Dear Colleague:

The Centers for Disease Control and Prevention (CDC) had released the 2020 Recommended Immunization Schedules. These schedules and footnotes, 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 [https://www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html](https://www.cdc.gov/vaccines/schedules/hcp/imz/child-adolescent.html) and [https://www.cdc.gov/vaccines/schedules/hcp/imz/adult.html](https://www.cdc.gov/vaccines/schedules/hcp/imz/adult.html), respectively.

Highlights of the changes to both schedules include the indication that either Td or Tdap may be used for the decennial tetanus, diphtheria, and pertussis booster and catch-up vaccination in persons who have previously received Tdap.

**For children and adolescents specifically:**
Changes to the child and adolescent schedule include the guidance that for children who received MenACWY prior to age 10 years, doses at age 11-12 and age 16 years are now explicitly recommended. In addition, a dose of Tdap or DTaP administered at age 10 years may now be counted as the adolescent booster dose, while a dose administered at age 7 through 9 years should still not be counted as the adolescent dose (previously it was doses administered at ages 7 through 10 years that could not be counted as the adolescent dose). This change was made so it is clear that Tdap required for school entry at 6th grade may be administered at 10 years of age.

**For adults specifically:**
Changes to the adult schedule include, for HPV, a shared clinical decision-making subsection for persons 27-45 years of age. In addition, for pneumococcal vaccination, one dose of PPSV23 is still recommended for immunocompetent adults age 65 and older, but shared clinical decision-making is recommended regarding the administration of PCV13 in those persons.

Shared clinical decision-making recommendations on vaccine administration are individually-based and informed by a decision process between the health care provider and the patient and/or guardian. CDC recently developed a list of Frequently Asked Questions intended to provide clarity on implementing this process. They are available at [https://www.cdc.gov/vaccines/acip/acip-scdm-faqs.html](https://www.cdc.gov/vaccines/acip/acip-scdm-faqs.html).

Recommendations from the Advisory Committee on Immunization Practices (ACIP) are considered the standard of care of immunization practice in the United States, even if not included in the package insert. Vaccines should always be administered in accordance with current CDC and ACIP recommendations.

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 Yorkers safe from vaccine-preventable diseases.

Sincerely,

Jane R. Zucker, MD, MSc
Assistant Commissioner
Bureau of Immunization
## Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger

### Vaccines in the Child and Adolescent Immunization Schedule*

<table>
<thead>
<tr>
<th>Vaccines</th>
<th>Abbreviations</th>
<th>Trade names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diphtheria, tetanus, and acellular pertussis vaccine</td>
<td>DTaP</td>
<td>Daptacel*</td>
</tr>
<tr>
<td>Diphtheria, tetanus vaccine</td>
<td>DT</td>
<td>No trade name</td>
</tr>
<tr>
<td><em>Haemophilus influenzae</em> type b vaccine</td>
<td>Hib (PRP-T)</td>
<td>ActHIB*</td>
</tr>
<tr>
<td></td>
<td>Hib (PRP-OMP)</td>
<td>Hibrix* PedvaxHIB*</td>
</tr>
<tr>
<td>Hepatitis A vaccine</td>
<td>HepA</td>
<td>Havrix* Vaqta*</td>
</tr>
<tr>
<td>Hepatitis B vaccine</td>
<td>HepB</td>
<td>Engerix-B* Recombivax HB*</td>
</tr>
<tr>
<td>Human papillomavirus vaccine</td>
<td>HPV</td>
<td>Gardasil 9*</td>
</tr>
<tr>
<td>Influenza vaccine (inactivated)</td>
<td>IIV</td>
<td>Multiple</td>
</tr>
<tr>
<td>Influenza vaccine (live, attenuated)</td>
<td>LAIV</td>
<td>FluMist* Quadrivalent</td>
</tr>
<tr>
<td>Measles, mumps, and rubella vaccine</td>
<td>MMR</td>
<td>M-M-R* II</td>
</tr>
<tr>
<td>Meningococcal serogroups A, C, W, Y vaccine</td>
<td>MenACWY-D</td>
<td>Menactra*</td>
</tr>
<tr>
<td></td>
<td>MenACWY-CRM</td>
<td>Menveo*</td>
</tr>
<tr>
<td>Meningococcal serogroup B vaccine</td>
<td>MenB-4C</td>
<td>Bexsero*</td>
</tr>
<tr>
<td></td>
<td>MenB-FHbp</td>
<td>Trumenba*</td>
</tr>
<tr>
<td>Pneumococcal 13-valent conjugate vaccine</td>
<td>PCV13</td>
<td>Prevnar 13*</td>
</tr>
<tr>
<td>Pneumococcal 23-valent polysaccharide vaccine</td>
<td>PPSV23</td>
<td>Pneumovax® 23</td>
</tr>
<tr>
<td>Poliovirus vaccine (inactivated)</td>
<td>IPV</td>
<td>IPOL*</td>
</tr>
<tr>
<td>Rotavirus vaccine</td>
<td>RV1</td>
<td>Rotarix* RotaTeq*</td>
</tr>
<tr>
<td>Tetanus, diphtheria, and acellular pertussis vaccine</td>
<td>Tdap</td>
<td>Adacel* Boostrix*</td>
</tr>
<tr>
<td>Tetanus and diphtheria vaccine</td>
<td>Td</td>
<td>Tenivac* Tdavax™</td>
</tr>
<tr>
<td>Varicella vaccine</td>
<td>VAR</td>
<td>Varivax®</td>
</tr>
<tr>
<td><strong>Combination vaccines (use combination vaccines instead of separate injections when appropriate)</strong></td>
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</tr>
<tr>
<td>DTaP, hepatitis B, and inactivated poliovirus vaccine</td>
<td>DTaP-HepB-IPV</td>
<td>Pediarix*</td>
</tr>
<tr>
<td>DTaP, inactivated poliovirus, and <em>Haemophilus influenzae</em> type b vaccine</td>
<td>DTaP-IPV/Hib</td>
<td>Pentacel*</td>
</tr>
<tr>
<td>DTaP and inactivated poliovirus vaccine</td>
<td>DTaP-IPV</td>
<td>Kinrix* Quadracel*</td>
</tr>
<tr>
<td>Measles, mumps, rubella, and varicella vaccine</td>
<td>MMRV</td>
<td>ProQuad*</td>
</tr>
</tbody>
</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/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 and other indications (Table 3)**
4. **Review vaccine types, frequencies, intervals, and considerations for special situations (Notes)**

