March 8, 2023

Dear Colleague:

We are writing with two important updates: 1) the release of the 2023 Recommended Immunization Schedules, and 2) available decision support in the Citywide Immunization Registry (CIR).

First, the Centers for Disease Control and Prevention (CDC) has released the 2023 Recommended Immunization Schedules. The schedules and notes, which are meant to be used together, are attached. Links to the schedules and summaries of changes to the child/adolescent and adult schedules are available on the CDC website, at Birth-18 Years Immunization Schedule – Healthcare Providers | CDC and Adult Immunization Schedule – Healthcare Providers | CDC, respectively. On either site, scroll down to “Download the Schedule” (left column) for the actual schedule, and to “Schedule changes and guidance” (in middle column, under “More Schedule Resources”) for a detailed listing of the changes.

There are many changes to the schedules and notes this year. Highlights of the changes to both schedules include:

- The addition of the primary series and other details of authorized or approved COVID-19 vaccines. New abbreviations for the COVID-19 vaccine products, which contain information on the vaccine’s valency (i.e., monovalent versus bivalent, indicated by “1v” and “2v,” respectively) and vaccine platform (mRNA versus acellular protein subunit, or “aPS”), are used in the tables.

- The text for vaccine injury compensation in both schedules was revised to include the Countermeasures Injury Compensation Program (CICP) for COVID-19 vaccines.

- A new MMR product, Priorix® (GSK), is listed in the Vaccine Table at the front of each schedule. Guidance has been added describing recommendations for situations requiring additional doses of the MMR vaccine during a mumps outbreak.

- There are updated recommendations for influenza vaccine.

- If the third dose of Trumenba® (MenB [Pfizer]) is administered earlier than 4 months after the second dose, a fourth dose should be administered at least 4 months after the third dose.

- For persons aged 18 years (child and adolescent schedule) and older (adult schedule), the HepB alternatives now include PreHevbrio™ (VBI).

- PreHevbrio, Heplisav-B® (HepB [Dynavax]), and HPV vaccine should not be used in pregnancy.
For persons aged 18 years and older there is a “special situation” that they should be vaccinated with polio vaccine if they are at increased risk of exposure to polioviruses, either by completing an incomplete series or by receiving one lifetime IPV booster.

For children and adolescents specifically:
Changes to the child and adolescent schedule include not administering the liquid formulation of Menveo® (MenACWY [GSK]) to persons below age 10 years. There is now guidance in the “special situations” section of the MenB note that if the second dose of Trumenba is administered ≥ 6 months after the first dose, the third dose is not needed. There is explicit guidance that PCV13 and PCV15 can be used interchangeably.

For adults specifically:
The pneumococcal note was substantially updated to reflect recommendations for the use of PCV15 and PCV20 in persons who previously received pneumococcal vaccines. The zoster vaccination note now provides guidance that serologic evidence of prior varicella infection is not necessary for zoster vaccination but if serologic evidence shows the patient is susceptible to varicella then they should receive varicella vaccination first. Also in the zoster note is guidance for persons with immunocompromising conditions who do not have a documented history of prior varicella infection, varicella vaccination, or prior herpes zoster.

The second update we are writing about involves a number of updates that have been or will soon be made in the CIR decision support for some vaccine series:

- The immunization forecasting of Tdap in the adolescent series will be updated to align with CDC's recommendation of a 10-year-old minimum age for Tdap to count as the adolescent dose. Children who have received a Tdap at ages 7-9 years should receive the routine Tdap at age 11-12 years. This update may affect the up-to-date status of some of your patients. Note, for the New York City school requirement, a Tdap given at age 7 years or older continues to satisfy the requirement for grades 9 through 12, but does not satisfy the requirement for grades 6 through 8. For grades 6 through 8, a Tdap must be given on or after age 10 years.

- PCV15 has been added as a valid vaccine in the childhood pneumococcal schedule and is counted toward the completion of the PCV primary series in the CIR.

- The immunization forecasting for pneumococcal vaccination of adults is temporarily disabled to allow the incorporation of updated guidance for PCV15, PCV20 and PPSV23 in the adult series. All doses reported to the CIR are accepted and will be evaluated when the update is completed. While we update the system, please refer to CDC’s recommendation on pneumococcal vaccine.

Please take every opportunity to ensure your patients are fully vaccinated and up-to-date in accordance with the 2023 schedules. For questions on the new immunization schedules, or any other vaccine-related issue, please call (347) 396-2400 or email nycimmunize@health.nyc.gov. Thank you for keeping New York City residents safe from vaccine-preventable diseases.

Sincerely,

Jane R. Zucker, MD, MSc
## Vaccines in the Child and Adolescent Immunization Schedule*

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Abbreviation(s)</th>
<th>Trade name(s)</th>
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<tbody>
<tr>
<td>COVID-19</td>
<td>1vCOV-mRNA</td>
<td>Comirnaty®/Pfizer-BioNTech COVID-19 Vaccine, SPIKEVAX®/Moderna COVID-19 Vaccine</td>
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<td></td>
<td>2vCOV-mRNA</td>
<td>Pfizer-BioNTech COVID-19 Vaccine, Bivalent, Moderna COVID-19 Vaccine, Bivalent</td>
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<td>1vCOV-APS</td>
<td>Novavax COVID-19 Vaccine</td>
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<td>Dengue vaccine</td>
<td>DEN4CYD</td>
<td>Dengvaxia®</td>
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<td>Diphtheria, tetanus, and acellular pertussis vaccine</td>
<td>DTaP</td>
<td>Daptacel®</td>
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<td>Infanrix®</td>
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<td>Diphtheria, tetanus vaccine</td>
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<td>Haemophilus influenzae type b vaccine</td>
<td>Hib (PRP-T)</td>
<td>ActHIB®</td>
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<td>Hib (PRP-OMP)</td>
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<td>PedvaxHIB®</td>
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<td>Hepatitis A vaccine</td>
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<td>Havrix®</td>
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<td>Vaqta®</td>
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<td>Hepatitis B vaccine</td>
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<td>Engerix-B®</td>
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<td>Recombivax HB®</td>
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<td>Human papillomavirus vaccine</td>
<td>HPV</td>
<td>Gardasil 9®</td>
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<td>Influenza vaccine (inactivated)</td>
<td>IIV4</td>
<td>Multiple</td>
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<tr>
<td>Influenza vaccine (live, attenuated)</td>
<td>LAIV4</td>
<td>FluMist® Quadivalent</td>
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<td>Measles, mumps, and rubella vaccine</td>
<td>MMR</td>
<td>M-M-R II®</td>
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<td>Priorix®</td>
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<td>Meningococcal serogroups A, C, W, Y vaccine</td>
<td>MenACWY-D</td>
<td>Menactra®</td>
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<td>MenACWY-CRM</td>
<td>Menveo®</td>
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<td>MenACWY-TT</td>
<td>MenQuadafi®</td>
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<td>MenB-4C</td>
<td>Bensero*</td>
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<td>MenB-FHbp</td>
<td>Trumenba®</td>
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<td>Pneumococcal conjugate vaccine</td>
<td>PCV13</td>
<td>Pneumovax 23®</td>
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<td>PCV15</td>
<td>Vaxneulin®</td>
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<td>Vaxneuvac®</td>
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<td>Pneumococcal polysaccharide vaccine</td>
<td>PPSV23</td>
<td>Pneumovax 23®</td>
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<td>Poliovirus vaccine (inactivated)</td>
<td>IPV</td>
<td>IPOL®</td>
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<td>Rotavirus vaccine</td>
<td>RV1</td>
<td>Rotarix®</td>
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<td>RV5</td>
<td>RotaTeq®</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>
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<td>Varicella vaccine</td>
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<td>Varivax®</td>
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<td>Combination vaccines (use combination vaccines instead of separate injections when appropriate)</td>
<td>DTaP, hepatitis B, and inactivated poliovirus vaccine</td>
<td>DTap-HepB-IPV</td>
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<td>DTap, inactivated poliovirus, and Haemophilus influenzae type b vaccine</td>
<td>DTap-IPV/Hib</td>
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<td>DTap and inactivated poliovirus vaccine</td>
<td>DTap-IPV</td>
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<td>Quadracel®</td>
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<td>DTap, inactivated poliovirus, Haemophilus influenzae type b, and hepatitis B vaccine</td>
<td>DTap-IPV-Hib-HepB</td>
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<td></td>
<td>Measles, mumps, rubella, and varicella vaccine</td>
<td>MMRV</td>
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</table>

