Recommended Immunization Schedules for Children and Adolescents Ages 0 through 18 Years, United States, 2015

ALSO INCLUDED: Guide to Contraindications and Precautions to Commonly Used Vaccines

The Immunization Action Coalition (IAC) created this laminated schedule based on the “Recommended Immunization Schedules for Persons Aged 0 Through 18 Years—United States, 2015,” published on the Centers for Disease Control and Prevention’s (CDC) website at www.cdc.gov/vaccines/schedules. An article about the development of the schedule, as well as a summary of the changes from the 2014 schedule, was published in the Morbidity and Mortality Weekly Report (MMWR) on February 6, 2015 (MMWR, 2015; 64[4]:93–94).

This schedule contains recommendations for people age 0 through 18 years (see Figure 1) as well as a catch-up schedule for people who start immunizations late or who are more than one month behind on the immunization schedule (see Figure 2).

In addition, IAC has included a list of contraindications and precautions that should be considered before vaccines are administered. The list is shown in Table 1, “Guide to Contraindications and Precautions to Commonly Used Vaccines,” which is adapted from the MMWR “General Recommendations on Immunization: Recommendations of the Advisory Committee on Immunization Practices.” (MMWR, 2011; 60[RR-2]:40–41.)

Please note that the “Recommended Immunization Schedules for Persons Aged 0 Through 18 Years—United States, 2015,” reflects vaccination recommendations issued by the CDC as of January 1, 2015. Vaccination recommendations issued by CDC after January 1, 2015, are official, even though they are not included in this document.

The most current versions of vaccination recommendations, contraindications, and precautions, as well as related articles published in MMWR, are posted on the website of CDC’s Advisory Committee on Immunization Practices (ACIP) at www.cdc.gov/vaccines/pubs/acip-list.htm (in alphabetical order) and on IAC’s website at www.immunize.org/acip (in alphabetical and chronological order). For other versions of CDC’s recommended immunization schedules, including parent-friendly versions, go to www.cdc.gov/vaccines/schedules.
These recommendations must be read with the footnotes that follow. For those who fall behind or start late, provide catch-up vaccination at the earliest opportunity as indicated by the green bars in Figure 1. To determine minimum intervals between doses, see the catch-up schedule (Figure 2). School entry and adolescent vaccine age groups are in bold.

### Additional Vaccine Information

- For contraindications and precautions to use of a vaccine and for additional information regarding that vaccine, vaccination providers should consult the relevant ACIP statement available online at www.cdc.gov/vaccines/hcp/acip-recs/index.html.
- For the purposes of calculating intervals between doses, 4 weeks = 28 days. Intervals of 4 months or greater are determined by calendar months.
- Vaccine doses administered 4 days or less before the minimum interval are considered valid. Doses of any vaccine administered 4 days or less before the minimum interval should not be counted as valid doses 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 MMWR, General Recommendations on Immunization and Reports/Vol.60/No.2; Table 1. Recommended and minimum ages and intervals between vaccine doses available on-line at www.cdc.gov/mmwr/pdf/rr/rr6002.pdf.
- Information on travel vaccine requirements and recommendations is available from CDC online (www.cdc.gov/travel) or by telephone (800-222-7277). Suspected cases of vaccine-preventable diseases should be reported to the state or local health department. Additional information, including precautions and contraindications for vaccination, is available from CDC online (www.cdc.gov/vaccines/recs/vac-admin/contraindications.htm) or by telephone (800-CDC-INFO [800-232-4636]).

### Additional Cliff Notes

- This schedule includes recommendations in effect as of January 1, 2015. Any dose not administered at the recommended age should be administered at a subsequent visit, when indicated and feasible. The use of a combination vaccine generally is preferred over separate injections of its equivalent component vaccines. Vaccination providers should consult the relevant Advisory Committee on Immunization Practices (ACIP) statement for detailed recommendations, available online at www.cdc.gov/vaccines/hcp/acip-recs/index.html. Clinically significant adverse events that follow vaccination should be reported to the Vaccine Adverse Event Reporting System (VAERS) online (www.vaers.hhs.gov) or by telephone (800-822-7967). Suspected cases of vaccine-preventable diseases should be reported to the state or local health department. Additional information, including precautions and contraindications for vaccination, is available from CDC online (www.cdc.gov/vaccines/recs/vac-admin/contraindications.htm) or by telephone (800-CDC-INFO [800-232-4636]).