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**Report**

- Suspected cases of reportable vaccine-preventable diseases or outbreaks to your state or local health department
- Clinically significant adverse events to the Vaccine Adverse Event Reporting System (VAERS) at www.vaers.hhs.gov or 800-822-7967

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**Helpful information**

- Complete ACIP recommendations: www.cdc.gov/vaccines/hcp/acip-recs/index.html
- General Best Practice Guidelines for Immunization: www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html
- Outbreak information (including case identification and outbreak response), see Manual for the Surveillance of Vaccine-Preventable Diseases: www.cdc.gov/vaccines/pubs/surv-manual

Download the CDC Vaccine Schedules App for providers at www.cdc.gov/vaccines/schedules/hcp/schedule-app.html.
Table 1: Recommended Child and Adolescent Immunization Schedule for ages 18 years or younger, United States, 2020

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). School entry and adolescent vaccine age groups are shaded in gray.

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

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). School entry and adolescent vaccine age groups are shaded in gray.

Legend:
- Range of recommended ages for all children
- Range of recommended ages for catch-up immunization
- Range of recommended ages for certain high-risk groups
- Recommended based on shared clinical decision-making or *can be used in this age group
- No recommendation/not applicable

*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). School entry and adolescent vaccine age groups are shaded in gray.
### Recommended Catch-up Immunization Schedule for Children and Adolescents Who Start Late or Who are More than 1 month Behind, United States, 2020

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.**

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Minimum Age for Dose 1</th>
<th>Children age 4 months through 6 years</th>
<th>Minimum Interval Between Doses</th>
<th>Children and adolescents age 7 through 18 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B</td>
<td>Birth</td>
<td>Dose 1 to Dose 2</td>
<td>Dose 2 to Dose 3</td>
<td>Minimum Interval Between Doses</td>
</tr>
<tr>
<td>Rotavirus</td>
<td>6 weeks Maximum age for first dose is 14 weeks, 6 days</td>
<td>4 weeks</td>
<td>8 weeks and at least 16 weeks after first dose. Minimum age for the final dose is 24 weeks.</td>
<td>Dose 3 to Dose 4 Dose 4 to Dose 5</td>
</tr>
<tr>
<td>Diphtheria, tetanus, and acellular pertussis</td>
<td>6 weeks</td>
<td>Dose 1 to Dose 2</td>
<td>4 weeks and at least 16 weeks after first dose. Minimum age for the final dose is 24 weeks.</td>
<td>6 months 6 months</td>
</tr>
<tr>
<td>Haemophilus influenza type b</td>
<td>6 weeks</td>
<td>No further doses needed if first dose was administered at age 15 months or older. 4 weeks if first dose was administered before the 1st birthday. 8 weeks (as final dose) if first dose was administered at age 12 through 14 months.</td>
<td>No further doses needed if previous dose was administered at age 15 months or older. 4 weeks if current age is younger than 12 months and first dose was administered at younger than age 7 months and at least 1 previous dose was PRP-T (ActHib, Pentacel, Hibrix) or unknown. 8 weeks and age 12 through 59 months (as final dose) if current age is younger than 12 months and first dose was administered at age 7 through 11 months; OR if current age is 12 through 59 months and first dose was administered before the 1st birthday and second dose administered at younger than 15 months; OR if both doses were PRP-OMP (PedvaxHIB, Comvax) and were administered before the 1st birthday.</td>
<td>8 weeks (as final dose) This dose only necessary for children age 12 through 59 months who received 3 doses before the 1st birthday.</td>
</tr>
<tr>
<td>Pneumococcal conjugate</td>
<td>6 weeks</td>
<td>No further doses needed for healthy children if first dose was administered at age 24 months or older. 4 weeks if first dose was administered before the 1st birthday. 8 weeks (as final dose for healthy children) if first dose was administered at the 1st birthday or after.</td>
<td>No further doses needed for healthy children if previous dose was administered at age 24 months or older. 4 weeks if current age is younger than 12 months and previous dose was administered at &lt;7 months old. 8 weeks (as final dose for healthy children) if previous dose was administered between 7–11 months (wait until at least 12 months old); OR if current age is 12 months or older and at least 1 dose was given before age 12 months.</td>
<td>8 weeks (as final dose) This dose only necessary for children age 12 through 59 months who received 3 doses before age 12 months or for children at high risk who received 3 doses at any age.</td>
</tr>
<tr>
<td>Inactivated poliovirus</td>
<td>6 weeks</td>
<td>4 weeks</td>
<td>4 weeks if current age is &lt; 4 years. 6 months (as final dose) if current age is 4 years or older.</td>
<td>6 months (minimum age 4 years for final dose).</td>
</tr>
<tr>
<td>Measles, mumps, rubella</td>
<td>12 months</td>
<td>4 weeks</td>
<td>See Notes</td>
<td>See Notes</td>
</tr>
<tr>
<td>Varicella</td>
<td>12 months</td>
<td>3 months</td>
<td></td>
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</tr>
<tr>
<td>Hepatitis A</td>
<td>12 months</td>
<td>6 months</td>
<td></td>
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</tr>
<tr>
<td>Meningococcal ACWY</td>
<td>2 months MenACWY-CRM 9 months MenACWY-D</td>
<td>8 weeks</td>
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</tr>
<tr>
<td><strong>Table 2</strong></td>
<td></td>
<td><strong>Table 2</strong></td>
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</tr>
</tbody>
</table>
Table 3: Recommended Child and Adolescent Immunization Schedule by Medical Indication, United States, 2020

