Use the section appropriate for the child's age. **Always use this table in conjunction with Table 1 and the Notes that follow.**

### Children age 4 months through 6 years

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Minimum Age for Dose 1</th>
<th>Minimum Interval Between Doses</th>
<th>Minimum Age for Final Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hepatitis B</strong></td>
<td>Birth</td>
<td>4 weeks</td>
<td>8 weeks</td>
</tr>
<tr>
<td><strong>Rotavirus</strong></td>
<td>Maximum age for first dose is 14 weeks, 6 days.</td>
<td>4 weeks</td>
<td>8 weeks and at least 16 weeks after first dose</td>
</tr>
<tr>
<td><strong>Diphtheria, tetanus, and acellular pertussis</strong></td>
<td>6 weeks</td>
<td>No further doses needed if first dose was administered at age 15 months or older</td>
<td>6 months (as final dose) for healthy children</td>
</tr>
<tr>
<td><strong>Hemophilus influenzae type b</strong></td>
<td>6 weeks</td>
<td>No further doses needed if first dose was administered at age 12 through 14 months.</td>
<td>8 weeks (as final dose)</td>
</tr>
<tr>
<td><strong>Pneumococcal conjugate</strong></td>
<td>6 weeks</td>
<td>No further doses needed for healthy children if first dose was administered at age 24 months or older</td>
<td>6 months (minimum age 4 years for final dose)</td>
</tr>
<tr>
<td><strong>Inactivated poliovirus</strong></td>
<td>6 weeks</td>
<td>4 weeks</td>
<td>6 months (as final dose) if current age is 4 years or older</td>
</tr>
<tr>
<td><strong>Measles, mumps, rubella</strong></td>
<td>12 months</td>
<td>4 weeks</td>
<td>6 months (as final dose) if current age is 4 years or older</td>
</tr>
<tr>
<td><strong>Varicella</strong></td>
<td>12 months</td>
<td>3 months</td>
<td>6 months (as final dose) if current age is 4 years or older</td>
</tr>
<tr>
<td><strong>Hepatitis A</strong></td>
<td>12 months</td>
<td>6 months</td>
<td>6 months (as final dose) if current age is 4 years or older</td>
</tr>
<tr>
<td><strong>Meningococcal ACWY</strong></td>
<td>2 months MenACWY-CRM, 9 months MenACWY-D, 2 years MenACWY-TT</td>
<td>8 weeks</td>
<td>See Notes</td>
</tr>
<tr>
<td><strong>Inactivated poliovirus</strong></td>
<td>Not applicable (N/A)</td>
<td>8 weeks</td>
<td>See Notes</td>
</tr>
</tbody>
</table>

### Children and adolescents age 7 through 18 years

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Minimum Age for Dose 1</th>
<th>Minimum Interval Between Doses</th>
<th>Minimum Age for Final Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tetanus, diphtheria; tetanus, diphtheria, and acellular pertussis</strong></td>
<td>7 years</td>
<td>4 weeks</td>
<td>6 months (as final dose) if first dose of DTaP/DT was administered at or after the 1st birthday</td>
</tr>
<tr>
<td><strong>Human papillomavirus</strong></td>
<td>9 years</td>
<td>Routine dosing intervals are recommended.</td>
<td>6 months (as final dose) if first dose of DTaP/DT was administered at or after the 1st birthday</td>
</tr>
<tr>
<td><strong>Hepatitis A</strong></td>
<td>N/A</td>
<td>6 months</td>
<td>6 months (as final dose) if first dose of DTaP/DT was administered at or after the 1st birthday</td>
</tr>
<tr>
<td><strong>Hepatitis B</strong></td>
<td>N/A</td>
<td>4 weeks</td>
<td>6 months (as final dose) if first dose of DTaP/DT was administered at or after the 1st birthday</td>
</tr>
<tr>
<td><strong>Inactivated poliovirus</strong></td>
<td>N/A</td>
<td>4 weeks</td>
<td>6 months (as final dose) if first dose of DTaP/DT was administered at or after the 1st birthday</td>
</tr>
<tr>
<td><strong>Measles, mumps, rubella</strong></td>
<td>N/A</td>
<td>4 weeks</td>
<td>6 months (as final dose) if first dose of DTaP/DT was administered at or after the 1st birthday</td>
</tr>
<tr>
<td><strong>Varicella</strong></td>
<td>N/A</td>
<td>3 months if younger than age 13 years.</td>
<td>6 months (as final dose) if first dose of DTaP/DT was administered at or after the 1st birthday</td>
</tr>
<tr>
<td><strong>Dengue</strong></td>
<td>9 years</td>
<td>6 months</td>
<td>6 months (as final dose) if first dose of DTaP/DT was administered at or after the 1st birthday</td>
</tr>
</tbody>
</table>
### Table 3
Recommended Child and Adolescent Immunization Schedule by Medical Indication, United States, 2022

