**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>Tradename(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19†</td>
<td>1vCOV-mRNA</td>
<td>Comirnaty®/Pfizer-BioNTech COVID-19 Vaccine</td>
</tr>
<tr>
<td></td>
<td>2vCOV-mRNA</td>
<td>Pfizer-BioNTech COVID-19 Vaccine, Bivalent</td>
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<tr>
<td></td>
<td>Moderna COVID-19 Vaccine, Bivalent</td>
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<tr>
<td></td>
<td>1vCOVID-19 AP</td>
<td>Novavax COVID-19 Vaccine</td>
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<tr>
<td>Dengue vaccine</td>
<td>DENMACD</td>
<td>Dengvaxia®</td>
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<tr>
<td></td>
<td>Dapscet®</td>
<td>Inflenta®</td>
</tr>
<tr>
<td>Diphtheria, tetanus, and acellular pertussis vaccine</td>
<td>DT</td>
<td>No trade name</td>
</tr>
<tr>
<td>Haemophilus influenza type b vaccine</td>
<td>Hib (IPV-T)</td>
<td>ACHIB®</td>
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<tr>
<td></td>
<td>Hib (IPV-OMP)</td>
<td>Hibetra®</td>
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<td></td>
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<td>PedriHIB®</td>
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<tr>
<td>Hepatitis A vaccine</td>
<td>HepA</td>
<td>Havrix®</td>
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<td></td>
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<td>Vaqta®</td>
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<tr>
<td>Hepatitis B vaccine</td>
<td>HepB</td>
<td>Engerix®</td>
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<td></td>
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<td>Recombivax®</td>
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<tr>
<td>Human papillomavirus vaccine</td>
<td>HPV</td>
<td>Gardasil®</td>
</tr>
<tr>
<td>Influenza vaccine (inactivated)</td>
<td>EV4</td>
<td>Multiple</td>
</tr>
<tr>
<td>Influenza vaccine (live, attenuated)</td>
<td>LAIV4</td>
<td>FluMist® Quadivalent</td>
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<tr>
<td>Measles, mumps, and rubella vaccine</td>
<td>MMIR</td>
<td>M-M-R II®</td>
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<td>Prorix®</td>
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<tr>
<td>Meningococcal serogroups A, C, W, Y vaccine</td>
<td>MenACWY-D</td>
<td>Menactra®</td>
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<td></td>
<td>MenACWY-CRM</td>
<td>Menveo®</td>
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<td>MenACWY-TT</td>
<td>MenQuad®</td>
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<td>Meningococcal serogroup B vaccine</td>
<td>MenB-4C</td>
<td>Bexsero®</td>
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<td>MenB-OMP</td>
<td>Trumenba®</td>
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<td>Pneumococcal conjugate vaccine</td>
<td>PCV13</td>
<td>Prevenar® 13</td>
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<td>PCV15</td>
<td>Vaxneuvance®</td>
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<td>Pneumococcal polysaccharide vaccine†</td>
<td>PPSV23</td>
<td>Pneumovax 23</td>
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<tr>
<td>Poliovirus vaccine (inactivated)</td>
<td>IPV</td>
<td>IPOL®</td>
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<td>TinyVA™</td>
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<tr>
<td>Rotavirus vaccine</td>
<td>RV1</td>
<td>Rotarix®</td>
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<td>RV5</td>
<td>Rotarix™</td>
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<td>Tetanus, diphtheria, and acellular pertussis vaccine</td>
<td>Tdap</td>
<td>Adacel®</td>
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<td>Boostrix®</td>
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<td>Tetanus and diphtheria vaccine</td>
<td>Td</td>
<td>Teneva®</td>
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<td>Tdxva™</td>
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<tr>
<td>Varicella vaccine</td>
<td>VAR</td>
<td>Varivax®</td>
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</tbody>
</table>

**Combination vaccines** (use combination vaccines instead of separate injections whenever appropriate):

- DTaP, HepB-IPV
- DTaP, IPV/Hib
- DTaP-IPV
- DTaP-IPV/Hib
- DTaP-IPV/Hib-HepB
- MMIR