<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>18–23 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>
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<tbody>
<tr>
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<td>1st dose</td>
<td>2nd dose</td>
<td>3rd dose</td>
<td>4th dose</td>
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<tr>
<td>Rotavirus^2 (RV)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>See footnote 2</td>
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<tr>
<td>Diphtheria, tetanus &amp; acellular pertussis^3 (DTaP: &lt;7 yrs)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>3rd dose</td>
<td>4th dose</td>
<td>5th dose</td>
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<td>Tetanus, diphtheria &amp; acellular pertussis^4 (Tdap: ≥7 yrs)</td>
<td>(Tdap)</td>
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<tr>
<td>Haemophilus influenzae type b^5 (Hib)</td>
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<td>3rd or 4th dose (\text{see footnote 5}^5)</td>
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<tr>
<td>Pneumococcal conjugate^6 (PCV13)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>3rd dose</td>
<td>4th dose</td>
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<td>2nd dose</td>
<td>4th dose</td>
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<td>Inactivated poliovirus^2 (IPV) (≥18 yrs)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>See footnote 8</td>
<td>Annual vaccination (IIV only) 1 or 2 doses</td>
<td>Annual vaccination (LAIV or IIV) 1 or 2 doses</td>
<td>Annual vaccination (LAIV or IIV) 1 dose only</td>
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<tr>
<td>Influenza^3 (IIV; LAIV)</td>
<td>2 doses for some; see footnote 9</td>
<td>Annual vaccination (LAIV or IIV) 1 or 2 doses</td>
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<tr>
<td>Measles, mumps, rubella^8 (MMR)</td>
<td>See footnote 9</td>
<td>1st dose</td>
<td>2nd dose</td>
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<td>Varicella^9 (VAR)</td>
<td>1st dose</td>
<td>2nd dose</td>
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<tr>
<td>Hepatitis A^10 (HepA)</td>
<td>2-dose series, see footnote 11</td>
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<tr>
<td>Human papillomavirus^11 (HPV2: females only; HPV4: males and females)</td>
<td>(3-dose series)</td>
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<tr>
<td>Meningococcal^13 (MenACWY-CRM: ≥6 wks; MenACWY-D: ≥9 mos)</td>
<td>See footnote 13</td>
<td>1st dose</td>
<td>Booster</td>
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</tbody>
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**Range of recommended ages for all children**

**Range of recommended ages for catch-up immunization**

**Range of recommended ages for certain high-risk groups**

**Range of recommended ages during which catch-up is encouraged and for certain high-risk groups**

**Not routinely recommended**

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This schedule is approved by the Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/acip), the American Academy of Pediatrics (www.aap.org), the American Academy of Family Physicians (www.aafp.org), and the American College of Obstetricians and Gynecologists (www.acog.org).
The figure 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 Figure 2 in conjunction with Figure 1 and the footnotes that follow.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Minimum Age for dose 1</th>
<th>Minimum Interval Between Doses</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>Dose 1 to dose 2</td>
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<tr>
<td></td>
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<tr>
<td>hepatitis B&lt;sup&gt;1&lt;/sup&gt;</td>
<td>birth</td>
<td>4 weeks</td>
</tr>
<tr>
<td>rotavirus&lt;sup&gt;2&lt;/sup&gt;</td>
<td>6 wks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>diphtheria, tetanus, and acellular pertussis&lt;sup&gt;3&lt;/sup&gt;</td>
<td>6 wks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>haemophilus influenzae type b&lt;sup&gt;4&lt;/sup&gt;</td>
<td>6 wks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>pneumococcal&lt;sup&gt;6&lt;/sup&gt;</td>
<td>6 wks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>inactivated poliovirus&lt;sup&gt;7&lt;/sup&gt;</td>
<td>6 wks</td>
<td>4 weeks&lt;sup&gt;4&lt;/sup&gt;</td>
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<tr>
<td>meningococcal&lt;sup&gt;13&lt;/sup&gt;</td>
<td>6 wks</td>
<td>8 weeks&lt;sup&gt;13&lt;/sup&gt;</td>
</tr>
<tr>
<td>measles, mumps, rubella&lt;sup&gt;8&lt;/sup&gt;</td>
<td>12 mos</td>
<td>4 weeks</td>
</tr>
<tr>
<td>varicella&lt;sup&gt;10&lt;/sup&gt;</td>
<td>12 mos</td>
<td>3 months</td>
</tr>
<tr>
<td>hepatitis A&lt;sup&gt;11&lt;/sup&gt;</td>
<td>12 mos</td>
<td>6 months</td>
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</table>

**Children and adolescents ages 7 through 18 years**

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Minimum Age</th>
<th>Minimum Interval Between Doses</th>
</tr>
</thead>
<tbody>
<tr>
<td>tetanus, diphtheria; tetanus, diphtheria, and acellular pertussis&lt;sup&gt;4&lt;/sup&gt;</td>
<td>7 yrs&lt;sup&gt;4&lt;/sup&gt;</td>
<td>4 weeks&lt;sup&gt;4&lt;/sup&gt;</td>
</tr>
<tr>
<td>human papillomavirus&lt;sup&gt;12&lt;/sup&gt;</td>
<td>9 yrs</td>
<td>Routine dosing intervals are recommended&lt;sup&gt;12&lt;/sup&gt;</td>
</tr>
<tr>
<td>hepatitis A&lt;sup&gt;11&lt;/sup&gt;</td>
<td>Not applicable (N/A)</td>
<td>6 months</td>
</tr>
<tr>
<td>hepatitis B&lt;sup&gt;1&lt;/sup&gt;</td>
<td>N/A</td>
<td>4 weeks</td>
</tr>
<tr>
<td>inactivated poliovirus&lt;sup&gt;7&lt;/sup&gt;</td>
<td>N/A</td>
<td>4 weeks</td>
</tr>
<tr>
<td>meningococcal&lt;sup&gt;13&lt;/sup&gt;</td>
<td>N/A</td>
<td>8 weeks&lt;sup&gt;13&lt;/sup&gt;</td>
</tr>
<tr>
<td>measles, mumps, rubella&lt;sup&gt;9&lt;/sup&gt;</td>
<td>N/A</td>
<td>4 weeks</td>
</tr>
<tr>
<td>varicella&lt;sup&gt;10&lt;/sup&gt;</td>
<td>N/A</td>
<td>3 months if person is younger than age 13 yrs</td>
</tr>
</tbody>
</table>
Footnotes: Recommended Immunization Schedule for Persons Ages 0 through 18 Years, United States, 2015
For further guidance on the use of the vaccines mentioned below, see www.cdc.gov/vaccines/hcp/accp-recs/index.html.
For vaccine recommendations for persons age 19 years and older, see the Recommended Adult Immunization Schedule.