Always use this table in conjunction with Table 1 and the Notes that follow.

<table>
<thead>
<tr>
<th>VACCINE</th>
<th>Pregnancy</th>
<th>Immunocompromised status (excluding HIV infection)</th>
<th>HIV infection CD4+ count</th>
<th>Heart disease or chronic lung disease</th>
<th>CSF leak or cochlear implant</th>
<th>Asplenia or persistent complement deficiencies</th>
<th>Chronic liver disease</th>
<th>Diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B</td>
<td></td>
<td></td>
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<tr>
<td>Rotavirus</td>
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<td>SCID</td>
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<tr>
<td>Diphtheria, tetanus, and acellular pertussis (DTaP)</td>
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<tr>
<td><em>Haemophilus influenzae type b</em></td>
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<td>Pneumococcal conjugate</td>
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<tr>
<td>Inactivated poliovirus</td>
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<tr>
<td>Influenza (IIV4)</td>
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<tr>
<td>Influenza (LAIV4) or Influenza (IIV4)</td>
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<tr>
<td>Measles, mumps, rubella</td>
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<tr>
<td>Varicella</td>
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<tr>
<td>Hepatitis A</td>
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<tr>
<td>Tetanus, diphtheria, and acellular pertussis (Tdap)</td>
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<tr>
<td>Human papillomavirus</td>
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<tr>
<td>Meningococcal ACWY</td>
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<tr>
<td>Meningococcal B</td>
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<tr>
<td>Pneumococcal polysaccharide</td>
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<tr>
<td>Dengue</td>
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</tbody>
</table>

1 For additional information regarding HIV laboratory parameters and use of live vaccines, see the General Best Practice Guidelines for Immunization, "Altered Immunocompetence," at [www.cdc.gov/vaccines/hcp/acip-recs/general-recs/immunocompetence.html](http://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/immunocompetence.html) and Table 4-1 (footnote J) at [www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html](http://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html).

2 Severe Combined Immunodeficiency

3 LAIV4 contraindicated for children 2–4 years of age with asthma or wheezing during the preceding 12 months.
For vaccination recommendations for persons ages 19 years or older, see the Recommended Adult Immunization Schedule, 2022.

Additional information

**COVID-19 Vaccination**

COVID-19 vaccines are recommended for use within the scope of the Emergency Use Authorization or Biologics License Application for the particular vaccine. ACIP recommendations for the use of COVID-19 vaccines can be found at www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/covid-19.html.

CDC’s interim clinical considerations for use of COVID-19 vaccines can be found at www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html.

- Consult relevant ACIP statements for detailed recommendations at www.cdc.gov/vaccines/hcp/acip-recs/index.html.
- 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 doses should be spaced after the invalid dose by the recommended minimum interval. For further details, see Table 3-1. 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 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 routine child and adolescent vaccines are covered by VICP except for pneumococcal polysaccharide vaccine (PPSV23). For more information, see www.hrsa.gov/vaccinecompensation/index.html.