**New Vaccines and Other Immunizing Agents added to the Schedule since February 2023** (See Addendum)

- RSV-mAb
- MIRV

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<tr>
<th>Vaccine</th>
<th>Abbreviation(s)</th>
<th>Tradename(s)</th>
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<tbody>
<tr>
<td>COVID-19†</td>
<td>Comirnaty®/Moderna COVID-19 Vaccine</td>
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<td></td>
<td>SPIREVAX®/Moderna COVID-19 Vaccine</td>
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<td>Pfizer-BioNTech COVID-19 Vaccine, Bivalent</td>
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<td>Moderna COVID-19 Vaccine, Bivalent</td>
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<td></td>
<td>Novavax COVID-19 Vaccine</td>
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</table>

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

1. Determine recommended vaccines 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)
6. Review new or updated AAP guidance (Addendum)


**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/vs/index.html

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

- DTaP, hepatitis B, and inactivated poliovirus vaccine
- DTaP, inactivated poliovirus, and Haemophilus influenzae type b vaccine
- DTaP and inactivated poliovirus vaccine
- DTaP, inactivated poliovirus, Haemophilus influenzae type b, and hepatitis B vaccine
- Measles, mumps, rubella, and varicella vaccine

**Notes**

- Administer 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.
- COVID-19, Poliovirus, Influenza, and Pneumococcal vaccines have new or updated ACIP recommendations. Please see Addendum for more details.
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).

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<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>19-23mos</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>
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<tr>
<td>Hepatitis B (HepB)</td>
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<td>Rotavirus (RV): RV1 (2-dose series), RV5 (3-dose series)</td>
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<td>Diphtheria, tetanus, acellular pertussis (DTaP &lt;7 yrs)</td>
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<td>Inactivated poliovirus (IPV &lt;18 yrs)</td>
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<td>COVID-19 (1vCOV-mRNA, 2vCOV-mRNA, 1vCOV-aPS)</td>
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<td>Tetanus, diphtheria, acellular pertussis (Tdap ≥7 yrs)</td>
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<td>Meningococcal B (MenB-4C, MenB-FHbp)</td>
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<td>Pneumococcal polysaccharide (PPSV23)</td>
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<td>Dengue (DEN4CYD; 9-16 yrs)</td>
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</tbody>
</table>
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>Dose 1 to Dose 2</th>
<th>Minimum Interval Between Doses</th>
<th>Dose 3 to Dose 4</th>
<th>Dose 4 to Dose 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hepatitis B</strong></td>
<td>Birth</td>
<td>4 weeks</td>
<td>8 weeks and at least 16 weeks after first dose</td>
<td>minimum age for the final dose is 24 weeks</td>
<td></td>
</tr>
<tr>
<td><strong>Rotavirus</strong></td>
<td>6 weeks (maximum age for first dose is 14 weeks, 6 days)</td>
<td>4 weeks</td>
<td>4 weeks maximum age for final dose is 8 months, 0 days</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Diphtheria, tetanus, and acellular pertussis</strong></td>
<td>6 weeks</td>
<td>4 weeks</td>
<td>4 weeks</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Haemophilus influenzae type b</strong></td>
<td>6 weeks</td>
<td>No further doses needed if first dose was administered at age 15 months or older</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pneumococcal conjugate</strong></td>
<td>6 weeks</td>
<td>No further doses needed if first dose was administered at age 24 months or older</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Inactivated poliovirus</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></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Measles, mumps, rubella</strong></td>
<td>12 months</td>
<td>4 weeks</td>
<td>4 weeks if current age is &lt;4 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Varicella</strong></td>
<td>12 months</td>
<td>3 months</td>
<td>6 months (as final dose)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hepatitis A</strong></td>
<td>12 months</td>
<td>6 months</td>
<td>See Notes</td>
<td></td>
<td></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>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Meningococcal AOW</strong></td>
<td>Not applicable (N/A)</td>
<td>8 weeks</td>
<td>6 months (minimum age 4 years for final dose)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tetanus, diphtheria, tetanus, diphtheria, and acellular pertussis</strong></td>
<td>7 years</td>
<td>4 weeks</td>
<td>4 weeks if first dose of DTaP/DT was administered before the 1st birthday</td>
<td>6 months (as final dose) if first dose of DTaP/DT was administered at or after the 1st birthday</td>
<td>6 months if first dose of DTaP/DT was administered before the 1st birthday</td>
</tr>
<tr>
<td><strong>Human papillomavirus</strong></td>
<td>9 years</td>
<td>Routine dosing intervals are recommended</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Hepatitis A</strong></td>
<td>N/A</td>
<td>6 months</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hepatitis B</strong></td>
<td>N/A</td>
<td>4 weeks</td>
<td>8 weeks and at least 16 weeks after first dose</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Inactivated poliovirus</strong></td>
<td>N/A</td>
<td>4 weeks</td>
<td>6 months A fourth dose is not necessary if the third dose was administered at age 4 years or older and at least 6 months after the previous dose.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Measles, mumps, rubella</strong></td>
<td>N/A</td>
<td>4 weeks</td>
<td></td>
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</tr>
<tr>
<td><strong>Varicella</strong></td>
<td>N/A</td>
<td>3 months if younger than age 13 years</td>
<td>6 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dengue</strong></td>
<td>9 years</td>
<td>6 months</td>
<td></td>
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</tbody>
</table>