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

<table>
<thead>
<tr>
<th>VACCINE</th>
<th>Indication</th>
<th>HIV Infection CD4+ count</th>
<th>Kidney failure, end-stage renal disease, or on hemodialysis</th>
<th>Heart disease or chronic lung disease</th>
<th>CSF leaks or cochlear implants</th>
<th>Asplenia or persistent complement deficiencies</th>
<th>Chronic liver disease</th>
<th>Diabetes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B</td>
<td>Pregnancy</td>
<td></td>
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<tr>
<td>Rotavirus</td>
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<tr>
<td>Diphtheria, tetanus, &amp; acellular pertussis (DTaP)</td>
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<tr>
<td>Haemophilus influenzae type b</td>
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<tr>
<td>Pneumococcal conjugate</td>
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<tr>
<td>Inactivated poliovirus</td>
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<td>Influenza (IIV)</td>
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<td>Influenza (LAIV)</td>
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<td>Measles, mumps, rubella</td>
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<tr>
<td>Varicella</td>
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<td>Hepatitis A</td>
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<td>Tetanus, diphtheria, &amp; acellular pertussis (Tdap)</td>
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<td>Meningococcal B</td>
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<td>Pneumococcal polysaccharide</td>
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</table>

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

2. Severe Combined Immunodeficiency

3. LAIV contraindicated for children 2–4 years of age with asthma or wheezing during the preceding 12 months.

Vaccination according to the routine schedule recommended
Recommended for persons with an additional risk factor for which the vaccine would be indicated
Vaccination is recommended, and additional doses may be necessary based on medical condition. See Notes.
Not recommended/contraindicated—vaccine should not be administered
Precaution—vaccine might be indicated if benefit of protection outweighs risk of adverse reaction
Delay vaccination until after pregnancy if vaccine indicated
No recommendation/not applicable
The National Vaccine Injury Compensation Program (VICP) is a no-fault alternative to the traditional legal system for resolving vaccine injury claims. All routine child and adolescent vaccines are covered by VICP except for pneumococcal polysaccharide vaccine (PPSV23). For more information, see www.hrsa.gov/vaccinecompensation/index.html.
Hepatitis A vaccination (minimum age: 12 months for routine vaccination)

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

**Catch-up vaccination**
- Unvaccinated persons through 18 years should complete a 2-dose series (minimum interval: 6 months).
- Persons who previously received 1 dose at age 12 months or older should receive dose 2 at least 6 months after dose 1.
- Adolescents 18 years and older may receive the combined HepA and HepB vaccine, Twinrix®, as a 3-dose series (0, 1, and 6 months) or 4-dose series (0, 7, and 21–30 days, followed by a dose at 12 months).

**International travel**
- Persons traveling to or working in countries with high or intermediate endemic hepatitis A ([www.cdc.gov/travel/](http://www.cdc.gov/travel/)):
  - Infants age 6–11 months: 1 dose before departure; revaccinate with 2 doses, separated by at least 6 months, between 12 and 23 months of age
  - Unvaccinated age 12 months and older: Administer dose 1 as soon as travel is considered.

Hepatitis B vaccination (minimum age: birth)

**Birth dose (monovalent HepB vaccine only)**
- Mother is HBsAg-negative: 1 dose within 24 hours of birth for all medically stable infants ≥2,000 grams. Infants <2,000 grams: Administer 1 dose at chronological age 1 month or hospital discharge.
- Mother is HBsAg-positive:
  - Administer HepB vaccine and hepatitis B immune globulin (HBIG) (in separate limbs) within 12 hours of birth, regardless of birth weight. For infants <2,000 grams, administer 3 additional doses of vaccine (total of 4 doses) beginning at age 1 month.
  - Test for HBsAg and anti-HBs at age 9–12 months. If HepB series is delayed, test 1–2 months after final dose.
- Mother’s HBsAg status is unknown:
  - Administer HepB vaccine within 12 hours of birth, regardless of birth weight.
  - For infants <2,000 grams, administer HBIG in addition to HepB vaccine (in separate limbs) within 12 hours of birth. Administer 3 additional doses of vaccine (total of 4 doses) beginning at age 1 month.
  - Determine mother’s HBsAg status as soon as possible. If mother is HBsAg-positive, administer HBIG to infants ≥2,000 grams as soon as possible, but no later than 7 days of age.