**Dengue vaccination**

(minimum age: 9 years)

**Routine vaccination**
- Age 9–16 years living in dengue endemic areas 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.htm5_cid=rr7006b1_w and www.cdc.gov/dengue/vaccine/hcp/index.html

**Diphtheria, tetanus, and pertussis (DTaP) vaccination**

(minimum age: 6 weeks [4 years for Kinrix® or Quadracel®])

**Routine vaccination**
- 5-dose series at age 2, 4, 6, 15–18 months, 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 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 age 12–15 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 doses 3 (final dose) at least 8 weeks after dose 2.
- 2 doses of PedvaxHIB® before age 12 months: Administer dose 3 (final dose) at 12–59 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 15–19 months: Administer 1 dose.
- Previously unvaccinated children age 60 months or older who are not considered high risk: Do not require catch-up vaccination for other catch-up guidance, see Table 2. Vaxelis® can be used for catch-up vaccination in children less than age 5 years. Follow the catch-up schedule even if Vaxelis® is used for one or more doses. For detailed information on use of Vaxelis® see www.cdc.gov/mmwr/volumes/69/wr/mm690545.htm.

**Notes**

**Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2022**

### Dengue vaccination

**Routine vaccination**
- Age 9–16 years living in dengue endemic areas 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.htm5_cid=rr7006b1_w and www.cdc.gov/dengue/vaccine/hcp/index.html

**Diphtheria, tetanus, and pertussis (DTaP) vaccination**

(minimum age: 6 weeks [4 years for Kinrix® or Quadracel®])

**Routine vaccination**
- 5-dose series at age 2, 4, 6, 15–18 months, 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 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 age 12–15 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 12–59 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 15–19 months: Administer 1 dose.
- Previously unvaccinated children age 60 months or older who are not considered high risk: Do not require catch-up vaccination for other catch-up guidance, see Table 2. Vaxelis® can be used for catch-up vaccination in children less than age 5 years. Follow the catch-up schedule even if Vaxelis® is used for one or more doses. For detailed information on use of Vaxelis® see www.cdc.gov/mmwr/volumes/69/wr/mm690545.htm.
**Hepatitis A vaccination**
(minimum age: 12 months for routine vaccination)

**Routine vaccination**
- 2-dose series (minimum interval: 6 months) at age 12–23 months

**Catch-up vaccination**
- Unvaccinated persons through age 18 years should complete a 2-dose series (minimum interval: 6 months).
- Persons who previously received 1 dose at age 12 months or older should receive dose 2 at least 6 months after dose 1.
- Adolescents age 18 years or older may receive the combined HepA and HepB vaccine, Twinrix®, as a 3-dose series (0, 1, and 6 months) or 4-dose series (3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months).
- Infants who did not receive a birth dose should begin the series as soon as feasible, regardless of birth weight.
- **Birth dose (monovalent HepB vaccine only)**
  - **Mother is HBsAg-negative:**
    - All medically stable infants ≥2,000 grams: 1 dose within 24 hours of birth
    - Infants <2,000 grams: Administer 1 dose at chronological age 1 month or hospital discharge (whichever is earlier and even if weight is still <2,000 grams).
  - **Mother is HBsAg-positive:**
    - Administer HepB vaccine and hepatitis B immune globulin (HBIG) (in separate limbs) within 12 hours of birth, regardless of birth weight. For infants <2,000 grams, administer 3 additional doses of vaccine (total of 4 doses) beginning at age 1 month.
    - Test for HBsAg and anti-HBs at age 9–12 months. If HepB series is delayed, test 1–2 months after final dose.
  - **Mother’s HBsAg status is unknown:**
    - Administer HepB vaccine within 12 hours of birth, regardless of birth weight.
    - For infants <2,000 grams, administer HBIG in addition to HepB vaccine (in separate limbs) within 12 hours of birth. Administer 3 additional doses of vaccine (total of 4 doses) beginning at age 1 month.
    - Determine mother’s HBsAg status as soon as possible. If mother is HBsAg-positive, administer HBIG to infants ≥2,000 grams as soon as possible, but no later than 7 days of age.