1. Hepatitis B (HepB) vaccine. (Minimum age: birth)

Routine vaccination:
At birth:
• Administer monovalent HepB to all newborns before hospital discharge.
• For infants born to hepatitis B surface antigen (HBSAg)-positive mothers, administer HepB vaccine and 0.5 mL of hepatitis B immune globulin (HBIG) within 12 hours of birth. These infants should be tested for HBSAg and antibody to HBSAg (anti-HBs) 1 to 2 months after completion of the HepB series at age 9 through 18 months (preferably at the next well-child visit).
• If mother’s HBSAg status is unknown, within 12 hours of birth administer HepB vaccine regardless of birth weight. For infants weighing less than 2,000 grams, administer HBIG in addition to HepB vaccine within 12 hours of birth. Determine mother’s HBSAg status as soon as possible and, if mother is HBSAg positive, also administer HBIG for infants weighing 2,000 grams or more as soon as possible, but no older than 7 days.

Doses following the birth dose:
• The second dose should be administered at age 1 or 2 months. Monovalent HepB vaccine should be used for doses administered before age 6 weeks.
• Infants who did not receive a birth dose should receive 3 doses of a HepB-containing vaccine on a schedule of 0, 1 to 2 months, and 6 months starting as soon as feasible (see Figure 2).
• Administer the second dose 1 to 2 months after the first dose (minimum interval of 4 weeks), administer the third dose at least 8 weeks after the second dose and at least 16 weeks after the first dose. The final (third or fourth) dose in the HepB vaccine series should be administered no earlier than age 24 weeks.
• Administration of a total of 4 doses of HepB vaccine is permitted when a combination vaccine containing HepB is administered after the birth dose.

Catch-up vaccination:
• Unvaccinated persons should complete a 3-dose series.
• A 2-dose series (doses separated by at least 4 months) of adult formulation Recombivax HB is licensed for use in children age 11 through 15 years.
• For other catch-up guidance, see Figure 2.

2. Rotavirus (RV) vaccines. (Minimum age: 6 weeks for both RV1 [Rotarix] and RV5 [RotaTeq])
Routine vaccination:
• Administer a series of RV vaccine to all infants as follows: 1. If Rotarix is used, administer a 2-dose series at ages 2 and 4 months; 2. If RotaTeq is used, administer a 3-dose series at ages 2, 4, and 6 months; 3. If any dose in series was RotaTeq or vaccine product should be used for doses administered before age 6 weeks; otherwise, use any vaccine approved for infants weighing 2,000 grams or more as soon as possible, but no older than 7 days.
• Administer a 4-dose series of RV vaccine should be administered at age 12 through 15 months or 8 weeks after second dose.
• For other catch-up guidance, see Figure 2.

3. Diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine. (Minimum age: 6 weeks. Exception: DTaP-IPV [Kinerex] 4 years)
Routine vaccination:
• Administer a 5-dose series of DTaP vaccine at ages 2, 4, 6, 15 through 18 months, and 4 through 6 years. The fourth dose may be administered as early as age 12 months, provided at least 6 months have elapsed since the third dose. However, the fourth dose of DTaP need not be repeated if it was administered at least 4 months after the third dose of DTaP.

Catch-up vaccination:
• The fifth dose of DTaP is not necessary if the fourth dose was administered at age 4 years or older.
• For other catch-up guidance, see Figure 2.

4. Tetanus and diphtheria toxoids and acellular pertussis (Td) vaccine. (Minimum age: 10 years for both Boostrix and Adacel).
Routine vaccination:
• Administer 1 dose of Td vaccine to all adolescents ages 11 through 12 years.
• Tdap may be administered regardless of the interval since the last tetanus and diphtheria toxoid-containing vaccine.
• Administer 1 dose of Tdap vaccine to pregnant adolescents during each pregnancy (preferred during 27 through 36 weeks’ gestation) regardless of time since prior Td or Tdap vaccination.

Catch-up vaccination:
• Persons ages 7 years and older who are not fully immunized with Tdap vaccine should receive Tdap vaccine as 1 dose (preferably the first) in the catch-up series; if additional doses are needed, use Td vaccine. For children age 7 through 10 years who receive a dose of Tdap as part of their catch-up series, an adolescent Tdap vaccine dose at age 11 through 12 years should not be administered. Td should be administered instead 10 years after the Tdap dose.
• Persons ages 11 through 18 years who have not received Tdap vaccine should receive a dose followed by tetanus and diphtheria (Td) booster doses every 10 years thereafter.
• Inadvertent doses of DTaP Vaccine: 1) If administered inadvertently to a child ages 7 through 10 years, the dose may count as part of the catch-up series. This dose may count as the adolescent Tdap dose, or the child can later receive a Tdap booster dose at age 11 through 12 years. 2) If administered inadvertently to an adolescent ages 11 through 18 years, the dose should be counted as the adolescent Tdap booster.
• For other catch-up guidance, see Figure 2.