**Routine series**
- 3-dose series at 0, 1–2, 6–18 months (use monovalent HepB vaccine for doses administered before age 6 weeks)
- Infants who did not receive a birth dose should begin the series as soon as feasible (see Table 2).
- Administration of 4 doses is permitted when a combination vaccine containing HepB is used after the birth dose.
- Minimum age for the final (3rd or 4th) dose: 24 weeks
- Minimum intervals: dose 1 to dose 2: 4 weeks / dose 2 to dose 3: 8 weeks / dose 1 to dose 3: 16 weeks (when 4 doses are administered, substitute “dose 4” for “dose 3” in these calculations)

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

**Special situations**
- Revaccination is not generally recommended for persons with a normal immune status who were vaccinated as infants, children, adolescents, or adults.
- Revaccination may be recommended for certain populations, including:
  - Infants born to HBsAg-positive mothers
  - Hemodialysis patients
  - Other immunocompromised persons
- For detailed revaccination recommendations, see [www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hepb.html](http://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hepb.html).

Human papillomavirus vaccination (minimum age: 9 years)

**Routine and catch-up vaccination**
- HPV vaccination routinely recommended at age 11–12 years (can start at age 9 years) and catch-up HPV vaccination recommended for all persons through age 18 years if not adequately vaccinated:
  - Age 9 through 14 years at initial vaccination: 2-dose series at 0, 6–12 months (minimum interval: 5 months; repeat dose if administered too soon)
  - Age 15 years or older at initial vaccination: 3-dose series at 0, 1–2 months, 6 months (minimum interval: 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)
- If completed valid vaccination series with any HPV vaccine, no additional doses needed

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

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

**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, 2019, 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, 2019
  - 1 dose for all persons age 9 years and older
- For the 2020–21 season, see the 2020–21 ACIP influenza vaccine recommendations.

**Special situations**
- Egg allergy, hives only: Any influenza vaccine appropriate for age and health status annually
- Egg allergy with symptoms other than hives (e.g., angioedema, respiratory distress, need for emergency medical services or epinephrine): Any influenza vaccine appropriate for age and health status annually in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions
- LAIV should not be used in persons with the following conditions or situations:
  - History of severe allergic reaction to a previous dose of any influenza vaccine or to any vaccine component (excluding egg, see details above)
  - Receiving aspirin or salicylate-containing medications
  - Age 2–4 years with history of asthma or wheezing
  - Immunocompromised due to any cause (including medications and HIV infection)
  - Anatomic or functional asplenia
  - Cochlear implant
  - Cerebrospinal fluid-orthonygeal communication
  - Close contacts or caregivers of severely immunosuppressed persons who require a protected environment
  - Pregnancy
- Received influenza antiviral medications within the previous 48 hours
Measles, mumps, and rubella vaccination
(minimum age: 12 months for routine vaccination)

Routine vaccination
- 2-dose series at 12–15 months, 4–6 years
- Dose 2 may be administered as early as 4 weeks after dose 1.

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

Special situations
International travel
- Infants age 6–11 months: 1 dose before departure; revaccinate with 2-dose series with dose 1 at 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 and older: 2-dose series at least 4 weeks apart before departure

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

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

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

Special situations
Anatomic or functional asplenia (including sickle cell disease), HIV infection, persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use:
- Menveo
  - Dose 1 at age 8 weeks: 4-dose series at 2, 4, 6, 12 months
  - Dose 1 at age 7–23 months: 2-dose series (dose 2 at least 12 weeks after dose 1 and after age 12 months)
  - Dose 1 at age 24 months or older: 2-dose series at least 8 weeks apart
- Menactra
  - Persistent complement component deficiency or complement inhibitor use:
    - Age 9–23 months: 2-dose series at least 12 weeks apart
    - Age 24 months or older: 2-dose series at least 8 weeks apart
  - 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
  - Menactra must be administered at least 4 weeks after completion of PCV13 series.

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

Travel in countries with hyperendemic or epidemic meningococcal disease, including countries in the African meningitis belt or during the Hajj (www.cdc.gov/travel/):
- Children less than age 24 months:
  - Menveo (age 2–23 months):
    - Dose 1 at 8 weeks: 4-dose series at 2, 4, 6, 12 months
    - Dose 1 at 7–23 months: 2-dose series (dose 2 at least 12 weeks after dose 1 and after age 12 months)
  - Menactra (age 9–23 months):
    - 2-dose series (dose 2 at least 12 weeks after dose 1; dose 2 may be administered as early as 8 weeks after dose 1 in travelers)
  - Children age 2 years or older: 1 dose Menveo or Menactra

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

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

Note: Menactra should be administered either before or at the same time as DTaP. For MenACWY booster dose recommendations for groups listed under “Special situations” and in an outbreak setting and for additional meningococcal vaccination information, see www.cdc.gov/vaccines/hcp/acip/recs/vacc-specific/mening.html.