**Routine series**
- 3-dose series at age 0, 1–2, 6–18 months (use monovalent HepB vaccine for doses administered before age 6 weeks)
- Infants who did not receive a birth dose should begin the series as soon as feasible (see Table 2).

**Administration of 4 doses** is permitted when a combination vaccine containing HepB is used after the birth dose.
- **Minimum age for the final (3rd or 4th) dose:** 24 weeks
- **Minimum intervals:** dose 1 to dose 2: 2–4 weeks / dose 2 to dose 3: 8 weeks / dose 1 to dose 3: 16 weeks (when 4 doses are administered, substitute “dose 4” for “dose 3” in these calculations)

**Catch-up vaccination**
- Unvaccinated persons should complete a 3-dose series at 0, 1–2, 6 months.
- Adolescents age 11–15 years may use an alternative 2-dose schedule with at least 4 months between doses (adult formulation Recombivax HB® only).
- Adolescents age 18 years or older may receive a 2-dose series of HepB (Heplisav-B®) at least 4 weeks apart.
- Adolescents age 18 years or older may receive the combined HepA and HepB vaccine, Twinrix®, as a 3-dose series (0, 1, and 6 months) or 4-dose series (3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months).
- For other catch-up guidance, see Table 2.

**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
  - Hemodialysis patients
  - Other immunocompromised persons
- For detailed revaccination recommendations, see www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hepb.html.

**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 HPV vaccination recommended for all persons through age 18 years if not adequately vaccinated
- 2-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: 2–4 weeks / dose 2 to dose 3: 12 weeks / dose 1 to dose 3: 5 months; repeat dose if administered too soon)
- **Interrupted schedules:** If vaccination schedule is interrupted, the series does not need to be restarted.
- No additional dose recommended when any HPV vaccine series has been completed using the 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.

**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.
  - 2 doses, separated by at least 4 weeks, for children age 6 months–8 years who have received fewer than 2 influenza vaccine doses before July 1, 2021, or whose influenza vaccination history is unknown (administer dose 2 even if the child turns 9 between receipt of dose 1 and dose 2)
  - 1 dose for children age 6 months–8 years who have received at least 2 influenza vaccine doses before July 1, 2021
  - 1 dose for all persons age 9 years or older
- For the 2021–2022 season, see www.cdc.gov/mmwr/volumes/70/rr/rr7005a1.htm.
- For the 2022–23 season, see the 2022–23 ACIP influenza vaccine recommendations.

**Special situations**
- **Egg allergy, hives only:** Any influenza vaccine appropriate for age and health status annually.
- **Egg allergy with symptoms other than hives** (e.g., angioedema, respiratory distress) or required epinephrine or another emergency medical intervention: see Appendix listing contraindications and precautions
- **Severe allergic reaction** (e.g., anaphylaxis) to a vaccine component or a previous dose of any influenza vaccine: see Appendix listing contraindications and precautions.

**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.
- Minimum interval between MMRV doses: 3 months

**Special situations**
- **International travel**
  - Infants age 6–11 months: 1 dose before departure; revaccinate with 2 doses, separated by at least 6 months, between age 12–23 months.
  - Unvaccinated age 12 months or older: Administer dose 1 as soon as travel is considered.

- **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.

- **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.
- Minimum interval between MMRV doses: 3 months

- **Special situations**
  - **International travel**
    - Infants age 6–11 months: 1 dose before departure; revaccinate with 2 doses, separated by at least 6 months, between age 12–23 months.
    - Unvaccinated age 12 months or older: Administer dose 1 as soon as travel is considered.

- **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.
Meningococcal serogroup A,C,W,Y vaccination (minimum age: 2 months [MenACWY CRM, Menveo], 9 months [MenACWY-D, Menactra], 2 years [MenACWY TT, MenQuadri])

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
- Menactra
  - Persistent complement component deficiency or complement inhibitor use:
    - Age 9–23 months: 2-dose series at least 12 weeks apart
    - Age 24 months or older: 2-dose series at least 8 weeks apart
- MenQuadri
  - Dose 1 at age 24 months or older: 2-dose series at least 8 weeks apart

Travel in 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)
    - Dose 1 at age 24 months or older: 2-dose series at least 8 weeks apart
  - Menactra* (age 9–23 months)
    - 2-dose series (dose 2 at least 12 weeks after dose 1; dose 2 may be administered as early as 8 weeks after dose 1 in travelers)
  - Children age 2 years or older: 1 dose Menveo®, Menactra®, or MenQuadri®

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®, Menactra®, or MenQuadri®

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 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.