5. Haemophilus influenzae type b (Hib) conjugate vaccine. (Minimum age: 6 weeks for PRP-T [ActHIB, DTaP-IPV/Hib (Pentacel) and Hib-MenCY (MenHibrix)], PRP-OmP [PedavaxHIB or COMVAX],12 months for PRP-T [Hiberix])
Routine vaccination:
• Administer a 2- or 3-dose Hib vaccine primary series and a booster dose (dose 3 or 4, depending on vaccine used in primary series) at age 12 through 15 months to complete a full Hib vaccine series.
• The primary series should be completed before age 24 months. An exception is HibMenCY vaccine. Hibrix should only be used for the booster (final) dose in children ages 12 through 14 months for who have received at least 1 prior dose of Hib-containing vaccine.
• For recommendations on the use of MenHibrix in patients at increased risk for meningococcal disease, refer to the meningococcal vaccine footnote and also to MMWR February 28, 2014; 62 RR01-15, available at www.cdc.gov/mmwr/pdf/rr/rr6201.pdf.

Catch-up vaccination:
• If dose 1 was administered at ages 12 through 14 months, administer a second (final) dose at least 8 weeks after dose 1, regardless of Hib vaccine used in the primary series.
• If the first 2 doses were PRP-OmP (PedavaxHIB or COMVAX), and were administered before the first birthday, the third (and final) dose at age 12 through 15 months or 8 weeks after second dose.
• If the first dose was administered at age 7 through 11 months, administer the second dose at least 4 weeks later and a third (final) dose at age 12 through 15 months or 8 weeks after second dose, whichever is later.
• If the first dose was administered before the first birthday and second dose administered at younger than 15 months, a third (and final) dose should be administered 8 weeks later.
• For unvaccinated children ages 15 months or older, administer only 1 dose.
• For other catch-up guidance, see Figure 2. For catch-up guidance related to MenHibrix, refer to the meningococcal vaccine footnote and also MMWR March 22, 2012; 62 RR02-1–22, available at www.cdc.gov/mmwr/pdf/rr/rr6202.pdf.

Vaccination of persons with high-risk conditions:
• Children ages 12 through 59 months who are at increased risk for Hib disease, including chemotherapy recipients and those with anatomic or functional asplenia (including sickle cell disease), human immunodeficiency virus (HIV) infection, immunoglobulin deficiency, or early component complement deficiency, who have received either no doses or only 1 dose of Hib vaccine before age 12 months, should receive 2 additional doses of Hib vaccine:
• 8 weeks apart; children who received 2 or more doses of Hib vaccine before age 12 months should receive 1 additional dose.
• For patients younger than age 5 years undergoing chemotherapy or radiation treatment who received a Hib vaccine dose(s) within 14 days of starting therapy or during therapy, repeat the dose(s) at least 3 months following therapy completion.
• Recipients of hematopoietic stem cell transplant (HSCT) should be revaccinated with a 3-dose regimen of Hib vaccine starting 6 to 12 months after successful transplant, regardless of vaccination history; doses should be administered at least 4 weeks apart.
• A single dose of any Hib-containing vaccine should be administered to unimmunized children and adolescents age 15 months and older undergoing an elective splenectomy to prevent Hib disease, vaccine should be administered at least 14 days before procedure.
• Hib vaccine is not routinely recommended for patients ages 5 years or older. However, 1 dose of Hib vaccine should be administered to unimmunized persons ages 5 years or older who have anatomic or functional asplenia (including sickle cell disease) and unimmunized persons ages 5 through 18 years with HIV infection.
• Patients who have not received a primary series and booster dose or at least 1 dose of Hib vaccine after 14 months of age are considered unimmunized.

6. Pneumococcal vaccines. (Minimum age: 6 weeks for PCV13, 2 years for PPSV23)
Routine vaccination with PCV13:
• Administer a 4-dose series of PCV13 vaccine at ages 2, 4, and 6 months and at age 12 through 15 months.
• For children ages 14 through 59 months who have received an age-appropriate series of 7-valent PCV (PCV7), administer a single supplemental dose of 13-valent PCV (PCV13).

Catch-up vaccination:
• Administer 1 dose of PCV13 to all healthy children ages 24 through 59 months who are not completely vaccinated for their age.
• For other catch-up guidance, see Figure 2.

Vaccination of persons with high-risk conditions with PCV13 and PPSV23:
• All recommended PCV13 doses should be administered prior to PPSV23 vaccination if possible. This is the recommended sequence.
• For children ages 2 through 5 years with any of the following conditions: chronic heart disease (particularly cyanotic congenital heart disease and cardiac failure); chronic lung disease (including asthma if treated with high-dose oral corticosteroid therapy); diabetes mellitus; cerebrospinal fluid leak; cochlear implant; sickle cell disease and other hemoglobinopathies; anatomic or functional asplenia; HIV infection; chronic renal failure; nephrotic syndrome; diseases associated with treatment with immunosuppressive drugs or radiation therapy, including malignant neoplasms, leukemias, lymphomas, and Hodgkin’s disease; solid organ transplantation; or congenital immunodeficiency;
  1. Administer 1 dose of PCV13 if any incomplete schedule of 3 doses of PCV (PCV7 and/or PCV13) were received previously.
  2. Administer 2 doses of PCV13 at least 8 weeks apart if unvaccinated or any incomplete schedule of fewer than 3 doses of PCV (PCV7 and/or PCV13) were received previously.
(continued)
3. Administer 1 supplemental dose of PCV13 if 4 doses of PCV7 or other age-appropriate complete PCV7 series was received previously.