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

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

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

Special situations
High-risk conditions below: When both PCV13 and PPSV23 are indicated, administer PCV13 first. PCV13 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 PCV13 doses: 1 dose PCV13 (at least 8 weeks after any prior PCV13 dose)
  - Less than 3 PCV13 doses: 2 doses PCV13 (8 weeks after the most recent dose and administered 8 weeks apart)
  - No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose)

Age 6–18 years
- No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose)

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

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

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

For MenB booster dose recommendations for groups listed under “Special situations” and in an outbreak setting and for additional meningococcal vaccination information, see www.cdc.gov/vaccines/hcp/acip/recommendations.html and www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/mening.html.
Sickle cell disease and other hemoglobinopathies; anatomic or functional asplenia; congenital or acquired immunodeficiency; HIV infection; chronic renal failure; nephrotic syndrome; malignant neoplasms, leukemias, lymphomas, Hodgkin disease, and other diseases associated with treatment with immunosuppressive drugs or radiation therapy; solid organ transplantation; multiple myeloma:

Age 2–5 years
- Any incomplete* series with:
  - 3 PCV13 doses: 1 dose PCV13 (at least 8 weeks after any prior PCV13 dose)
  - Less than 3 PCV13 doses: 2 doses PCV13 (8 weeks after the most recent dose and administered 8 weeks apart)
- No history of PCV13: 1 dose PCV13 (at least 8 weeks after any prior PCV13 dose) and a 2nd dose of PCV13 5 years later

Age 6–18 years
- No history of either PCV13 or PPSV23: 1 dose PCV13, 2 doses PPSV23 (dose 1 of PPSV23 administered 8 weeks after PCV13 and dose 2 of PPSV23 administered at least 5 years after dose 1 of PCV13)
- Any PCV13 but no PPSV23: 2 doses PPSV23 (dose 1 of PPSV23 administered 8 weeks after the most recent dose of PCV13 and dose 2 of PPSV23 administered at least 5 years after dose 1 of PPSV23)
- PPSV23 but no PCV13: 1 dose PCV13 at least 8 weeks after the most recent PPSV23 dose and a 2nd dose of PPSV23 administered at least 5 years after dose 1 of PPSV23

Chronic liver disease, alcoholism:

Age 6–18 years
- No history of PPSV23: 1 dose PPSV23 (at least 8 weeks after any prior PCV13 dose)

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

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

**Routine vaccination**
- 4-dose series at ages 2, 4, 6–18 months, 4–6 years; administer the final dose at 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 at 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 18 years and older.
- Series containing oral polio vaccine (OPV), either mixed OPV-IPV or OPV-only series:
  - Total number of doses needed to complete the series is the same as that recommended for the U.S. IPV schedule. See www.cdc.gov/mmwr/volumes/66/wr/mm6601a6.htm?s_cid=mm6601a6_w.
  - Only trivalent OPV (TOPV) counts toward the U.S. vaccination requirements.
  - Doses of OPV administered before April 1, 2016, should be counted (unless specifically noted as administered during a campaign).
  - Doses of OPV administered on or after April 1, 2016, should not be counted.
  - For guidance to assess doses documented as “OPV,” see www.cdc.gov/mmwr/volumes/66/wr/mm6606a7.htm?s_cid=mm6606a7_w.
- For other catch-up guidance, see Table 2.

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

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

**Notes**

### Varicella vaccination
(minimum age: 12 months)

**Routine vaccination**
- 2-dose series at 12–15 months, 4–6 years
- Dose 2 may be administered as early as 3 months after dose 1 (a dose administered after a 4-week interval may be counted).

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

**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 7–10 years:
  - Children age 7–9 years who receive Tdap should receive the routine Tdap dose at age 11–12 years.
  - Children age 10 years who receive Tdap do not need to receive the routine Tdap dose at age 11–12 years.
- DTaP inadvertently administered at or after age 7 years:
  - Children age 7–9 years: DTaP may count as part of catch-up series. Routine Tdap dose at age 11–12 years should be administered.
  - Children age 10–18 years: Count dose of DTaP as the adolescent Tdap booster.
- For other catch-up guidance, see Table 2.
- For information on use of Tdap or Td as tetanus prophylaxis in wound management, see www.cdc.gov/mmwr/volumes/67/rr/rr6702a1.htm.

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

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

**Routine vaccination**
- Adolescents age 11–12 years: 1 dose Tdap
- Pregnancy: 1 dose Tdap during each pregnancy, preferably in early part of gestational weeks 27–36
- Tdap may be administered regardless of the interval since the last tetanus- and diphtheria-toxoid-containing vaccine.
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 and other indications (Table 2)
3. Review vaccine types, frequencies, and intervals and considerations for special situations (Notes)