*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.

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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)

### 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/vis/index.html

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www.cdc.gov/vaccines/schedules/hcp/schedule-app.html

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**Table 1**
Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2023

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>
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<td><strong>Hepatitis B (HepB)</strong></td>
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<td><strong>Rotavirus (RV): RV1 (2-dose series), RV5 (3-dose series)</strong></td>
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<td><strong>Diphtheria, tetanus, acellular pertussis (DTaP &lt;7 yrs)</strong></td>
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<td><strong>Inactivated poliovirus (IPV &lt;18 yrs)</strong></td>
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<td><strong>COVID-19 (1vCOV-mRNA, 2vCOV-mRNA, 1vCOV-aPS)</strong></td>
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<td><strong>Influenza (IIV4)</strong></td>
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<td><strong>Influenza (LAIV4)</strong></td>
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<td><strong>Measles, mumps, rubella (MMR)</strong></td>
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<td><strong>Hepatitis A (HepA)</strong></td>
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<td><strong>Tetanus, diphtheria, acellular pertussis (Tdap ≥7 yrs)</strong></td>
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<td><strong>Human papillomavirus (HPV)</strong></td>
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<td><strong>Meningococcal (MenACWY-D ≥9 mos, MenACWY-CRM ≥2 mos, MenACWY-TT ≥2years)</strong></td>
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<td><strong>Meningococcal B (MenB-4C, MenB-FHbp)</strong></td>
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<td><strong>Pneumococcal polysaccharide (PPSV23)</strong></td>
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<td><strong>Dengue (DEN4CYD; 9-16 yrs)</strong></td>
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<td>Seropositive in endemic dengue areas (See Notes)</td>
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**Legend:**
- **Range of recommended ages for all children**
- **Range of recommended ages for catch-up vaccination**
- **Range of recommended ages for certain high-risk groups**
- **Recommended vaccination can begin in this age group**
- **Recommended vaccination based on shared clinical decision-making**
- **No recommendation/not applicable**

Notes:
- 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).
- These recommendations must be read with the notes that follow.
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>Dose 3 to Dose 4</th>
<th>Dose 4 to Dose 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B</td>
<td>Birth</td>
<td>No further doses needed</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>if first dose was administered at age 15 months or older</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rotavirus</td>
<td>6 weeks; Maximum age for first dose is 14 weeks, 6 days.</td>
<td>No further doses needed</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>if first dose was administered before the 1st birthday.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 weeks (as final dose)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>if first dose was administered at age 12 through 14 months.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diphtheria, tetanus, and acellular pertussis type b</td>
<td>6 weeks</td>
<td>No further doses needed</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>if first dose was administered at age 15 months or older</td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>4 weeks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>if current age is younger than 12 months and first dose was administered at younger age than 7 months and at least 1 previous dose was PRP-T (ActHib®, Pentacel®, Hibercen®), Vaxelis® or unknown</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 weeks and age 12 through 59 months (as final dose)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>if current age is younger than 12 months and first dose was administered at age 7 through 11 months; OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>if current age is 12 through 59 months and first dose was administered before the 1st birthday and second dose was administered at younger than 15 months; OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>if both doses were PedivaHIB® and were administered before the 1st birthday</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal conjugate</td>
<td>6 weeks</td>
<td>No further doses needed</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>for healthy children if first dose was administered at age 12 months or older</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 weeks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>if first dose was administered before the 1st birthday.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 weeks (as final dose)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>if first dose was administered at age 12 through 14 months.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inactivated poliovirus</td>
<td>6 weeks</td>
<td>No further doses needed</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>for healthy children if previous dose was administered at age 24 months or older</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 weeks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>if current age is younger than 12 months and previous dose was administered at 7–11 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>and at least 12 months old</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8 weeks (as final dose for healthy children)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>if first dose was administered between 7–11 months (wait until at least 12 months old); OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>OR if current age is 12 months or older and at least 1 dose was administered before age 12 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella</td>
<td>12 months</td>
<td>4 weeks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicella</td>
<td>12 months</td>
<td>6 weeks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis A</td>
<td>12 months</td>
<td>4 weeks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal ACWY</td>
<td>2 months; MenACWY-CRM</td>
<td>8 weeks (as final dose)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9 months; MenACWY-Q</td>
<td>See Notes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 years MenACWY-TT</td>
<td>See Notes</td>
<td></td>
<td></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>Dose 3 to Dose 4</th>
<th>Dose 4 to Dose 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meningococcal ACWY</td>
<td>Not applicable (N/A)</td>
<td>8 weeks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Routine dosing intervals are recommended.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus, diphtheria; tetanus, diphtheria, and acellular pertussis</td>
<td>7 years</td>
<td>4 weeks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>if first dose of DTaP/DT was administered before the 1st birthday</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 months (as final dose)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>if first dose of DTaP/DT or Td vaccine was administered at or after the 1st birthday</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus</td>
<td>9 years</td>
<td>Routine dosing intervals are recommended.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 months (minimum age 2 years for final dose)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis A</td>
<td>N/A</td>
<td>6 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>N/A</td>
<td>4 weeks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inactivated poliovirus</td>
<td>N/A</td>
<td>4 weeks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>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>Measles, mumps, rubella</td>
<td>N/A</td>
<td>4 weeks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicella</td>
<td>N/A</td>
<td>3 months if younger than age 13 years.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 weeks if age 13 years or older</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dengue</td>
<td>9 years</td>
<td>6 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VACCINE</td>
<td>INDICATION</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>---------</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vaccination according to the routine schedule recommended</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>Pregnancy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rotavirus</td>
<td>Immunocompromised status (excluding HIV infection)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diphtheria, tetanus, and acellular pertussis (DTaP)</td>
<td>HIV infection CD4+ count</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haemophilus influenzae type b</td>
<td>≥15% and total CD4 cell count of ≥200/mm³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal conjugate</td>
<td>Kidney failure, end-stage renal disease, or on hemodialysis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inactivated poliovirus</td>
<td>Heart disease or chronic lung disease</td>
<td></td>
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</tr>
<tr>
<td>COVID-19</td>
<td>CSF leak or cochlear implant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza (IIV4)</td>
<td>Asplenia or persistent complement component deficiencies</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza (LAIV4)</td>
<td>Chronic liver disease</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella</td>
<td>Diabetes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicella</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Hepatitis A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus, diphtheria, and acellular pertussis (Tdap)</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Meningococcal ACWY</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Meningococcal B</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal polysaccharide</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dengue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</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.