4. The minimum interval between doses of PCV (PCV7 or PCV13) is 8 weeks.

5. For children with no history of PPSV23 vaccination, administer PPSV23 at least 8 weeks after the most recent dose of PCV13.

For children ages 6 through 18 months who have cerebrospinal fluid leak; cooleyloid implant; sickle cell disease and other hemoglobinopathies; anatomic or functional asplenia; congenital or acquired immunodeficiencies; HIV infection; chronic renal failure; nephrotic syndrome; diseases associated with treatment with immunosuppressive drugs or radiation therapy, including malignant neoplasms, leukemias, lymphomas, and Hodgkin's disease; generalized malignancy; solid organ transplantation; or multiple myeloma:

1. If neither PCV13 nor PPSV23 has been received previously, administer 1 dose of PCV13 and 1 dose of PPSV23 at least 8 weeks later.

2. If PCV13 has been received previously but PPSV23 has not, administer 1 dose of PPSV23 at least 8 weeks after the most recent dose of PCV13.

3. If PPSV23 has been received but PCV13 has not, administer 1 dose of PCV13 at least 8 weeks after the most recent dose of PPSV23.

For children ages 6 through 18 months who have had recent varicella or herpes zoster infection; or who have had varicella-like rash in the 14 days before varicella vaccination:

6. If both OPV and IPV were administered as part of a series, a total of 4 doses should be administered, regardless of the child's current age.

1. 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.

2. If both OPV and IPV were administered as part of a series, a total of 4 doses should be administered, regardless of the child's current age.

3. IPV is not routinely recommended for U.S. residents ages 18 years or older.

4. For other catch-up guidance, see Figure 2.

8. Influenza vaccines. (Minimum age: 6 months for inactivated influenza vaccine [IIV]; 2 years for live, attenuated influenza vaccine [LAIV])

Routine vaccination:

1. Administer influenza vaccine annually to all children beginning at age 6 months.

2. For most healthy, non-pregnant persons ages 2 through 49 years, either LAIV or IIV may be used. However, LAIV should not be administered to some persons, including:

   a. Persons who have experienced severe allergic reactions to LAIV, any of its components, or to a previous dose of any other influenza vaccine;
   b. Children ages 2 through 17 years receiving aspirin or aspirin-containing products;
   c. Persons who are allergic to eggs; and
   d. Persons with immunosuppressed persons; and
   e. Children 2 through 4 years with asthma or who had wheezing in the past 12 months, or children who have taken influenza antiviral medications in the previous 48 hours.

   For all other contraindications and precautions to use of LAIV, see MMWR August 15, 2014 (63/32); see pages 691–697, available at www.cdc.gov/mmwr/pdf/rr/rr6332.pdf.

For children ages 6 months through 8 years:

1. For the 2014–15 season, administer 2 doses (separated by at least 4 weeks) to children who are receiving influenza vaccine for the first time. Some children in this age group who have been vaccinated previously will also need 2 doses. For additional guidance, follow dosing guidelines in the 2014–2015 ACIP influenza vaccine recommendations, MMWR August 14, 2014 (63/32); see pages 691–697, available at www.cdc.gov/mmwr/pdf/rr/rr6332.pdf.

2. For the 2015–16 season, follow dosing guidelines in the 2015 ACIP influenza vaccine recommendations.

For persons ages 9 years and older:

1. Administer 1 dose.

9. Measles, mumps, and rubella (MMR) vaccine. (Minimum age: 12 months for routine vaccination)

Routine vaccination:

1. Administer a 2-dose series of MMR vaccine at age 12 through 15 months and 4 through 6 years. The second dose may be administered before age 4 years, provided at least 4 weeks have elapsed since the first dose.

2. Administer 1 dose of MMR vaccine to infants ages 6 through 11 months before departure from the United States for international travel. These children should be revaccinated with 2 doses of MMR vaccine, the first at ages 12 through 15 months (12 months if the child remains in an area where disease risk is high) and the second dose at least 4 weeks later.

3. Administer 2 doses of MMR vaccine to children ages 12 months and older before departure from the United States for international travel. The first dose should be administered on or after 12 months and the second dose at least 4 weeks later.

Catch-up vaccination:

1. Ensure that all school-aged children and adolescents have had 2 doses of MMR vaccine; the minimum interval between the 2 doses is 4 weeks.

10. Varicella (VAR) vaccine. (Minimum age: 12 months)

Routine vaccination:

1. Administer a 2-dose series of VAR vaccine at age 12 through 15 months and 4 through 6 years. The second dose may be administered before age 4 years, provided at least 3 months have elapsed since the first dose. If the second dose was administered at least 4 weeks after the first dose, it can be accepted as valid.