### Children and adolescents age 7 through 18 years

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Minimum Age for Dose 1</th>
<th>Dose 1 to Dose 2</th>
<th>Minimum Interval Between Doses</th>
<th>Dose 3 to Dose 4</th>
<th>Dose 4 to Dose 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hepatitis A</strong></td>
<td>N/A</td>
<td>6 months</td>
<td></td>
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</tr>
<tr>
<td><strong>Hepatitis B</strong></td>
<td>N/A</td>
<td>4 weeks</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Inactivated poliovirus</strong></td>
<td>N/A</td>
<td>4 weeks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Measles, mumps, rubella</strong></td>
<td>N/A</td>
<td>4 weeks</td>
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</tr>
<tr>
<td><strong>Varicella</strong></td>
<td>N/A</td>
<td>3 months if younger than age 13 years</td>
<td></td>
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<tr>
<td><strong>Dengue</strong></td>
<td>9 years</td>
<td>6 months</td>
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</tbody>
</table>
**Table 3**

Recommended Child and Adolescent Immunization Schedule by Medical Indication, United States, 2023

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+ counts</th>
<th>Kidney failure, end-stage renal disease, or on hemodialysis</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>
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<tr>
<td>Rotavirus</td>
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<tr>
<td>Diphtheria, tetanus, and acellular pertussis (DTaP)</td>
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<tr>
<td>Haemophilus influenzae type b</td>
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<tr>
<td>Pneumococcal conjugate</td>
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<tr>
<td>Inactivated poliovirus</td>
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<tr>
<td>COVID-19</td>
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<tr>
<td>Influenza (IIV4)</td>
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<tr>
<td>Influenza (LAIV4)</td>
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<tr>
<td>Measles, mumps, rubella</td>
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<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>

- Vaccination according to the routine schedule recommended
- Recommended for persons with an additional risk factor for which the vaccine would be indicated
- Vaccination is recommended, and additional doses may be necessary based on medical condition or vaccine. See Notes.
- Precaution–vaccine might be indicated if benefit of protection outweighs risk of adverse reaction
- Contraindicated or not recommended–vaccine should not be administered
- No recommendation/not applicable

### Notes

- **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/altered-immunocompetence.html and Table 4-1 (footnote J) at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html.
- **Severe Combined Immunodeficiency**: Vaccination after pregnancy. See Notes.
- **LAIV4 contraindicated for children 2–4 years of age with asthma or wheezing during the preceding 12 months**: See Notes.
COVID-19 vaccination
(minimum age: 6 months [Moderna and Pfizer-BioNTech COVID-19 vaccines], 12 years [Novavax COVID-19 Vaccine])

Routine vaccination

- **Primary series:**
  - **Age 6 months–4 years:** 2-dose series at 0, 4–8 weeks (Moderna) or 3-dose series at 0, 3–8, 11–16 weeks (Pfizer-BioNTech)
  - **Age 5–11 years:** 2-dose series at 0, 4–8 weeks (Moderna) or 2-dose series at 0, 3–8 weeks (Pfizer-BioNTech)
  - **Age 12–18 years:** 2-dose series at 0, 4–8 weeks (Moderna) or 2-dose series at 0, 3–8 weeks (Novavax, Pfizer-BioNTech)

- **For booster dose recommendations:** see [www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html](http://www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html).