Note: Menactra® should be administered either before or at the same time as DTaP. MenACWY vaccines may be administered simultaneously with MenB vaccines if indicated, but at a different anatomic site, if feasible.

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.

Meningococcal serogroup B vaccination (minimum age: 10 years [MenB-4C, Bexsero®, MenB-FHbp, Trumenba®])

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.

Special situations
Anatomic or functional asplenia (including sickle cell disease), persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use:
- Age 9–23 months: Not recommended
- Age 24 months or older: 2-dose series at least 8 weeks apart
- Menactra® must be administered at least 4 weeks after completion of PCV13 series.
- MenQuadri®
  - Dose 1 at age 24 months or older: 2-dose series at least 8 weeks apart

Travel in 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)
    - Dose 1 at age 24 months or older: 2-dose series at least 8 weeks apart
  - Menactra® (age 9–23 months)
    - 2-dose series (dose 2 at least 12 weeks after dose 1; dose 2 may be administered as early as 8 weeks after dose 1 in travelers)
  - Children age 2 years or older: 1 dose Menveo®, Menactra®, or MenQuadri®

Pneumococcal vaccination (minimum age: 6 weeks [PCV13], 2 years [PPSV23])

Routine vaccination with PCV13
- 4-dose series at age 2, 4, 6, 12–15 months

Catch-up vaccination with PCV13
- 1 dose for healthy children age 24–59 months with any incomplete* PCV13 series
- For other catch-up guidance, see Table 2.

Special situations
Underlying conditions below: When both PCV13 and PPSV23 are indicated, administer PCV13 first. PCV13 and PPSV23 should not be administered during same visit.

Chronic heart disease (particularly cyanotic congenital heart disease and cardiac failure); chronic lung disease (including asthma treated with high-dose, oral corticosteroids); diabetes mellitus:
- Age 2–5 years
  - Any incomplete* series with:
    - 3 PCV13 doses: 1 dose PCV13 (at least 8 weeks after any prior PCV13 dose)
    - Less than 3 PCV13 doses: 2 doses PCV13 (8 weeks after the most recent dose and administered 8 weeks apart)
  - No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after completing all recommended PCV13 doses)

Cerebrospinal fluid leak, cochlear implant:
- Age 2–5 years
  - Any incomplete* series with:
    - 3 PCV13 doses: 1 dose PCV13 (at least 8 weeks after any prior PCV13 dose)
  - No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose)

- Age 6–18 years
  - No history of either PCV13 or PPSV23: 1 dose PCV13, 1 dose PPSV23 at least 8 weeks later
  - Any PCV13 but no PPSV23: 1 dose PPSV23 at least 8 weeks after the most recent dose of PCV13
  - PPSV23 but no PCV13: 1 dose PCV13 at least 8 weeks after the most recent dose of PPSV23

Sickle cell disease and other hemoglobinopathies; anatomic or functional asplenia; congenital or acquired immunodeficiency; HIV infection; chronic renal failure; nephrotic syndrome; malignant neoplasms, leukemias, lymphomas, Hodgkin disease, and other diseases associated with treatment with immunosuppressive drugs or radiation therapy; solid organ transplantation; multiple myeloma:
- Age 2–5 years
  - Any incomplete* series with:
    - 3 PCV13 doses: 1 dose PCV13 (at least 8 weeks after any prior PCV13 dose)
    - Less than 3 PCV13 doses: 2 doses PCV13 (8 weeks after the most recent dose and administered 8 weeks apart)
  - No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose) and a dose 2 of PPSV23 5 years later