- 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 and Table 4-1 (footnote J) at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/contraindications.html.
- Severe Combined Immunodeficiency
- LAIV4 contraindicated for children 2–4 years of age with asthma or wheezing during the preceding 12 months
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/coronavirus-considerations/interim-considerations-us.html](http://www.cdc.gov/vaccines/covid-19/coronavirus-considerations/interim-considerations-us.html)

**Special situations**

**Persons who are moderately or severely immunocompromised**

- **Primary series:**
  - **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/coronavirus-considerations/interim-considerations-us.html](http://www.cdc.gov/vaccines/covid-19/coronavirus-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/coronavirus-considerations/interim-considerations-us.html](http://www.cdc.gov/vaccines/covid-19/coronavirus-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?_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 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 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).

**For vaccination recommendations for persons ages 19 years or older, see the Recommended Adult Immunization Schedule, 2023.**

**Additional information**

- Consult relevant ACIP statements for detailed recommendations at [www.cdc.gov/vaccines/hcp/acip-recs/index.html](http://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 dose should be spaced after the invalid dose by the recommended minimum interval. For further details, see Table 3-2, Recommended and minimum ages and intervals between vaccine doses, in General Best Practice Guidelines for Immunization at [www.cdc.gov/vaccines/hcp/acip-recs/general-recs/timing.html](http://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/](http://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 vaccines included in the child and adolescent vaccine schedule are covered by VICP except dengue, PPSV23, and COVID-19 vaccines. COVID-19 vaccines that are authorized or approved by the FDA are covered by the Countermeasures Injury Compensation Program (CICP). For more information, see [www.hrsa.gov/vaccinecompensation or www.hrsa.gov/cicp](http://www.hrsa.gov/vaccinecompensation or www.hrsa.gov/cicp).

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 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 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.

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.

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
  - 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 <2000 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.

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.

Notes
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**

- **Mother is HBsAg-unknown**
  If other evidence suggestive of maternal hepatitis B infection exists (e.g., presence of HBV DNA, HBsAg-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 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)
    - 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 < 10mIU/mL) is recommended for certain populations, including:
  - Infants born to HBsAg-positive mothers
  - Persons who are pre dialysis 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.

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### Human papillomavirus vaccination

**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:
  - 1 dose for children age 6 months–8 years
  - 2-dose series at 0, 6–12 months (minimum interval: 5 months; repeat dose if administered too soon)
  - 3-dose series at 0, 1–2 months, 6 months (minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 12 weeks / dose 1 to dose 3: 5 months; repeat dose if administered too soon)

- **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.

**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

**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 interrupted, the series does not need to be restarted.

**Measles, mumps, and rubella vaccination**

**(minimum age: 12 months for routine vaccination)**

- 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.

**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**

- **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.
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

Dose 1 at age 3–6 months: 3- or 4-dose series (dose 2

**Trumenba®:**

**Menveo®* (age 2–23 months)

**Persistent complement component deficiency or**

**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/wn/mm6701a7.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])

**Notes**

**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, sickle cell disease, or HIV infection:
  - Age 9–23 months: Not recommended
  - Menactra® must be administered at least 4 weeks after completion of PCV series.

- MenQuadfi®
  - Dose 1 at age 14 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 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)
  - 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:** Menveo has two formulations: lyophilized and liquid. The liquid formulation should not be used before age 10 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.

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, 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

Notes

- 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/wn/mm6701a7.htm

**Notes**

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

**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 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)

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

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.
**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.

**Note:** PCV13 and PCV15 can be used interchangeably for children who are healthy or have underlying conditions. PCV15 is not indicated for children who have received 4 doses of PCV13 or another age appropriate complete PCV13 series.

#### 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**
- Any history of either PCV or PPSV23: 1 dose PCV, 2 doses PPSV23 at least 8 weeks apart
- 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 5 years after dose 1 of PPSV23)
- PPSV23 but no PCV: 1 dose PCV 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 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/ww/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/pneumoapp.html

### Poliovirus vaccination
(minimum age: 6 weeks)

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

#### Catch-up vaccination
- In the first 6 months of life, use minimum ages and intervals only for travel to a polio-endemic region or during an outbreak.
- IPV is not routinely recommended for U.S. residents age 18 years or older.

#### Series containing oral poliovirus vaccine (OPV), either mixed OPV-IPV or OPV-only series:
- Total number of doses needed to complete the series is the same as that recommended for the U.S. IPV schedule. See www.cdc.gov/mmwr/volumes/66/ww/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/ww/mm6606a7.htm?s_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
### Rotavirus vaccination

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

#### 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

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

#### 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**: Tdap should receive the routine Tdap dose at age 11–12 years.
  - **Children age 10 years**: 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

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

#### 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.
# 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 2022-23 seasonal influenza with Vaccines available at [www.cdc.gov/mmwr/volumes/71/rr/rr7101a1.htm](http://www.cdc.gov/mmwr/volumes/71/rr/rr7101a1.htm).

For COVID-19 vaccine contraindications and precautions see [www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html#contraindications](http://www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html#contraindications)

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<th>Vaccine</th>
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| Influenza, egg-based, inactivated injectable (IIIV4) | • Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IIIV, ccIIV, RIV, or LAIV of any valency)  
• Severe allergic reaction (e.g., anaphylaxis) to any vaccine component (excluding egg) | • Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine  
• Moderate or severe acute illness with or without fever |
| Influenza, cell culture-based inactivated injectable [(ccIIV4), Flucelvax® Quadrivalent] | • Severe allergic reaction (e.g., anaphylaxis) to any ccIIV of any valency, or to any component 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 IIIV, RIV, or LAIV of any valency. If using ccIIV4, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions. May consult an allergist.  
• Moderate or severe acute illness with or without fever |
| Influenza, recombinant injectable [(RIV4), Flublok® Quadrivalent] | • Severe allergic reaction (e.g., anaphylaxis) to any RIV of any valency, or to any component 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 IIIV, 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 IIIV, ccIIV, RIV, or LAIV of any valency)  
• Severe allergic reaction (e.g., anaphylaxis) to any vaccine component (excluding egg)  
• Children age 2 –4 years with a history of asthma or wheezing  
• Anatomic or functional asplenia  
• Immunocompromised due to any cause including, but not limited to, medications and HIV infection  
• Close contacts or caregivers of severely immunosuppressed persons who require a protected environment  
• Pregnancy  
• Cochlear implant  
• Active communication between the cerebrospinal fluid (CSF) and the oropharynx, nasopharynx, nose, ear or any other cranial CSF leak  
• Children and adolescents receiving aspirin or salicylate-containing medications  
• Received influenza antiviral medications oseltamivir or zanamivir within the previous 48 hours, peramivir within the previous 5 days, or baloxavir within the previous 17 days | • Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine  
• Asthma in persons 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 |