Special situations

- **Persons who are moderately or severely immunocompromised:**
  - **Age 6 months–4 years:** 3-dose series at 0, 4, 8 weeks (Moderna) or 3-dose series at 0, 3, 11 weeks (Pfizer-BioNTech)
  - **Age 5–11 years:** 3-dose series at 0, 4, 8 weeks (Moderna) or 3-dose series at 0, 3, 7 weeks (Pfizer-BioNTech)
  - **Age 12–18 years:** 3-dose series at 0, 4, 8 weeks (Moderna) or 2-dose series at 0, 3 weeks (Novavax) or 3-dose series at 0, 3, 7 weeks (Pfizer-BioNTech)

- **Booster dose:** see [www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html](http://www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html).

- **Pre-exposure prophylaxis** (monoclonal antibodies) may be considered to complement COVID-19 vaccination. See [www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html](http://www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html).


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](http://www.cdc.gov/mmwr/volumes/70/rr/rr7006a1.htm) and [www.cdc.gov/dengue/vaccine/hcp/index.html](http://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 months or older)

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 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](http://www.cdc.gov/mmwr/volumes/67/rr/rr6702a1.htm).
Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2023

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

Routine vaccination
- *ActHIB®, Hibrix®, 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 2 (final dose) at age 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 15–59 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/mm6905a5.htm.

Special situations
- *Chemotherapy or radiation treatment*: Age 12–59 months
  - Unvaccinated or only 1 dose before age 12 months: 2 doses, 8 weeks apart
  - 2 or more doses before age 12 months: 1 dose at least 8 weeks after previous dose
Doses administered within 14 days of starting therapy or during therapy should be repeated at least 3 months after therapy completion.

- *Hematopoietic stem cell transplant (HSCT)*:
  - 3-dose series 4 weeks apart starting 6 to 12 months after successful transplant, regardless of Hib vaccination history

- *Anatomic or functional asplenia (including sickle cell disease)*:
  - Age 12–59 months
  - Unvaccinated or only 1 dose before age 12 months: 2 doses, 8 weeks apart
  - 2 or more doses before age 12 months: 1 dose at least 8 weeks after previous dose

  - Unvaccinated* persons age 5–18 years
    - 1 dose

- *Elective splenectomy*:
  - Unvaccinated* persons age 15 months or older
    - 1 dose

  - Unvaccinated persons age 5–18 years

- *Immunoglobulin deficiency, early component complement deficiency*:
  - Age 12–59 months
  - Unvaccinated or only 1 dose before age 12 months: 2 doses, 8 weeks apart
  - 2 or more doses before age 12 months: 1 dose at least 8 weeks after previous dose

- *Unvaccinated* persons age 5–18 years
  - 1 dose

- *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).*

International travel
- *Persons traveling to or working in countries with high or intermediate endemic hepatitis A (www.cdc.gov/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.

Hepatitis B vaccination (minimum age: birth)

Routine vaccination
- *3-dose series at age 0, 1–2, 6–18 months (use monovalent HepB vaccine for doses administered before age 6 weeks)*
  - *Birth weight ≥2,000 grams*: 1 dose within 24 hours of birth if medically stable
  - *Birth weight <2,000 grams*: 1 dose at chronological age 1 month or hospital discharge (whichever is earlier and even if weight is still <2,000 grams).
- *Infants who did not receive a birth dose should begin the series as soon as possible (see Table 2 for minimum intervals).*
- *Administration of 4 doses is permitted when a combination vaccine containing HepB is used after the birth dose.*
- *Minimum intervals (see Table 2): when 4 doses are administered, substitute “dose 4” for “dose 3” in these calculations.
- *Final (3rd or 4th) dose*: age 6–18 months (minimum age 24 weeks)
- *Mother is HBsAg-positive*: Age 12–18 months
  - *Birth dose (monovalent HepB vaccine only): administer HepB vaccine and hepatitis B immune globulin (HBIG) in separate limbs* within 12 hours of birth, regardless of birth weight.
  - *Birth weight <2,000 grams*: administer 3 additional doses of HepB vaccine beginning at age 1 month (total of 4 doses)
  - *Final (3rd or 4th) dose*: administer at age 6 months (minimum age 24 weeks)
  - *Test for HBsAg and anti-HBs at age 9–12 months.* If HepB series is delayed, test 1–2 months after final dose. Do not test before age 9 months.
Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2023