- Age 6–18 years
  - No history of either PCV13 or PPSV23: 1 dose PCV13, 2 doses PPSV23 (dose 1 of PPSV23 administered 8 weeks after PCV13 dose and dose 2 of PPSV23 administered at least 5 years after dose 1 of PPSV23)
  - Any PCV13 but no PPSV23: 2 doses PCV23 (dose 1 of PPSV23 administered 8 weeks after the most recent dose of PCV13 and dose 2 of PPSV23 administered at least 5 years after dose 1 of PPSV23)
  - PPSV23 but no PCV13: 1 dose PCV13 at least 8 weeks after the most recent PPSV23 dose and a dose 2 of PPSV23 administered 5 years after dose 1 of PPSV23 and at least 8 weeks after a dose of PCV13.
Register Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2022

**Chronic liver disease, alcoholism:**
- Age 6–18 years
  - *No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose)*

*Incomplete series = Not having received all doses in either the recommended series or an age-appropriate catch-up series. See Tables 8, 9, and 11 in the ACIP pneumococcal vaccine recommendations (www.cdc.gov/mmwr/pdf/rr/rr5911.pdf) for complete schedule details.

**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.
- IPV is not routinely recommended for U.S. residents age 18 years or older.

**Series containing oral polio 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/70/wr/mm7036.htm?s_cid=mm7036a1_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/mm6606a7.htm?s_cid=mm6606a7_w.
- For other catch-up guidance, see Table 2.

**Rotavirus vaccination (minimum age: 6 weeks)**

**Routine vaccination**
- Rotarix*: 2-dose series at age 2 and 4 months
- RotaTeq*: 3-dose series at age 2, 4, and 6 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.

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

**Routine vaccination**
- Adolescents age 11–12 years: 1 dose Tdap
- Pregnancy: 1 dose Tdap during each pregnancy, preferably in early part of gestational weeks 27–36.
- Tdap may be administered regardless of the interval since the last tetanus- and diphtheria-toxoid-containing vaccine.

**Catch-up vaccination**
- Adolescents age 13–18 years who have not received Tdap: 1 dose Tdap, then Td or Tdap booster every 10 years.
- Persons 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:
  - Children age 7–9 years who receive Tdap should receive the routine Tdap dose at age 11–12 years.
  - Children age 10 years who receive Tdap do not need the routine Tdap dose at age 11–12 years.
  - DTaP inadvertently administered on or after age 7 years:
    - Children age 7–9 years: DTaP may count as part of catch-up series. Administer routine Tdap dose at age 11–12 years.
    - Children age 10–18 years: Count dose of DTaP as the adolescent Tdap booster.
  - 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/vr/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*
- DTaP inadvertently administered after at least 4 weeks may be counted as valid

*Note: For dose 1 in children age 12–17 years, 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.

Centers for Disease Control and Prevention | Recommended Child and Adolescent Immunization Schedule, United States, 2022

2/17/2022
**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 available at [www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html](http://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html) and ACIP's Recommendations for the Prevention and Control of 2021-22 seasonal influenza with Vaccines available at [www.cdc.gov/mmwr/volumes/70/rr/rr7005a1.htm](http://www.cdc.gov/mmwr/volumes/70/rr/rr7005a1.htm).

**Interim clinical considerations for use of COVID-19 vaccines including contraindications and precautions can be found at [www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html](http://www.cdc.gov/vaccines/covid-19/clinical-considerations/covid-19-vaccines-us.html)**