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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](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)
<table>
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<tr>
<th>Vaccine</th>
<th>Contraindicated or Not Recommended</th>
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| Dengue (DENACYD)                            | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ | • Pregnancy  
• HIV infection without evidence of severe immunosuppression  
• Moderate or severe acute illness with or without fever |
| Diphtheria, tetanus, pertussis (DTaP)       | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ | • Guillain-Barré syndrome (GBS) within 6 weeks after previous dose of tetanus-toxoid–containing vaccine  
• History of Arthur-type hypersensitivity reactions after a previous dose of diphtheria-toxoid–containing or tetanus-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  
• Moderate or severe acute illness with or without fever |
| Tetanus, diphtheria (DT)                    | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ | • Guillain-Barré syndrome (GBS) within 6 weeks after previous dose of tetanus-toxoid–containing vaccine  
• History of Arthur-type hypersensitivity reactions after a previous dose of diphtheria-toxoid–containing or tetanus-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  
• Moderate or severe acute illness with or without fever |
| Varicella (VAR)                             | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ | • Guillain-Barré syndrome (GBS) within 6 weeks after previous dose of tetanus-toxoid–containing vaccine  
• History of Arthur-type hypersensitivity reactions after a previous dose of diphtheria-toxoid–containing or tetanus-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  
• Moderate or severe acute illness with or without fever |
| Measles, mumps, rubella (MMR)               | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ | • Pregnancy  
• HIV infection without evidence of severe immunosuppression  
• Moderate or severe acute illness with or without fever |
| Poliovirus vaccine, inactivated (IPV)       | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ | • Pregnancy  
• HIV infection without evidence of severe immunosuppression  
• Moderate or severe acute illness with or without fever |
| Human papillomavirus (HPV)                 | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ | • Pregnancy: HPV vaccination not recommended.  
• Moderate or severe acute illness with or without fever |
| Measles, mumps, rubella, (MMR)              | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ | • Pregnancy: HPV vaccination not recommended.  
• Moderate or severe acute illness with or without fever |
| Meningococcal ACWY (MenACWY)               | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ | • For MenACWY-CRM only: Preterm birth if less than age 9 months  
• Moderate or severe acute illness with or without fever |
| Meningococcal B (MenB)                     | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ | • For MenB-4C only: Latex sensitivity  
• Moderate or severe acute illness with or without fever |
| Pneumococcal conjugate (PCV)               | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ | • For PCV10: Preterm birth if less than age 9 months  
• Moderate or severe acute illness with or without fever |
| Pneumococcal polysaccharide (PPSV23)       | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ | • For PPSV23: Preterm birth if less than age 9 months  
• Moderate or severe acute illness with or without fever |
| Poliovirus vaccine, inactivated (IPV)       | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ | • Pregnancy  
• Moderate or severe acute illness with or without fever |
| Rotavirus (RV)                             | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ | • Pregnancy  
• Moderate or severe acute illness with or without fever |
| Tetanus, diphtheria, and acellular pertussis (Tdap) | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ | • Pregnancy  
• Moderate or severe acute illness with or without fever |
| Varicella (VAR)                             | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ | • Pregnancy  
• HIV infection without evidence of severe immunosuppression  
• Moderate or severe acute illness with or without fever |
| Varicella (VAR)                             | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component¹ | • Pregnancy  
• HIV infection without evidence of severe immunosuppression  
• 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.
4. For information on the pregnancy exposure registries for persons who were inadvertently vaccinated with Hepvis-B or PreHevivirio while pregnant, please visit heplisavpregnancyregistry.com/ or www.prehevivirio.com/#safety.
**Recommended Adult Immunization Schedule**

for ages 19 years or older

**How to use the adult immunization schedule**

1. Determine recommended vaccinations by age (Table 1)
2. Assess need for additional recommended vaccinations by medical condition or other indication (Table 2)
3. Review vaccine types, dosing frequencies and intervals, and considerations for special situations (Notes)
4. Review contraindications and precautions for vaccine types (Appendix)

**Vaccines in the Adult Immunization Schedule**

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Abbreviation(s)</th>
<th>Trade name(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19 vaccine</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>
</tr>
<tr>
<td></td>
<td>1vCOV-aPS</td>
<td>Moderna COVID-19 Vaccine, Bivalent</td>
</tr>
<tr>
<td>Haemophilus influenzae type b vaccine</td>
<td>Hib</td>
<td>ActHIB*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hibrix*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PedvaxHIB*</td>
</tr>
<tr>
<td>Haemophilus influenzae type b vaccine</td>
<td>HepA</td>
<td>Havrix*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vaqta*</td>
</tr>
<tr>
<td>Hepatitis A vaccine</td>
<td>HepA</td>
<td>Heplisav-B®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heplisav®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PreHevB®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recombivax HB®</td>
</tr>
<tr>
<td>Hepatitis A and hepatitis B vaccine</td>
<td>HepA-Auto</td>
<td>Twinrix*</td>
</tr>
<tr>
<td>Hepatitis B vaccine</td>
<td>HepB</td>
<td>Engerix-B*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heplisav-B*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PreHevB®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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>Many brands</td>
</tr>
<tr>
<td>Influenza vaccine (live, attenuated)</td>
<td>LAIV4</td>
<td>FluMist Quadrivalent</td>
</tr>
<tr>
<td>Influenza vaccine (recombinant)</td>
<td>RIV4</td>
<td>Flublok Quadrivalent</td>
</tr>
<tr>
<td>Measles, mumps, and rubella vaccine</td>
<td>MMR</td>
<td>M-M-R II*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Menveo®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Priorix*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pediatric Priorix*</td>
</tr>
<tr>
<td>Meningococcal serogroups A, C, W, Y vaccine</td>
<td>MenACWY-D</td>
<td>Menactra*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Menveo*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MenQuadri®</td>
</tr>
<tr>
<td>Meningococcal serogroup B vaccine</td>
<td>MenB-4C</td>
<td>Bexsero®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Trumenba®</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MenB-FHbp</td>
</tr>
<tr>
<td>Pneumococcal conjugate vaccine</td>
<td>PCV15</td>
<td>Vaxneuvance™</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pneumovax®23</td>
</tr>
<tr>
<td>Pneumococcal polysaccharide vaccine</td>
<td>PPSV23</td>
<td>Pneumovax 23®</td>
</tr>
<tr>
<td>Poliovirus vaccine</td>
<td>IPV</td>
<td>IPOL*</td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids</td>
<td>Td</td>
<td>Tenivac*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TdVac™</td>
</tr>
<tr>
<td>Tetanus and diphtheria toxoids and acellular pertussis vaccine</td>
<td>Tdap</td>
<td>Adacel*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Boostrix*</td>
</tr>
<tr>
<td>Varicella vaccine</td>
<td>VAR</td>
<td>Varivax*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Zostavax*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shingrix</td>
</tr>
</tbody>
</table>