Notes

- **Mother is HBsAg-unknown**
  If other evidence suggestive of maternal hepatitis B infection exists (e.g., presence of HBV DNA, HBeAg-positive, or mother known to have chronic hepatitis B infection), manage infant as if mother is HBsAg-positive
  
  **Birth dose (monovalent HepB vaccine only):**
  - Birth weight ≥2,000 grams: administer HepB vaccine within 12 hours of birth. Determine mother’s HBsAg status as soon as possible. If mother is determined to be HBsAg-positive, administer HBIG as soon as possible (in separate limb), but no later than 7 days of age.
  - Birth weight <2,000 grams: administer HepB vaccine and HBIG (in separate limbs) within 12 hours of birth. Administer additional doses of HepB vaccine beginning at age 1 month (total of 4 doses).
  - Final (3rd or 4th) dose: administer at age 6 months (minimum age 24 weeks).
  - If mother is determined to be HBsAg-positive or if status remains unknown, test for HBsAg and anti-HBs at age 9–12 months. If HepB series is delayed, test 1–2 months after final dose. Do not test before age 9 months.

- **Catch-up vaccination**
  - Unvaccinated persons should complete a 3-dose series at 0, 1–2, 6 months. See Table 2 for minimum intervals.
  - 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:
    - Heplisav-B®: 2-dose series at least 4 weeks apart
    - PreHevbrio®: 3-dose series at 0, 1, and 6 months
    - Combined HepA and HepB vaccine, Twinrix®: 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).

- **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 <10 mIU/mL) is recommended for certain populations, including:
    - Infants born to HBsAg-positive mothers
    - Persons who are prediagnosis 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: 14 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
  - Pregnancy: Pregnancy testing not needed before vaccination; HPV vaccination not recommended until after pregnancy; no intervention needed if vaccinated while pregnant

- **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
  - 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:
      - 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, 2022, 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, 2022
  - 1 dose for all persons age 9 years or older

- **For the 2022–2023 season, see www.cdc.gov/mmwr/volumes/71/rr/rr7101a1.htm.**
- **For the 2023–24 season, see the 2023–24 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: Any influenza vaccine appropriate for age and health status may be administered. If using egg-based IIV4 or LAIV4, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions.
  - Severe allergic reaction (e.g., anaphylaxis) to a vaccine component or a previous dose of any influenza vaccine: see Appendix listing contraindications and precautions
  - Close contacts (e.g., caregivers, healthcare personnel) of severely immunosuppressed persons who require a protected environment: these persons should not receive LAIV4. If LAIV4 is given, they should avoid contact with/caring for such immunosuppressed persons for 7 days after vaccination.

- **Influenza vaccination**
  - Routine vaccination
    - 2 doses, separated by at least 4 weeks, for children age 12–15 months, age 4–6 years
    - MMR or MMRV may be administered
  - 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.
  - The maximum age for use of MMRV is 12 years.
  - Minimum interval between MMRV doses: 3 months
Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2023

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/mm6707a.htm

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

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)
  - 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 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®, Menactra®, 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.

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

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:
- 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/wr/mm6909a1.htm.

Menveo® has two formulations: lyophilized and liquid. The liquid formulation should not be used before age 10 years.

- Anatomical or functional asplenia, sickle cell disease, or HIV infection:
  - 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 PCV series.

- Menactra®
  - Dose 1 at age 24 months or older: 2-dose series at least 8 weeks apart

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)
  - 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 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®**, Menactra®, 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.

- Anatomical or functional asplenia, sickle cell disease, or HIV infection:
  - Age 9–23 months: Not recommended
  - Age 24 months or older: 2-dose series at least 8 weeks apart

- By parents:
  - 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)

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

- 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/wr/mm6909a1.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:
- 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/wr/mm6909a1.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:
- 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/wr/mm6909a1.htm.
Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2023

**Notes**

**Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2023**

**Pneumococcal vaccination**

(minimum age: 6 weeks [PCV13], [PCV15], 2 years [PPSV23])

### Routine vaccination with PCV

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

### Catch-up vaccination with PCV

- Healthy children age 24–59 months with any incomplete* PCV series: 1 dose PCV
- For other catch-up guidance, see Table 2.