Vaccines in the Adult Immunization Schedule*

<table>
<thead>
<tr>
<th>Vaccines</th>
<th>Abbreviations</th>
<th>Trade names</th>
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</thead>
<tbody>
<tr>
<td>Haemophilus influenzae type b vaccine</td>
<td>Hib</td>
<td>ActHIB® Hiberix® PedvaxHIB®</td>
</tr>
<tr>
<td>Hepatitis A vaccine</td>
<td>HepA</td>
<td>Havrix® Varta®</td>
</tr>
<tr>
<td>Hepatitis A and hepatitis B vaccine</td>
<td>HepA-HepB</td>
<td>Twinrix®</td>
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<td>Hepatitis B vaccine</td>
<td>HepB</td>
<td>Engerix-B® Recombivax HB® Heplisav-B®</td>
</tr>
<tr>
<td>Human papillomavirus vaccine</td>
<td>HPV vaccine</td>
<td>Gardasil 9®</td>
</tr>
<tr>
<td>Influenza vaccine (inactivated)</td>
<td>IIV</td>
<td>Many brands</td>
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<tr>
<td>Influenza vaccine (live, attenuated)</td>
<td>LAIV</td>
<td>FluMist®Quadivalent</td>
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<tr>
<td>Influenza vaccine (recombinant)</td>
<td>RIV</td>
<td>Flublok® Quadivalent</td>
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<tr>
<td>Measles, mumps, and rubella vaccine</td>
<td>MMR</td>
<td>M-M-R® II</td>
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<tr>
<td>Meningococcal serogroups A, C, W, Y vaccine</td>
<td>MenACWY</td>
<td>Menactra® Menveo®</td>
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<tr>
<td>Meningococcal serogroup B vaccine</td>
<td>MenB-4C</td>
<td>Bexsero® Trumena®</td>
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<td>Pneumococcal 13-valent conjugate vaccine</td>
<td>PCV13</td>
<td>Prevnar 13®</td>
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<td>Pneumococcal 23-valent polysaccharide vaccine</td>
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<td>Tetanus and diphtheria toxoids</td>
<td>Td</td>
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<td>Tetanus and diphtheria toxoids and acellular pertussis vaccine</td>
<td>Tdap</td>
<td>Adacel® Boostrix®</td>
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<td>Varivax®</td>
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<td>Zoster vaccine, recombinant</td>
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<td>Shingrix</td>
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<td>Zoster vaccine live</td>
<td>ZVL</td>
<td>Zostavax®</td>
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</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>
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<tbody>
<tr>
<td>Influenza inactivated (IIV) or Influenza recombinant (RIV)</td>
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<tr>
<td>Influenza live, attenuated (LAIV)</td>
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<tr>
<td>Tetanus, diphtheria, pertussis (Tdap or Td)</td>
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<tr>
<td>Measles, mumps, rubella (MMR)</td>
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<td>Varicella (VAR)</td>
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<td>Zoster recombinant (RZV) (preferred)</td>
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<td>Pneumococcal polysaccharide (PPSV23)</td>
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<td>1 or 2 doses depending on indication</td>
<td>1 dose</td>
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<td>Hepatitis A (HepA)</td>
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<td>2 or 3 doses depending on vaccine</td>
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<td>Hepatitis B (HepB)</td>
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<td>2 or 3 doses depending on vaccine</td>
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<td>Meningococcal A, C, W, Y (MenACWY)</td>
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<td>1 or 2 doses depending on indication, see notes for booster recommendations</td>
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<td>2 or 3 doses depending on vaccine and indication, see notes for booster recommendations</td>
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</tr>
<tr>
<td>Haemophilus influenza type b (Hib)</td>
<td></td>
<td></td>
<td>1 or 3 doses depending on indication</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**

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**Table 1**: Recommended Adult Immunization Schedule by Age Group, United States, 2020

- **1 dose annually**: 1 dose administered annually.
- **2 doses**: 2 doses administered at least 1 month apart.
- **2 doses (if born in 1980 or later)**: 2 doses administered at least 1 month apart.
- **2 doses (if born in 1957 or later)**: 2 doses administered at least 1 month apart.
- **1 or 2 doses depending on indication (if born in 1957 or later)**: 1 or 2 doses administered, based on indication.
- **1 or 2 doses depending on indication**: 1 or 2 doses administered, based on indication.
- **1 or 2 doses depending on vaccine**: 1 or 2 doses administered, based on vaccine.
- **1 or 2 doses depending on indication, see notes for booster recommendations**: 1 or 2 doses administered, based on indication, with notes for booster recommendations.
- **1 dose**: 1 dose administered.
- **2 doses**: 2 doses administered.
- **1 dose annually**: 1 dose administered annually.
- **1 dose Tdap, then Td or Tdap booster every 10 years**: 1 dose Tdap, followed by Td or Tdap booster every 10 years.

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*Recommended vaccination for adults who meet age requirement, lack documentation of vaccination, or lack evidence of past infection*
## Table 2

**Recommended Adult Immunization Schedule by Medical Condition and Other Indications, United States, 2020**

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Pregnancy</th>
<th>Immuno-compromised (excluding HIV infection)</th>
<th>HIV infection CD4 count</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>CD4 count &lt;200</td>
<td>≥200</td>
</tr>
<tr>
<td>IIV or RIV or LAIV</td>
<td>1 dose annually</td>
<td>NOT RECOMMENDED</td>
<td>PRECAUTION</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>
</tr>
<tr>
<td>MMR</td>
<td>NO RECOMMENDED</td>
<td>1 or 2 doses depending on indication</td>
<td></td>
</tr>
<tr>
<td>VAR</td>
<td>NO RECOMMENDED</td>
<td>2 doses</td>
<td></td>
</tr>
<tr>
<td>RZV (preferred) or ZVL</td>
<td>DELAY</td>
<td>2 doses at age ≥50 years</td>
<td></td>
</tr>
<tr>
<td>HPV</td>
<td>DELAY</td>
<td>3 doses through age 26 years</td>
<td>2 or 3 doses through age 26 years</td>
</tr>
<tr>
<td>PCV13</td>
<td>1 dose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPSV23</td>
<td>1, 2, or 3 doses depending on age and indication</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HepA</td>
<td></td>
<td>2 or 3 doses depending on vaccine</td>
<td></td>
</tr>
<tr>
<td>HepB</td>
<td></td>
<td>2 or 3 doses depending on vaccine</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>
</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>
</tr>
<tr>
<td>Hib</td>
<td>3 doses HSCT recipients only</td>
<td>1 dose</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**
- **Precaution—vaccination might be indicated if benefit of protection outweighs risk of adverse reaction**
- **Delay vaccination until after pregnancy if vaccine is indicated**
- **Not recommended/contraindicated—vaccine should not be administered**
- **No recommendation/Not applicable**