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Contraindications¹</th>
<th>Precautions²</th>
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</thead>
<tbody>
<tr>
<td>Influenza, egg-based, inactivated injectable (IIV4)</td>
<td>• 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 component³ (excluding egg)</td>
<td>• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Persons with egg allergy with symptoms other than hives (e.g., angioedema, respiratory distress) or required epinephrine or another emergency medical intervention: Any influenza vaccine appropriate for age and health status may be administered. If using egg-based IIV4, 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</td>
</tr>
<tr>
<td>Influenza, cell culture-based inactivated injectable (ccIIV4), Flucelvax® Quadrivalent</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) to any ccIIV of any valency, or to any component³ of ccIIV4</td>
<td>• 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</td>
</tr>
<tr>
<td>Influenza, recombinant injectable (RIV4), Flublok® Quadrivalent</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) to any RIV of any valency, or to any component³ of RIV4</td>
<td>• 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</td>
</tr>
<tr>
<td>Influenza, live attenuated [LAIV4, Flumist® Quadrivalent]</td>
<td>• 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 component³ (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</td>
<td>• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine • Asthma in persons aged 5 years old or older • Persons with egg allergy with symptoms other than hives (e.g., angioedema, respiratory distress) or required epinephrine or another emergency medical intervention: Any influenza vaccine appropriate for age and health status may be administered. If using LAIV4 (which is egg based), 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</td>
</tr>
</tbody>
</table>

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. [www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html](http://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html)
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. [www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html](http://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html)
3. Vaccination providers should check FDA-approved prescribing information for the most complete and updated information, including contraindications, warnings, and precautions. Package inserts for U.S.-licensed vaccines are available at [www.fda.gov/vaccines-blood-biologics/approved-products/vaccines-licensed-use-united-states](http://www.fda.gov/vaccines-blood-biologics/approved-products/vaccines-licensed-use-united-states)
### Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2022

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<tr>
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<th>Contraindications</th>
<th>Precautions</th>
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<tbody>
<tr>
<td>Dengue (DEN4CYD)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹</td>
<td>• Pregnancy</td>
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<td>• Severe immunodeficiency (e.g., hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, long-term immunosuppressive therapy or patients with HIV infection who are severely immunocompromised)</td>
<td>• HIV infection without evidence of severe immunosuppression</td>
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<tr>
<td></td>
<td>• Guillain-Barré syndrome (GBS) within 6 weeks after previous dose of tetanus toxoid–containing vaccine</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Diphtheria, tetanus, pertussis (DTaP)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹</td>
<td>• Guillain-Barré syndrome (GBS) within 6 weeks after previous dose of tetanus toxoid–containing vaccine</td>
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<td>• For DTaP only: Encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures) not attributable to another identifiable cause within 7 days of administration of previous dose of DTP or DTaP</td>
<td>• History of Guillain-Barré syndrome (GBS) reactions after a previous dose of diphtheria–toxoid containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus toxoid–containing vaccine; for DTaP only: Progressive neurologic disorder, including infantile spasms, uncontrolled epilepsy, progressive encephalopathy; defer DTaP until neurologic status clarified and stabilized</td>
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<td>• Moderate or severe acute illness with or without fever</td>
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<td>Haemophilus influenzae type b (Hib)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹</td>
<td>• Severe allergic reaction with or without fever</td>
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<td>• For Hibercin, ActHib, and PedvaxHib only: History of severe allergic reaction to dry natural latex</td>
<td>• For Heplisav-B only: Pregnancy</td>
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<td></td>
<td>• Less than age 6 weeks</td>
<td>• Moderate or severe acute illness with or without fever</td>
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<td>• Pregnancy</td>
<td>• Severe allergic reaction with or without fever</td>
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<td>• Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent</td>
<td>• Recent (≤11 months) receipt of antibody-containing blood product (specific interval depends on product)</td>
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<td>• Severe allergic reaction after a previous dose or to a vaccine component¹</td>
<td>• History of thrombocytopenia or thrombocytopenic purpura</td>
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<td>• Moderate or severe acute illness with or without fever</td>
<td>• Need for tuberculin skin testing or interferon-gamma release assay (IGRA) testing</td>
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<td>• Severe allergic reaction (e.g., anaphylaxis) to any diphtheria toxoid– containing vaccine or its component³</td>
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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. www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html
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. www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html
3. Vaccination providers should check FDA-approved prescribing information for the most complete and updated information, including contraindications, warnings, and precautions. Package inserts for U.S.-licensed vaccines are available at www.fda.gov/vaccines-blood-biologics/approved-products/vaccines-licensed-use-united-states.