Catch-up vaccination:

1. Ensure that all persons ages 7 through 18 years without evidence of immunity (see MMWR 2007;56 [No. RR-4], available at www.cdc.gov/mmwr/pdf/rr/rr5604.pdf) have 2 doses of varicella vaccine. For children ages 7 through 12 years, the recommended minimum interval between doses is 3 months (if the second dose was administered at least 4 weeks after the first dose, it can be accepted as valid); for persons ages 13 years and older, the minimum interval between doses is 4 weeks.

11. Hepatitis A (HepA) vaccine. (Minimum age: 12 months)

Routine vaccination:

1. Administer the 2-dose HepA vaccine series at ages 12 through 23 months; separate the 2 doses by 6 to 18 months.

2. Children who have received 1 dose of HepA vaccine before age 24 months should receive a second dose 6 to 18 months after the first dose.

3. For any person age 2 years or older who has not already received the HepA vaccine series, 2 doses of HepA vaccine separated by 6 to 18 months may be administered if immunity against hepatitis A virus infection is desirable.

Catch-up vaccination:

1. The minimum interval between the 2 doses is 6 months.

Special populations:

1. Administer 2 doses of HepA vaccine at least 6 months apart to previously unvaccinated persons who live in areas where vaccination programs target older children, or who are at increased risk for infection. This includes persons traveling to or working in countries that have high or intermediate endemicity of infection; men having sex with men; users of injection and non-injection illicit drugs; persons who have had HIV-infected primate or with HAV in a research laboratory setting; persons with clotting-factor disorders; persons with chronic liver disease; and persons who anticipate close personal contact (e.g., household or regular babysitting) with an international adoptee during the first 60 days after arrival in the United States from a country with high or intermediate endemicity. The first dose should be administered as soon as the adoption is planned, ideally 2 or more weeks before arrival of the adoptee.

12. Human papillomavirus (HPV) vaccines. (Minimum age: 9 years for HPV2 [Cervarix] and HPV4 [Gardasil])

Routine vaccination:

1. Administer a 3-dose series of HPV vaccine on a schedule of 0, 1–2 and 6 months to all adolescents ages 11 through 12 years. Either HPV4 or HPV2 may be used for females, and only HPV4 may be used for males.

2. The vaccine series may be started at age 9 years.

3. Administer the second dose 1 to 2 months after the first dose (minimum interval of 4 weeks); administer the third dose 24 weeks after the first dose and 16 weeks after the second dose (minimum interval of 12 weeks).

Catch-up vaccination:

1. Administer the vaccine series to females (either HPV2 or HPV4) and males (HPV4) at age 13 through 18 years if not previously vaccinated.

2. Use recommended routine dosing intervals (see Routine vaccination above) for vaccine series catch-up.

13. Meningococcal conjugate vaccines. (Minimum age: 6 weeks for Hib-MenCY [MenHibrix]; 2 months for MenACWY-CRM [Menveo]; 5 months for MenACWY-D [Menactra])

Routine vaccination:

1. Administer a single dose of Menactra or Menveo vaccine at age 11 through 12 years, with a booster dose at age 16 years.

2. Adolescents ages 11 through 18 years with human immunodeficiency virus (HIV) infection should receive a 2-dose primary series of Menactra or Menveo with at least 8 weeks between doses.

3. For children ages 2 months through 18 years with high-risk conditions, see below.

Catch-up vaccination:

1. Administer Menactra or Menveo vaccine at age 13 through 18 years if not previously vaccinated.

2. If the first dose is administered at age 13 through 15 years, a booster dose should be administered at age 16 through 18 years with a minimum interval of at least 8 weeks between doses.

3. If the first dose is administered at age 16 years or older, a booster dose is not needed.

4. For other catch-up guidance, see Figure 2.

Vaccination of persons with high-risk conditions and other persons at increased risk of disease:

1. Children with anatomic or functional asplenia (including sickle cell disease):

   a. Menveo
      - Children who initiate vaccination at 8 weeks through 6 months: Administer doses at ages 2, 4, 6, and 12 months.
      - Unvaccinated children 7 through 23 months: Administer 2 doses, with the 2nd dose at least 12 weeks after the first dose and after the first birthday.

   b. MenHibrix
      - Children 24 months and older who have not received a complete series: Administer 2 primary doses at least 8 weeks apart.

2. MenHibrix

   a. Children 6 weeks through 18 months: Administer doses at ages 2, 4, 6, and 12 through 15 months.

   b. If the first dose of MenHibrix is given at or after age 12 months, a total of 2 doses against meningococcal disease should be given at least 8 weeks apart to ensure protection against serogroups C and Y meningococcal disease.

(continued)
Meningococcal conjugate vaccines (footnote cont’d from page 5)

3. Menactra
   ○ Children 24 months and older who have not received a complete series: Administer 2 primary doses at least 8 weeks apart. If Menactra is administered to a child with asplenia (including sickle cell disease), do not administer Menactra until age 2 years and at least 4 weeks after the completion of all PCV13 doses.
   ○ Children with persistent complement component deficiency:
     1. Menveo
       ○ Children who initiate vaccination at 8 weeks through 6 months: Administer 2 doses at ages 2, 4, 6, and 12 months.
       ○ Unvaccinated children 7 through 23 months: Administer 2 doses, with the second dose at least 12 weeks after the first dose and after the first birthday.
       ○ Children 24 months and older who have not received a complete series: Administer 2 primary doses at least 8 weeks apart.
     2. MenHibrix
       ○ Children 6 weeks through 18 months: Administer doses at ages 2, 4, 6, and 12 through 15 months.
       ○ If the first dose of MenHibrix is given at or after age 12 months, a total of 2 doses should be given at least 8 weeks apart to ensure protection against serogroups C and Y meningococcal disease.