### Special situations

Underlying conditions below: When both PCV and PPSV23 are indicated, administer PCV first. PCV and PPSV23 should not be administered during the 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 PCV doses: 1 dose PCV (at least 8 weeks after any prior PCV dose)
  - Less than 3 PCV doses: 2 doses PCV (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 PCV doses)

**Age 6–18 years**

- Any incomplete* series with PCV: no further PCV doses needed
- No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after completing all recommended PCV doses)

**Cerebrospinal fluid leak, cochlear implant:**

**Age 2–5 years**

- Any incomplete* series with:
  - 3 PCV doses: 1 dose PCV (at least 8 weeks after any prior PCV dose)
  - Less than 3 PCV doses: 2 doses PCV (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 PCV doses)

**Age 6–18 years**

- No history of either PCV or PPSV23: 1 dose PCV, 1 dose PPSV23 at least 8 weeks later
- Any PCV but no PPSV23: 1 dose PPSV23 at least 8 weeks after the most recent dose of PCV
- PPSV23 but no PCV: 1 dose PCV 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 PCV doses: 1 dose PCV (at least 8 weeks after any prior PCV dose)
  - Less than 3 PCV doses: 2 doses PCV (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 PCV doses) and a dose 2 of PPSV23 5 years later

**Age 6–18 years**

- No history of either PCV or PPSV23: 1 dose PCV, 2 doses PPSV23 (dose 1 of PPSV23 administered 8 weeks after PCV and dose 2 of PPSV23 administered at least 5 years after dose 1 of PPSV23)
- Any PCV but no PPSV23: 2 doses PPSV23 (dose 1 of PPSV23 administered 8 weeks after the most recent dose of PCV and dose 2 of PPSV23 administered at least 8 weeks after a dose of PCV)

*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 www.cdc.gov/mmwr/volumes/71/rr/mm7137a3.htm

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/pneumapp.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.
- 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/66/wr/mm6601a6.htm?s_cid=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/mm6606a7.htm?ss_cid=mm6606a7_w.
- For other catch-up guidance, see Table 2.

### Special situations

- Adolescents aged 18 years at increased risk of exposure to poliovirus with:
  - No evidence of a complete polio vaccination series (i.e., at least 3 doses); administer remaining doses (1, 2, or 3 doses) to complete a 3-dose series
  - Evidence of completed polio vaccination series (i.e., at least 3 doses); may administer one lifetime IPV booster

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

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* = 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 www.cdc.gov/mmwr/volumes/71/rr/mm7137a3.htm

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/pneumapp.html
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/wr/mm6903a5.htm.

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.
Vaccine Contraindicated or Not Recommended and Precautions

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Contraindicated or Not Recommended</th>
<th>Precautions</th>
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</table>
| 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 component1 (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 component3 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 component2 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 component1 (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, parainfluenza 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 aged 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. 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