*Administer recommended vaccines if vaccination history is incomplete or unknown. Do not restart or add doses to vaccine series if there are extended intervals between doses. The use of trade names is for identification purposes only and does not imply endorsement by the ACIP or CDC.
<table>
<thead>
<tr>
<th>Vaccine</th>
<th>19–26 years</th>
<th>27–49 years</th>
<th>50–64 years</th>
<th>≥65 years</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COVID-19</strong></td>
<td>2- or 3- dose primary series and booster (See Notes)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza inactivated (IIV4) or Influenza recombinant (RIV4)</td>
<td>1 dose annually</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza live, attenuated (LAIV4)</td>
<td>or 1 dose annually</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Tetanus, diphtheria, pertussis</strong></td>
<td>1 dose Tdap each pregnancy; 1 dose Td/Tdap for wound management (see notes)</td>
<td>1 dose Tdap, then Td or Tdap booster every 10 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td>1 or 2 doses depending on indication (if born in 1957 or later)</td>
<td>For healthcare personnel, see notes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicella (VAR)</td>
<td>2 doses (if born in 1980 or later)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoster recombinant (RZV)</td>
<td>2 doses for immunocompromising conditions (see notes)</td>
<td></td>
<td>2 doses</td>
<td></td>
</tr>
<tr>
<td><strong>Human papillomavirus</strong> (HPV)</td>
<td>2 or 3 doses depending on age at initial vaccination or condition</td>
<td>27 through 45 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal (PCV15, PCV20, PPSV23)</td>
<td>1 dose PCV15 followed by PPSV23 OR 1 dose PCV20 (see notes)</td>
<td>See Notes</td>
<td>See Notes</td>
<td></td>
</tr>
<tr>
<td>Hepatitis A (HepA)</td>
<td>2, 3, or 4 doses depending on vaccine</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B (HepB)</td>
<td>2, 3, or 4 doses depending on vaccine or condition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal A, C, W, Y (MenACWY)</td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal B (MenB)</td>
<td>2 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
<td>19 through 23 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Haemophilus influenzae type b</strong></td>
<td>1 or 3 doses depending on indication</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of past infection**
- **Recommended vaccination for adults with an additional risk factor or another indication**
- **Recommended vaccination based on shared clinical decision-making**
- **No recommendation/Not applicable**
<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Pregnancy</th>
<th>Immuno-compromised (excluding HIV infection)</th>
<th>HIV infection CD4 percentage and count</th>
<th>Asplenia, complement deficiencies</th>
<th>End-stage renal disease, or on hemodialysis</th>
<th>Heart or lung disease; alcoholism</th>
<th>Chronic liver disease</th>
<th>Diabetes</th>
<th>Health care personnel</th>
<th>Men who have sex with men</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19</td>
<td></td>
<td>See Notes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IIV4 or RIV4 or LAIV4</td>
<td></td>
<td>Contraindicated</td>
<td>1 dose annually</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tdap or Td</td>
<td>1 dose Tdap each pregnancy</td>
<td>1 dose Tdap, then Td or Tdap booster every 10 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMR</td>
<td>Contraindicated*</td>
<td>1 or 2 doses depending on indication</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR</td>
<td>Contraindicated*</td>
<td>2 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RZV</td>
<td>Not Recommended*</td>
<td>2 doses at age ≥19 years</td>
<td>2 doses at age ≥50 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPV</td>
<td>3 doses through age 26 years</td>
<td>2 or 3 doses through age 26 years depending on age at initial vaccination or condition</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal (PCV15, PCV20, PPSV23)</td>
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<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HepA</td>
<td></td>
<td>2, 3, or 4 doses depending on vaccine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HepB</td>
<td>3 doses (see notes)</td>
<td>2, 3, or 4 doses depending on vaccine or condition</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MenACWY</td>
<td></td>
<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MenB</td>
<td>Precaution</td>
<td>2 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hib</td>
<td>3 doses HSCT* recipients only</td>
<td>1 dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of past infection.
- Recommended vaccination for adults with an additional risk factor or another indication.
- Recommended vaccination based on shared clinical decision-making.
- Precaution—vaccination 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.

a. Precaution for LAIV4 does not apply to alcoholism. b. See notes for influenza; hepatitis B; measles, mumps, and rubella; and varicella vaccinations. c. Hematopoietic stem cell transplant.
Recommended Adult Immunization Schedule for ages 19 years or older, United States, 2023

For vaccine recommendations for persons 18 years of age or younger, see the Recommended Child and Adolescent Immunization Schedule.

COVID-19 vaccination

**Routine vaccination**

- **Primary series:** 2-dose series at 0, 4-8 weeks (Moderna) or 2-dose series at 0, 3-8 weeks (Novavax, Pfizer-BioNTech)
- **Booster dose:** see www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html

**Special situations**

Persons who are moderately or severely immunocompromised

- **Primary series**
  - 3-dose series at 0, 4, 8 weeks (Moderna) 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

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

For Janssen COVID-19 Vaccine recipients see COVID-19 schedule at www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html


Hemophilus influenzae type b vaccination

**Special situations**

- Anatomical or functional asplenia (including sickle cell disease): 1 dose if previously did not receive Hib; if elective splenectomy, 1 dose preferably at least 14 days before splenectomy
- Hematopoietic stem cell transplant (HSCT): 3-dose series 4 weeks apart starting 6–12 months after successful transplant, regardless of Hib vaccination history

Hepatitis A vaccination

**Routine vaccination**

- **Not at risk but want protection from hepatitis A** (identification of risk factor not required):
  - 2-dose series HepA (Havrix 6–12 months apart or Vaqta 6–18 months apart [minimum interval: 6 months]) or
  - 3-dose series HepA-HepB (Twinrix at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 5 months])

**Special situations**

- At risk for hepatitis A virus infection: 2-dose series HepA or 3-dose series HepA-HepB as above
  - Chronic liver disease (e.g., persons with hepatitis B, hepatitis C, cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alanine aminotransferase [ALT] or aspartate aminotransferase [AST] level greater than twice the upper limit of normal)
  - HIV infection
  - Men who have sex with men
  - Injection or noninjection drug use
  - Persons experiencing homelessness
  - Work with hepatitis A virus in research laboratory or with nonhuman primates with hepatitis A virus infection

- Travel in countries with high or intermediate endemic hepatitis A (HepA-HepB [Twinrix] may be administered on an accelerated schedule of 3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months)
- Close, personal contact with international adoptee (e.g., household or regular babysitting) in first 60 days after arrival from country with high or intermediate endemic hepatitis A (administer dose 1 as soon as adoption is planned, at least 2 weeks before adoptee’s arrival)
- Pregnancy if at risk for infection or severe outcome from infection during pregnancy
- Settings for exposure, including health care settings targeting services to injection or noninjection drug users or group homes and nonresidential day care facilities for developmentally disabled persons (individual risk factor screening not required)