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1. Precaution for LAIV does not apply to alcoholism. 2. See notes for influenza; hepatitis B; measles, mumps, and rubella; and varicella vaccinations. 3. Hematopoietic stem cell transplant.
**Chronic liver disease**
- Age 9 through 14 years at initial vaccination
- Percutaneous or mucosal risk for exposure to blood
- 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)

**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 A 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

**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: 4 weeks between doses 1 and 2/5 months between doses 2 and 3])

**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
  - 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)

**Hepatitis B vaccination**

**Special situations**
- At risk for hepatitis B virus infection: 2-dose series (Heplisav-B) or 3-dose series (Engerix-B or Recombivax HB at 0, 1, 6 months [minimum intervals: 4 weeks between doses 1 and 2/8 weeks between doses 2 and 3/16 weeks between doses 1 and 3]) or 3-dose series HepA-HepB (Twinrix at 0, 1, 6 months [minimum intervals: 4 weeks between doses 1 and 2/5 months between doses 2 and 3])

**Routine vaccination**
- Not at risk but want protection from hepatitis B (identification of risk factor not required): 2- or 3-dose series (2-dose series Heplisav-B at least 4 weeks apart [2-dose series HepB only applies when 2 doses of Heplisav-B are used at least 4 weeks apart]) or 3-dose series Engerix-B or Recombivax HB at 0, 1, 6 months [minimum intervals: 4 weeks between doses 1 and 2/8 weeks between doses 2 and 3/16 weeks between doses 1 and 3]) or 3-dose series HepA-HepB (Twinrix at 0, 1, 6 months [minimum intervals: 4 weeks between doses 1 and 2/5 months between doses 2 and 3])

**Special situations**
- Chronic liver disease (e.g., persons with 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
- Sexual exposure risk (e.g., sex partners of hepatitis B surface antigen [HBsAg]-positive persons; sexually active persons not in mutually monogamous relationships; persons seeking evaluation or treatment for a sexually transmitted infection; men who have sex with men)
- Current or recent injection drug use
- Percutaneous or mucosal risk for exposure to blood (e.g., household contacts of HBsAg-positive persons; residents and staff of facilities for developmentally disabled persons; health care and public safety personnel with reasonably anticipated risk for exposure to blood or blood-contaminated body fluids; hemodialysis, peritoneal dialysis, home dialysis, and predialysis patients; persons with diabetes mellitus age younger than 60 years and, at discretion of treating clinician, those age 60 years or older)
- Incarcerated persons
- Travel in countries with high or intermediate endemic hepatitis B
- Pregnancy if at risk for infection or severe outcome from infection during pregnancy (Heplisav-B not currently recommended due to lack of safety data in pregnant women)

**Human papillomavirus vaccination**

**Routine vaccination**
- HPV vaccination recommended for all adults 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, 6 months (minimum intervals: 4 weeks between doses 1 and 2/12 weeks between doses 2 and 3/5 months between doses 1 and 3; repeat dose if administered too soon)
  - Age 9 through 14 years at initial vaccination and received 1 dose or 2 doses less than 5 months apart: 1 dose
  - Age 9 through 14 years at initial vaccination and received 2 doses at least 5 months apart: HPV vaccination complete, no additional dose needed.
- If completed valid vaccination series with any HPV vaccine, no additional doses needed

**Shared clinical decision-making**
- Age 27 through 45 years based on shared clinical decision-making:
  - 2- or 3-dose series as above

**Special situations**
- Pregnancy through age 26 years: HPV vaccination is not recommended until after pregnancy; no intervention needed if vaccinated while pregnant; pregnancy testing not needed before vaccination
### Recommended Adult Immunization Schedule, United States, 2020

#### Influenza vaccination

**Routine vaccination**
- **Persons age 6 months or older**: 1 dose any influenza vaccine appropriate for age and health status annually
- **For additional guidance**, see [www.cdc.gov/flu/professionals/index.htm](http://www.cdc.gov/flu/professionals/index.htm)

**Special situations**
- **Egg allergy, hives only**: 1 dose any influenza vaccine appropriate for age and health status annually
- **Egg allergy more severe than hives** (e.g., angioedema, respiratory distress): 1 dose any influenza vaccine appropriate for age and health status annually in medical setting under supervision of health care provider who can recognize and manage severe allergic reactions
- **LAIV should not be used** in persons with the following conditions or situations:
  - History of severe allergic reaction to any vaccine component (excluding egg) or to a previous dose of any influenza vaccine
  - Immunocompromised due to any cause (including medications and HIV infection)
  - Anatomical or functional asplenia
  - Cochlear implant
  - Cerebrospinal fluid-oropharyngeal communication
  - Close contacts or caregivers of severely immunosuppressed persons who require a protected environment
  - Pregnancy
  - Received influenza antiviral medications within the previous 48 hours
- **History of Guillain-Barré syndrome within 6 weeks of 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 women of childbearing age with no evidence of immunity to rubella**: 1 dose
- **HIV infection with CD4 count ≥200 cells/μL 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 in HIV infection with CD4 count <200 cells/μL
- **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
- **Health care personnel**:
  - **Born in 1957 or later with no evidence of immunity to measles, mumps, or rubella**: 2-dose series at least 4 weeks apart for measles or mumps or at least 1 dose for rubella
  - **Born before 1957 with no evidence of immunity to measles, mumps, or rubella**: Consider 2-dose series at least 4 weeks apart for measles or mumps or 1 dose for 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 (Menactra, Meneveo) at least 8 weeks apart and revaccinate every 5 years if risk remains
- **Travel in countries with hyperendemic or epidemic meningococcal disease, microbiologists routinely exposed to Neisseria meningitidis**: 1 dose MenACWY (Menactra, Meneveo) 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) and military recruits**: 1 dose MenACWY (Menactra, Meneveo)