For COVID-19 vaccine contraindications and precautions see www.cdc.gov/vaccines/covid-19clinical-considerations/interim-consideration-s-us.html#contraindications
<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Contraindicated or Not Recommended</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 component.</td>
<td>- Pregnancy. - HIV infection without evidence of severe immunosuppression</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). - Lack of laboratory confirmation of a previous Dengue infection.</td>
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<tr>
<td>Diphtheria, tetanus, pertussis (DTaP)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. - For DTaP only: Encephalopathy (e.g., coma, decreased level of consciousness, prostrated seizures) not attributable to another identifiable cause within 7 days of administration of previous dose of DTaP or DTaP.</td>
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<tr>
<td>Tetanus, diphtheria (DT)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. - For DT only: Encephalopathy (e.g., coma, decreased level of consciousness, prostrated seizures) not attributable to another identifiable cause within 7 days of administration of previous dose of DTaP or DTaP.</td>
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<tr>
<td>- Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of tetanus toxoid-containing vaccine. - History of A-type hypersensitivity reactions after a previous dose of diphtheria toxoid-containing vaccine. - For DTaP only: Progressive neurologic disorder, including encephalopathy, uncontrolled epilepsy, progressive encephalomyelitis, severe neurological deficit or death.</td>
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<tr>
<td>Hepatitis A (HepA)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. - For HelaMV-HepA: only: history of severe allergic reaction to a natural latex. - Less than age 4 weeks.</td>
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<tr>
<td>- Moderate or severe acute illness with or without fever.</td>
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<tr>
<td>Hepatitis B (HepB)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. - Pregnancy: Hepatitis B vaccination is not recommended due to lack of safety data in pregnant persons.</td>
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<tr>
<td>- Moderate or severe acute illness with or without fever.</td>
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<td>Hepatitis A–Hepatitis B vaccine (HepA-HepB; Twinrix®)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. - Including neomycin and yeast.</td>
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<td>- Moderate or severe acute illness with or without fever.</td>
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<td>Human papillomavirus (HPV)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. - Pregnancy: HPV vaccination is not recommended.</td>
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<tr>
<td>Meningococcal A,C,W,Y (MenACWY)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. - For MenACWY-D and MenACWY-CRM only: severe allergic reaction to any diphtheria toxoid- or CRM197-containing vaccine. - For MenACWY-TT only: severe allergic reaction to a tetanus toxoid-containing vaccine.</td>
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<td>- Moderate or severe acute illness with or without fever.</td>
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<tr>
<td>Meningococcal B (MenB)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. - Pregnancy: Meningococcal B vaccination is recommended for those aged 10-24 years.</td>
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<tr>
<td>- Moderate or severe acute illness with or without fever.</td>
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<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. - Need for tuberculin skin testing or interferon-gamma release assay (IGRA) testing.</td>
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<tr>
<td>- Moderate or severe acute illness with or without fever.</td>
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<td>- Pregnancy. - Need for tuberculin skin testing or interferon-gamma release assay (IGRA) testing.</td>
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<td>Meningococcal B (MenB)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. - Pregnancy: Meningococcal B vaccination is recommended for those aged 10-24 years.</td>
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<tr>
<td>Pneumococcal polysaccharide (PPSV23)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. - Pregnancy: Poliovirus vaccine, inactivated (IPV) is not recommended.</td>
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<td>- Moderate or severe acute illness with or without fever.</td>
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<tr>
<td>Poliovirus vaccine, inactivated (IPV)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. - Pregnancy. - Need for tuberculin skin testing or interferon-gamma release assay (IGRA) testing.</td>
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<tr>
<td>- Moderate or severe acute illness with or without fever.</td>
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<td>RotaVirus (RV)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. - Severe combined immunodeficiency (SCID). - History of intussusception. - History of pneumonia. - History of intussusception. - History of pneumonia.</td>
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<tr>
<td>- Moderate or severe acute illness with or without fever.</td>
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<tr>
<td>Tetanus, diphtheria, and acellular pertussis (Tdap)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. - For Tdap only: Encephalopathy (e.g., coma, decreased level of consciousness, prostrated seizures) not attributable to another identifiable cause within 7 days of administration of previous dose of DTap or Tadap.</td>
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<td>- Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of tetanus toxoid-containing vaccine. - History of A-type hypersensitivity reactions after a previous dose of diphtheria toxoid-containing vaccine. - For Tdap only: Progressive neurologic disorder, including encephalopathy, uncontrolled epilepsy, progressive encephalomyelitis, severe neurological deficit or death.</td>
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<tr>
<td>Varicella (VAR)</td>
<td>- Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. - 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). - Pregnancy. - Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent.</td>
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</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
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.
4. For information on the pregnancy exposure registries for persons who were inadvertently vaccinated with Heplisa-B or PreHevbrio while pregnant, please visit heplisabpregnancyregistry.com/ or www.prehevbrio.com/#safety.
**Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2023**

In addition to the recommendations presented in the previous sections of this Immunization Schedule, ACIP has approved the following recommendations by majority vote since October 20, 2022. The following recommendations have been adopted by the CDC Director and are now official. Links are provided if these recommendations have been published in *Morbidity and Mortality Weekly Report (MMWR)*.