Hepatitis B vaccination

**Routine vaccination**

- **Age 19 through 59 years:** complete a 2- or 3- or 4-dose series
  - 2-dose series only applies when 2 doses of Heplisav-B* are used at least 4 weeks apart
  - 3-dose series Engerix-B, PreHevbrio*, or Recombivax HB at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 8 weeks / dose 1 to dose 3: 16 weeks]
  - 3-dose series HepA-HepB (Twinrix at 0, 1, 6 months [minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 5 months])
  - 4-dose series HepA-HepB (Twinrix) accelerated schedule of 3 doses at 0, 7, and 21–30 days, followed by a booster dose at 12 months

*Note: Heplisav-B and PreHevbrio are not recommended in pregnancy due to lack of safety data in pregnant persons.
### Recommended Adult Immunization Schedule, United States, 2023

#### Human papillomavirus vaccination

**Routine vaccination**
- **HPV vaccination recommended for all persons through age 26 years:** 2- or 3-dose series depending on age at initial vaccination or condition:
  - **Age 15 years or older at initial vaccination:**
    - 3-dose series at 0, 1–2 months, 6 months (minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 12 weeks / dose 1 to dose 3: 5 months; repeat dose if administered too soon)
  - **Age 9–14 years at initial vaccination and received 1 dose or 2 doses less than 5 months apart:**
    - 1 additional dose
  - **Age 9–14 years at initial vaccination and received 2 doses at least 5 months apart:**
    - HPV vaccination series complete, no additional dose needed
- **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.**

**Shared clinical decision-making**
- **Some adults age 27–45 years:** Based on shared clinical decision-making, 2- or 3-dose series as above

#### Special situations
- **Age ranges recommended above for routine and catch-up vaccination or shared clinical decision-making also apply in special situations**
- **Immunocompromising conditions, including HIV infection:** 3-dose series, even for those who initiate vaccination at age 9 through 14 years.
- **Pregnancy:** Pregnancy testing is not needed before vaccination; HPV vaccination is not recommended until after pregnancy; no intervention needed if inadvertently vaccinated while pregnant

### Influenza vaccination

**Routine vaccination**
- **Age 19 years or older:** 1 dose any influenza vaccine appropriate for age and health status annually.
- **Age 65 years or older:** Any one of quadrivalent high-dose inactivated influenza vaccine (HD-IIV4), quadrivalent recombinant influenza vaccine (RIV4), or quadrivalent adjuvanted inactivated influenza vaccine (allIV4) is preferred. If none of these three vaccines is available, then any other age-appropriate influenza vaccine should be used.
- **For the 2022–2023 season, see** [www.cdc.gov/mmwr/volumes/71/rr/rr7101a1.htm](http://www.cdc.gov/mmwr/volumes/71/rr/rr7101a1.htm)
- **For the 2023–2024 season, see the 2023–2024 ACIP influenza vaccine recommendations.**

**Special situations**
- **Egg allergy, hives only:** any influenza vaccine appropriate for age and health status annually
- **Egg allergy–any symptom 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.
- **Close contacts (e.g., caregivers, healthcare workers) 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.
- **Severe allergic reaction (e.g., anaphylaxis) to a vaccine component or a previous dose of any influenza vaccine:** see Appendix listing contraindications and precautions
Recommended Adult Immunization Schedule, United States, 2023

Notes

- History of Guillain-Barré syndrome within 6 weeks after previous dose of influenza vaccine: Generally, should not be vaccinated unless vaccination benefits outweigh risks for those at higher risk for severe complications from influenza

Measles, mumps, and rubella vaccination

Routine vaccination

- No evidence of immunity to measles, mumps, or rubella: 1 dose
  - **Evidence of immunity**: Born before 1957 (health care personnel, see below), documentation of receipt of MMR vaccine, laboratory evidence of immunity or disease (diagnosis of disease without laboratory confirmation is not evidence of immunity)

Special situations

- Pregnancy with no evidence of immunity to rubella: MMR contraindicated during pregnancy; after pregnancy (before discharge from health care facility), 1 dose
- Nonpregnant persons of childbearing age with no evidence of immunity to rubella: 1 dose
- HIV infection with CD4 percentages ≥15% and CD4 count ≥200 cells/mm³ for at least 6 months and no evidence of immunity to measles, mumps, or rubella: 2-dose series at least 4 weeks apart; MMR contraindicated for HIV infection with CD4 percentage <15% or CD4 count <200 cells/mm³
- Severe immunocompromising conditions: MMR contraindicated
- Students in postsecondary educational institutions, international travelers, and household or close, personal contacts of immunocompromised persons with no evidence of immunity to measles, mumps, or rubella: 2-dose series at least 4 weeks apart if previously did not receive any doses of MMR or 1 dose if previously received 1 dose MMR

In mumps outbreak settings, for information about additional doses of MMR (including 3rd dose of MMR), see www.cdc.gov/mmwr/volumes/67/wr/mm6701a7.htm

Health care personnel:
- Born before 1957 with no evidence of immunity to measles, mumps, or rubella: Consider 2-dose series at least 4 weeks apart for protection against measles or mumps or 1 dose for protection against rubella
- Born in 1957 or later with no evidence of immunity to measles, mumps, or rubella: 2-dose series at least 4 weeks apart for protection against measles or mumps or at least 1 dose for protection against rubella

Meningococcal vaccination

Special situations for MenACWY

- Anatomical or functional asplenia (including sickle cell disease), HIV infection, persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use: 2-dose series MenACWY-D (Menactra, Menveo, or MenQuadfi) at least 8 weeks apart and revaccinate every 5 years if risk remains
  - Travel in countries with hyperendemic or epidemic meningococcal disease, or microbiologists routinely exposed to Neisseria meningitidis: 1 dose MenACWY (Menactra, Menveo, or MenQuadfi) and revaccinate every 5 years if risk remains

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

- For MenACWY booster dose recommendations for groups listed under “Special situations” and in an outbreak setting (e.g., in community or organizational settings and among men who have sex with men) and additional meningococcal vaccination information, see www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm

Special situations for MenB

- Anatomical or functional asplenia (including sickle cell disease), chronic complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use, or microbiologists routinely exposed to Neisseria meningitidis: 2-dose primary series MenB-4C (Bexsero) at least 1 month apart or 3-dose primary series MenB-FHbp (Trumenba) at 0, 1–2, 6 months (if dose 2 was administered less than 6 months after dose 1, administer dose 3 at least 4 months after dose 2); MenB-4C and MenB-FHbp are not interchangeable (use same product for all doses in series)

Pregnancy:

- Delay MenB until after pregnancy unless at increased risk and vaccination benefits outweigh potential risks

For MenB booster dose recommendations for groups listed under “Special situations” and in an outbreak setting (e.g., in community or organizational settings and among men who have sex with men) and additional meningococcal vaccination information, see www.cdc.gov/mmwr/volumes/69/rr/rr6909a1.htm

Note: MenB vaccines may be administered simultaneously with MenACWY vaccines if indicated, but at a different anatomic site, if feasible.
Recommended Adult Immunization Schedule, United States, 2023

Pneumococcal vaccination

**Routine vaccination**

**Age 65 years or older who have:**

- Not previously received a dose of PCV13, PCV15, or PCV20 or whose previous vaccination history is unknown: 1 dose PCV15 OR 1 dose PCV20. If PCV15 is used, this should be followed by a dose of PPSV23 given at least 1 year after the PCV15 dose. A minimum interval of 8 weeks between PCV15 and PPSV23 can be considered for adults with an immunocompromising condition,* cochlear implant, or cerebrospinal fluid leak to minimize the risk of invasive pneumococcal disease caused by serotypes unique to PPSV23 in these vulnerable groups.