Table 1. Guide to Contraindications and Precautions to Commonly Used Vaccines

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Contraindications</th>
<th>Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B (HepB)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Infant weighing less than 2000 grams (4 lbs, 6.4 oz)</td>
</tr>
<tr>
<td>Rotavirus (RV5 [RotaTeq], RV1 [Rotarix])</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td></td>
<td>• Severe combined immunodeficiency (SCID)</td>
<td>• Altered immunocompetence other than SCID</td>
</tr>
<tr>
<td></td>
<td>• History of intussusception</td>
<td>• Chronic gastrointestinal disease</td>
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<tr>
<td></td>
<td></td>
<td>• Spina bifida or bladder exstrophy</td>
</tr>
<tr>
<td>Diphtheria, tetanus, pertussis (DTaP)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td>Tetanus, diphtheria, pertussis (Td)</td>
<td>• For pertussis-containing vaccines: encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures) not attributable to another identifiable cause within 7 days of administration of a previous dose of DTP or DTaP (for DTaP); or of previous dose of DTP, DTaP, or Tdap (for Tdap)</td>
<td>• Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of tetanus toxoid-containing vaccine</td>
</tr>
<tr>
<td></td>
<td>• For pertussis-containing vaccines: encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures) not attributable to another identifiable cause within 7 days of administration of a previous dose of DTP or DTaP (for DTaP); or of previous dose of DTP, DTaP, or Tdap (for Tdap)</td>
<td>• History of Arthus-type hypersensitivity reactions after a previous dose of tetanus or diphtheria toxoid-containing vaccine; defer vaccination until at least 10 years have elapsed since the last tetanus-toxoid containing vaccine</td>
</tr>
<tr>
<td></td>
<td>• For pertussis-containing vaccines: encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures) not attributable to another identifiable cause within 7 days of administration of a previous dose of DTP or DTaP (for DTaP); or of previous dose of DTP, DTaP, or Tdap (for Tdap)</td>
<td>• For pertussis-containing vaccines: progressive or unstable neurologic disorder (including infantile spasms for DTaP), uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized</td>
</tr>
<tr>
<td></td>
<td>• Seizure within 3 days after receiving a previous dose of DTP/DTaP</td>
<td>For DTaP only:</td>
</tr>
<tr>
<td></td>
<td>• Seizure within 3 days after receiving a previous dose of DTP/DTaP</td>
<td>• Temperature of 105° F or higher (40.5° C or higher) within 48 hours after vaccination with a previous dose of DTP/DTaP</td>
</tr>
<tr>
<td></td>
<td>• Persistent, inconstant crying lasting 3 or more hours within 48 hours after receiving a previous dose of DTP/DTaP</td>
<td>• Collapse or shock-like state (i.e., hypotonic hyporesponsive episode) within 48 hours after receiving a previous dose of DTP/DTaP</td>
</tr>
<tr>
<td>Haemophilus influenzae type b (Hib)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</td>
<td>• Seizure within 3 days after receiving a previous dose of DTP/DTaP</td>
</tr>
<tr>
<td></td>
<td>• Age younger than 6 weeks</td>
<td>• Persistent, inconstant crying lasting 3 or more hours within 48 hours after receiving a previous dose of DTP/DTaP</td>
</tr>
<tr>
<td>Inactivated poliovirus vaccine (IPV)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</td>
<td>• Persistent, inconstant crying lasting 3 or more hours within 48 hours after receiving a previous dose of DTP/DTaP</td>
</tr>
<tr>
<td>Pneumococcal (PCV13 or PPSV23)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td></td>
<td>• Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy or patients with human immunodeficiency virus [HIV] infection who are severely immunocompromised)</td>
<td>• Pregnancy</td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td>• Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</td>
<td>• Moderate or severe acute illness with or without fever</td>
</tr>
<tr>
<td></td>
<td>• Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product)</td>
<td>• Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product)</td>
</tr>
<tr>
<td></td>
<td>• History of thrombocytopenia or thrombocytopenic purpura</td>
<td>• History of thrombocytopenia or thrombocytopenic purpura</td>
</tr>
<tr>
<td></td>
<td>• Need for tuberculin skin testing</td>
<td>• Need for tuberculin skin testing</td>
</tr>
</tbody>
</table>

(continued)
### Table 1 continued. Guide to Contraindications and Precautions to Commonly Used Vaccines