### Vaccines and Other Immunizing Agents

**Respiratory syncytial virus (RSV)**
- Maternal Respiratory Syncytial Virus (RSV) vaccine (ABRYSVO™) is recommended for pregnant people during 32 through 36 weeks gestation, using seasonal administration, to prevent RSV lower respiratory tract infection in infants. **Effective Date of Recommendation:** September 22, 2023

**COVID-19 (Moderna, Pfizer-BioNTech)**
- All persons ≥6 months of age should receive 2023–2024 (monovalent, XBB containing) COVID-19 vaccines as authorized under EUA or approved by BLA. **Effective Date of Recommendation:** September 12, 2023

**Respiratory syncytial virus (RSV-mAb [Nirsevimab])**
- All infants younger than 8 months and born shortly before or during the RSV season should receive 1 dose of nirsevimab within 1 week of birth either in hospital or outpatient setting. **Effective Date of Recommendation:** August 3, 2023
- Infants younger than age 8 months not born during RSV season and now entering their first RSV season should receive 1 dose of nirsevimab shortly before the start of RSV season. **Effective Date of Recommendation:** September 22, 2023
- Infants aged 8–19 months with chronic lung disease of prematurity requiring medical support (e.g., chronic corticosteroid therapy, diuretic therapy, or supplemental oxygen) any time during the 6-month period before start of the second RSV season; severe immunocompromise; cystic fibrosis with weight for length <10th percentile; or with 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) should receive 1 dose of nirsevimab shortly before start of second RSV season. **Effective Date of Recommendation:** September 22, 2023
- Infants 8–19 months who are American Indian or Alaska Native should receive 1 dose of nirsevimab before start of second RSV season. **Effective Date of Recommendation:** September 22, 2023
- Infants who are age-eligible and undergoing cardiac surgery with cardiopulmonary bypass should receive an additional dose of nirsevimab after surgery. **Effective Date of Recommendation:** September 22, 2023

- Adolescents age 18 years who are known or suspected to be unvaccinated or incompletely vaccinated against polio should complete a primary vaccination series with inactivated polio vaccine (IPV). **Effective Date of Recommendation:** June 27, 2023
- Adolescents age 18 years who have received a primary series of trivalent oral polio vaccine (tOPV) or IPV in any combination and who are at increased risk of poliovirus exposure may receive another dose of IPV. Available data do not indicate the need for more than a single lifetime booster dose with IPV for adults. **Effective Date of Recommendation:** June 27, 2023

**Poliovirus (IPV)**
- For children with an incomplete PCV vaccination status, use of either PCV15 or PCV20 is recommended for all children aged 2–3 months according to currently recommended PCV dosing and schedules.
- For children with an incomplete PCV vaccination status, use of either PCV15 or PCV20 according to currently recommended PCV dosing and schedules is recommended for:
  - Healthy children aged 24–59 months
  - Children with specified risk conditions* aged 24 through 71 months
- For children aged 2–18 years with any risk condition who have received all recommended doses of PCV before age 6 years
  - Using ≥1 dose(s) of PCV20: No additional doses of any pneumococcal vaccine are indicated. This recommendation may be updated as additional data become available.
  - Using PCV13 or PCV15 (no PCV20): A dose of PCV20 or PPSV23 using previously recommended dosing and schedules is recommended. **Effective Date of Recommendation:** June 27, 2023

**Pneumococcal (PCV15, PCV20)**
- Use of either pneumococcal conjugate vaccines (PCV15 or PCV20) is recommended for all children aged 2–23 months according to currently recommended PCV dosing and schedules.
- For children with an incomplete PCV vaccination status, use of either PCV15 or PCV20 according to currently recommended PCV dosing and schedules is recommended for:
  - Healthy children aged 24–59 months
  - Children with specified risk conditions* aged 24 through 71 months
- For children aged 2–18 years with any risk condition who have received all recommended doses of PCV before age 6 years
  - Using ≥1 dose(s) of PCV20: No additional doses of any pneumococcal vaccine are indicated. This recommendation may be updated as additional data become available.
  - Using PCV13 or PCV15 (no PCV20): A dose of PCV20 or PPSV23 using previously recommended dosing and schedules is recommended. **Effective Date of Recommendation:** June 27, 2023

*The effective date is the date when the CDC director adopted the recommendation and when the ACIP recommendation became official.