- Previously received only PCV7: follow the recommendation above.

- Previously received only PCV13: 1 dose PCV20 at least 1 year after the PCV13 dose OR complete the recommended PPSV23 series as described here www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf.

- Previously received only PPSV23: 1 dose PCV15 OR 1 dose PCV20 at least 1 year after the PPSV23 dose. If PCV15 is used, it need not be followed by another dose of PPSV23.

- Previously received both PCV13 and PPSV23 but NO PPSV23 was received at age 65 years or older: 1 dose PCV20 at least 5 years after their last pneumococcal vaccine dose OR complete the recommended PPSV23 series as described here www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf.

- Previously received both PCV13 and PPSV23, and PPSV23 was received at age 65 years or older: Based on shared clinical decision-making, 1 dose of PCV20 at least 5 years after the last pneumococcal vaccine dose.

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

**Special situations**

- Age 19–64 years with certain underlying medical conditions or other risk factors** who have

  - Not previously received a PCV13, PCV15, or PCV20 or whose previous vaccination history is unknown: 1 dose PCV15 OR 1 dose PCV20. If PCV15 is used, this should be followed by a dose of PPSV23 given at least 1 year after the PCV15 dose. A minimum interval of 8 weeks between PCV15 and PPSV23 can be considered for adults with an immunocompromising condition,* cochlear implant, or cerebrospinal fluid leak

  - Previously received only PCV7: follow the recommendation above.

  - Previously received only PCV13: 1 dose PCV20 at least 1 year after the PCV13 dose OR complete the recommended PPSV23 series as described here www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf.

  - Previously received only PPSV23: 1 dose PCV15 OR 1 dose PCV20 at least 1 year after the PPSV23 dose. If PCV15 is used, it need not be followed by another dose of PPSV23.

  - Previously received both PCV13 and PPSV23 but have not completed the recommended series: 1 dose PCV20 at least 5 years after their last pneumococcal vaccine dose OR complete the recommended PPSV23 series as described here www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf.

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

*Note: Immunocompromising conditions include chronic renal failure, nephrotic syndrome, immunodeficiency, iatrogenic immunosuppression, generalized malignancy, human immunodeficiency virus, Hodgkin disease, leukemia, lymphoma, multiple myeloma, solid organ transplants, congenital or acquired asplenia, sickle cell disease, or other hemoglobinopathies.

**Note: Underlying medical conditions or other risk factors include alcoholism, chronic heart/liver/lung disease, chronic renal failure, cigarette smoking, cochlear implant, congenital or acquired asplenia, CSF leak, diabetes mellitus, generalized malignancy, HIV, Hodgkin disease, immunodeficiency, iatrogenic immunosuppression, leukemia, lymphoma, multiple myeloma, nephrotic syndrome, solid organ transplants, or sickle cell disease or other hemoglobinopathies.

Polio vaccination

**Routine vaccination**

Routine poliovirus vaccination of adults residing in the United States is not necessary.

**Special situations**

- Adults 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
Tetanus, diphtheria, and pertussis vaccination

**Routine vaccination**
- Previously did not receive Tdap at or after age 11 years: 1 dose Tdap, then Td or Tdap every 10 years

**Special situations**
- Previously did not receive primary vaccination series for tetanus, diphtheria, or pertussis: 1 dose Tdap followed by 1 dose Td or Tdap at least 4 weeks later, and a third dose of Td or Tdap 6–12 months later (Tdap can be substituted for any Td dose, but preferred as first dose), Td or Tdap every 10 years thereafter
- Pregnancy: 1 dose Tdap during each pregnancy, preferably in early part of gestational weeks 27–36
- Wound management: Persons with 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 who have not previously received Tdap or whose Tdap history is unknown. If a tetanus-toxoid-containing vaccine is indicated for a pregnant woman, use Tdap. For detailed information, see www.cdc.gov/mmwr/volumes/69/wr/mm6903a5.htm

Varicella vaccination

**Routine vaccination**
- No evidence of immunity to varicella: 2-dose series 4–8 weeks apart if previously did not receive varicella-containing vaccine (VAR or MMRV [measles-mumps-rubella-varicella vaccine] for children); if previously received 1 dose varicella-containing vaccine, 1 dose at least 4 weeks after first dose
  - Evidence of immunity: U.S.-born before 1980 (except for pregnant persons and health care personnel [see below]), documentation of 2 doses varicella-containing vaccine at least 4 weeks apart, diagnosis or verification of history of varicella or herpes zoster by a health care provider, laboratory evidence of immunity or disease

**Special situations**
- Pregnancy with no evidence of immunity to varicella: VAR contraindicated during pregnancy; after pregnancy (before discharge from health care facility), 1 dose if previously received 1 dose varicella-containing vaccine or dose 1 of 2-dose series (dose 2: 4–8 weeks later) if previously did not receive any varicella-containing vaccine, regardless of whether U.S.-born before 1980
- Health care personnel with no evidence of immunity to varicella: 1 dose if previously received 1 dose varicella-containing vaccine; 2-dose series 4–8 weeks apart if previously did not receive any varicella-containing vaccine, regardless of whether U.S.-born before 1980
- HIV infection with CD4 percentages ≥15% and CD4 count ≥200 cells/mm³ with no evidence of immunity: Vaccination may be considered (2 doses 3 months apart); VAR contraindicated for HIV infection with CD4 percentage <15% or CD4 count <200 cells/mm³
- Severe immunocompromising conditions: VAR contraindicated

Zoster vaccination

**Routine vaccination**
- Age 50 years or older*: 2-dose series recombinant zoster vaccine (RZV, Shingrix) 2–6 months apart (minimum interval: 4 weeks; repeat dose if administered too soon), regardless of previous herpes zoster or history of zoster vaccine live (ZVL, Zostavax) vaccination.
  - Note: Serologic evidence of prior varicella is not necessary for zoster vaccination. However, if serologic evidence of varicella susceptibility becomes available, providers should follow ACIP guidelines for varicella vaccination first. RZV is not indicated for the prevention of varicella, and there are limited data on the use of RZV in persons without a history of varicella or varicella vaccination.