**Shared clinical decision-making for MenB**
- Adolescents and young adults age 16 through 23 years (age 16 through 18 years preferred) not at increased risk for meningococcal disease: Based on shared clinical decision-making, 2-dose series MenB-4C at least 1 month apart or 2-dose series MenB-FHbp at 0, 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)

**Special situations for MenB**
- Anatomical or functional asplenia (including sickle cell disease), persistent complement component deficiency, complement inhibitor (e.g., eculizumab, ravulizumab) use, 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 at least 6 months after dose 1, dose 3 not needed); MenB-4C and MenB-FHbp are not interchangeable (use same product for all doses in series); 1 dose MenB booster 1 year after primary series and revaccinate every 2−3 years if risk remains
- **Pregnancy**: Delay MenB until after pregnancy unless at increased risk and vaccination benefits outweigh potential risks
Pneumococcal vaccination

Routine vaccination
- **Age 65 years or older** (immunocompetent—see www.cdc.gov/mmwr/volumes/68/ww/mm6846a5.htm?_cid=mm6846a5_w): 1 dose PPSV23
  - If PPSV23 was administered prior to age 65 years, administer 1 dose PPSV23 at least 5 years after previous dose

Shared clinical decision-making
- **Age 65 years and older** (immunocompetent): 1 dose PCV13 based on shared clinical decision-making
  - If both PCV13 and PPSV23 are to be administered, PCV13 should be administered first
  - PCV13 and PPSV23 should be administered at least 1 year apart
  - PCV13 and PPSV23 should not be administered during the same visit

Special situations
(see www.cdc.gov/mmwr/volumes/68/ww/mm6846a5.htm?_cid=mm6846a5_w)
- Age 19 through 64 years with chronic medical conditions (chronic heart [excluding hypertension], lung, or liver disease, diabetes), alcoholism, or cigarette smoking: 1 dose PPSV23
- Age 19 years or older with immunocompromising conditions (congenital or acquired immunodeficiency [including B- and T-lymphocyte deficiency, complement deficiencies, phagocytic disorders, HIV infection], chronic renal failure, nephrotic syndrome, leukemia, lymphoma, Hodgkin disease, generalized malignancy, iatrogenic immunosuppression [e.g., drug or radiation therapy], solid organ transplant, multiple myeloma) or anatomical or functional asplenia (including sickle cell disease and other hemoglobinopathies): 1 dose PCV13 followed by 1 dose PPSV23 at least 8 weeks later, then another dose PPSV23 at least 5 years after previous PPSV23; at age 65 years or older, administer 1 dose PPSV23 at least 5 years after most recent PPSV23 (note: only 1 dose PPSV23 recommended at age 65 years or older)
- Age 19 years or older with cerebrospinal fluid leak or cochlear implant: 1 dose PCV13 followed by 1 dose PPSV23 at least 8 weeks later; at age 65 years or older, administer another dose PPSV23 at least 5 years after PPSV23 (note: only 1 dose PPSV23 recommended at age 65 years or older)

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**: At least 1 dose Tdap followed by 1 dose Td or Tdap at least 4 weeks after Tdap and another dose Td or Tdap 6–12 months after last Td or Tdap (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
  - For information on use of Td or Tdap as tetanus prophylaxis in wound management, see www.cdc.gov/mmwr/volumes/67/rr/rr6702a1.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 women 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 count ≥200 cells/μL with no evidence of immunity**: Vaccination may be considered (2 doses, administered 3 months apart); VAR contraindicated in HIV infection with CD4 count <200 cells/μL
- **Severe immunocompromising conditions**: VAR contraindicated

Zoster vaccination

Routine vaccination
- **Age 50 years or older**: 2-dose series RZV (Shingrix) 2–6 months apart (minimum interval: 4 weeks; repeat dose if administered too soon), regardless of previous herpes zoster or history of ZVL (Zostavax) vaccination (administer RZV at least 2 months after ZVL)
- **Age 60 years or older**: 2-dose series RZV 2–6 months apart (minimum interval: 4 weeks; repeat if administered too soon) or 1 dose ZVL if not previously vaccinated. RZV preferred over ZVL (if previously received ZVL, administer RZV at least 2 months after ZVL)

Special situations
- **Pregnancy**: ZVL contraindicated; consider delaying RZV until after pregnancy if RZV is otherwise indicated
- **Severe immunocompromising conditions (including HIV infection with CD4 count <200 cells/μL)**: ZVL contraindicated; recommended use of RZV under review