**Special situations**
- Pregnancy: There is currently no ACIP recommendation for RZV use in pregnancy. Consider delaying RZV until after pregnancy.
- Immunocompromising conditions (including persons with HIV regardless of CD4 count)**: 2-dose series recombinant zoster vaccine (RZV, Shingrix) 2–6 months apart (minimum interval: 4 weeks; repeat dose if administered too soon). For detailed information, see www.cdc.gov/shingles/vaccination/immunocompromised-adults.html
  - Note: If there is no documented history of varicella, varicella vaccination, or herpes zoster, providers should refer to the clinical considerations for use of RZV in immunocompromised adults aged ≥19 years and the ACIP varicella vaccine recommendations for further guidance: www.cdc.gov/mmwr/volumes/71/wr/mm7103a2.htm

2/17/2023

Centers for Disease Control and Prevention | Recommended Adult Immunization Schedule, United States, 2023
# Recommended Adult Immunization Schedule, United States, 2023

## Appendix

### 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 2022-23 Seasonal Influenza with Vaccines available at [www.cdc.gov/mmwr/volumes/71/rr/rr7101a1.htm](http://www.cdc.gov/mmwr/volumes/71/rr/rr7101a1.htm)

### For COVID-19 vaccine contraindications and precautions see
[www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html#contraindications](http://www.cdc.gov/vaccines/covid-19/clinical-considerations/interim-considerations-us.html#contraindications)

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Contraindicated or Not Recommended</th>
<th>Precautions</th>
</tr>
</thead>
</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 component\(^3\) (excluding egg) | • Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine  
• Moderate or severe acute illness with or without fever |
| Influenza, cell culture-based inactivated injectable ([ccIIV4], Flucelvax® Quadrivalent) | • Severe allergic reaction (e.g., anaphylaxis) to any ccIIV of any valency, or to any component\(^2\) 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 ccIV4, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions. May consult an allergist.  
• Moderate or severe acute illness with or without fever |
| Influenza, recombinant injectable ([RIV4], Flublok® Quadrivalent) | • Severe allergic reaction (e.g., anaphylaxis) to any RIV of any valency, or to any component\(^2\) of RIV4 | • Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine  
• Persons with a history of severe allergic reaction (e.g., anaphylaxis) after a previous dose of any egg-based IIV, ccIIV, or LAIV of any valency. If using RIV4, administer in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions. May consult an allergist.  
• Moderate or severe acute illness with or without fever |
| Influenza, live attenuated [LAIV4, Flumist® Quadrivalent] | • Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine (i.e., any egg-based IIV, ccIIV, RIV, or LAIV of any valency)  
• Severe allergic reaction (e.g., anaphylaxis) to any vaccine component\(^2\) (excluding egg)  
• 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  
• Received influenza antiviral medications oseltamivir or zanamivir within the previous 48 hours, peramivir within the previous 5 days, or baloxavir within the previous 17 days. | • Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of any type of influenza vaccine  
• Asthma in persons 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 |

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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](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 of 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 Adult Immunization Schedule, United States, 2023

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Contraindicated or Not Recommended</th>
<th>Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Haemophilus influenzae type b (Hib)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt;</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td></td>
<td>• For Hiberix, ActHib, and PedvaxHib only: History of severe allergic reaction to dry natural latex</td>
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<tr>
<td><strong>Hepatitis A (HepA)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt; including neomycin</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><strong>Hepatitis B (HepB)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt; including yeast</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td></td>
<td>• Pregnancy: HepB and PreHevBrio are not recommended due to lack of safety data in pregnant persons. Use other hepatitis B vaccines if HepB is indicated&lt;sup&gt;1&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td><strong>Hepatitis A-Hepatitis B vaccine [HepA-HepB, [Twintix&lt;sup&gt;®&lt;/sup&gt;]]</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt; including yeast</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><strong>Human papillomavirus (HPV)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt;</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td></td>
<td>• Pregnancy: HPV vaccination not recommended</td>
<td></td>
</tr>
<tr>
<td><strong>Measles, mumps, rubella (MMR)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt;</td>
<td>• Recent (&lt;11 months) receipt of antibody-containing blood product (specific interval depends on product)</td>
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<td></td>
<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>• History of thrombocytopenia or thrombocytopenic purpura</td>
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<tr>
<td></td>
<td>• Pregnancy</td>
<td>• Need for tuberculin skin testing or interferon-gamma release assay (IGRA) testing</td>
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<tr>
<td></td>
<td>• Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><strong>Meningococcal ACWY (MenACWY)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt;</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>(MenACWY-CRM (Menveo®); MenACWY-D (Menactra®); MenACWY-TT (MenQuadrIf&lt;sup&gt;®&lt;/sup&gt;))</td>
<td>• For MenACWY-D and MenACWY-CRM only: severe allergic reaction to any diphtheria toxoid— or CRM197—containing vaccine</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• For MenACWY-TT only: severe allergic reaction to a tetanus toxoid-containing vaccine</td>
<td></td>
</tr>
<tr>
<td><strong>Meningococcal B (MenB)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt;</td>
<td>• Pregnancy</td>
</tr>
<tr>
<td>(MenB-4C (Bexsero); MenB-FHbp (Trumenba))</td>
<td>• For MenB-4C only: Latex sensitivity</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><strong>Pneumococcal conjugate (PCV15, PCV20)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt;</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><strong>Pneumococcal polysaccharide (PPSV23)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt;</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><strong>Tetanus, diphtheria, and acellular pertussis (Tdap)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt;</td>
<td>• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of tetanus-toxoid—containing vaccine</td>
</tr>
<tr>
<td>(Tdap)</td>
<td>• For Tdap 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, DTaP, or Tdap</td>
<td>• History of Arthus-type hypersensitivity reactions after a previous dose of diphtheria-toxoid—containing or tetanus-toxoid—containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus-toxoid—containing vaccine</td>
</tr>
<tr>
<td><strong>Varicella (VAR)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt;</td>
<td>• Recent (&lt;11 months) receipt of antibody-containing blood product (specific interval depends on product)</td>
</tr>
<tr>
<td></td>
<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>• Receipt of specific antiviral drugs (acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination (avoid use of these antiviral drugs for 14 days after vaccination)</td>
</tr>
<tr>
<td></td>
<td>• Pregnancy</td>
<td>• Use of aspirin or aspirin-containing products</td>
</tr>
<tr>
<td></td>
<td>• Family history of altered immunocompetence, unless verified clinically or by laboratory testing as immunocompetent</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td><strong>Zoster recombinant vaccine (RZV)</strong></td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component&lt;sup&gt;1&lt;/sup&gt;</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td></td>
<td>• Current herpes zoster infection</td>
<td></td>
</tr>
</tbody>
</table>

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4. For information on the pregnancy exposure registries for persons who were inadvertently vaccinated with Heplisav-B or PreHevBrio while pregnant, please visit [heplisavbpregnancyregistry.com](http://heplisavbpregnancyregistry.com) or [www.prehev briovo.com/#safety](http://www.prehev briovo.com/#safety).