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Contraindications</th>
<th>Precautions</th>
</tr>
</thead>
</table>
| Varicella (Var)                              | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component  
• Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy) or patients with HIV infection who are severely immunocompromised  
• Pregnancy                                                                                                                                 |
|                                              |                                                                                                                                                  |
| Hepatitis A (HepA)                           | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component                                                                                                                                 |
|                                              |                                                                                                                                                  |
| Influenza, inactivated injectable (IIV)      | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose of any influenza vaccine or to a vaccine component, including egg protein  
• Moderate or severe acute illness with or without fever  
• History of GBS within 6 weeks of previous influenza vaccination  
• Persons who experience only hives with exposure to eggs may receive RIV or, with additional safety precautions, IIV. |
|                                              |                                                                                                                                                  |
| Influenza, live attenuated (LAIV)            | • Severe allergic reaction (e.g., anaphylaxis) to any component of the vaccine, or to a previous dose of any influenza vaccine  
• Concomitant use of aspirin or aspirin-containing medication in children or adolescents  
• In addition, ACIP recommends that LAIV not be used in persons who are pregnant; immunosuppressed, who have egg allergy of any severity, or who have taken influenza antiviral medications (amantadine, rimantadine, zanamivir, or oseltamivir) within the previous 48 hours; avoid use of these antiviral drugs for 14 days after vaccination  
• Moderate or severe acute illness with or without fever  
• History of GBS within 6 weeks of previous influenza vaccination  
• Asthma in persons age 5 years and older  
• Other chronic medical conditions (e.g., other chronic lung diseases, chronic cardiovascular disease [excluding isolated hypertension], diabetes, chronic renal or hepatic disease, hematologic disease, neurologic disease, and metabolic disorders) |
|                                              |                                                                                                                                                  |
| Human papillomavirus (HPV)                   | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component                                                                                                                                 |
|                                              |                                                                                                                                                  |
| Meningococcal: conjugate (MenACWY), polysaccharide (MPSV4) | • Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component  
• Moderate or severe acute illness with or without fever  
• Pregnancy                                                                                                                                 |

**Footnotes for “Guide to Contraindications and Precautions to Commonly Used Vaccines”**

1. Vaccine package inserts and the full ACIP recommendations for these vaccines should be consulted for additional information on vaccine-related contraindications and precautions and for more information on vaccine expirients. Events or conditions listed as precautions should be reviewed carefully. Benefits of and risks for administering a specific vaccine to a person under these circumstances should be considered. If the risk from the vaccine is believed to outweigh the benefit, the vaccine should not be administered. If the benefit of vaccination is believed to outweigh the risk, the vaccine should be administered. A contraindication increases the chance of a serious adverse reaction. Therefore, a vaccine should not be administered when a contraindication is present. Whether and when to administer DTaP to children with proven or suspected underlying neurologic disorders should be decided on a case-by-case basis.

2. Hepatitis B vaccination should be deferred for preterm infants and infants weighing less than 2000 g if the mother is documented to be hepatitis B surface antigen (HBsAg)-negative at the time of the infant’s birth. Vaccination can commence at chronological age 1 month or at hospital discharge. For infants born to women who are HBsAg-positive, hepatitis B immunoglobulin and hepatitis B vaccine should be administered within 12 hours of birth, regardless of weight. For details, see CDC. “Prevention of Rotavirus Gastroenteritis among Infants and Children: Recommendations of the Advisory Committee on Immunization Practices.” [MMWR 2009;58(No. RR–2), available at www.cdc.gov/vaccines/recs/iy.html](https://www.cdc.gov/vaccines/recs/iy.html).


4. LAIV, MMR, and varicella vaccines can be administered on the same day. If not administered on the same day, these live vaccines should be separated by at least 28 days.

5. Immunosuppressive steroid dose is considered to be 2 or more weeks of daily receipt of 20 mg prednisone or equivalent. Vaccination should be deferred for at least 1 month after discontinuation of such therapy. Providers should consult ACIP recommendations for complete information on the use of specific live vaccines among persons on immune-suppressing medications or with immune suppression because of other reasons.


7. Vaccine should be deferred for the appropriate interval if replacement immune globulin products are being administered (see “General Recommendations on Immunization: Recommendations of the Advisory Committee on Immunization Practices (ACIP)” [MMWR 2011;60(No. RR–2) available at www.cdc.gov/vaccines/recs/iy.html](https://www.cdc.gov/vaccines/recs/iy.html).

8. Measles vaccination might suppress tuberculin reactivity temporarily. Measles-containing vaccine may be administered on the same day as tuberculin skin testing. If testing cannot be performed until after the day of MMR vaccination, the test should be postponed for at least 4 weeks after the vaccination. If an urgent need exists to skin test, do so with the understanding that reactivity might be reduced by the vaccine.

9. For more information on use of influenza vaccines among persons with egg allergies and a complete list of conditions that CDC considers to be reasons to avoid getting LAIV, see CDC. “Prevention and Control of Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP) — United States, 2014–15.” [MMWR 2014;63(32):891–97](https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6332a6.htm).

“Recommended Immunization Schedules for Children and Adolescents Ages 0 through 18 Years—United States, 2015,” was approved by the Centers for Disease Control and Prevention’s (CDC) Advisory Committee on Immunization Practices, the American Academy of Pediatrics, the American Academy of Family Physicians, and the American College of Obstetricians and Gynecologists.

The Immunization Action Coalition’s “Guide to Contraindications and Precautions to Commonly Used Vaccines” on pages 6 and 7 was technically reviewed by CDC.

The Immunization Action Coalition slightly modified the format of these materials in order to create this laminated version of the childhood and adolescent immunization schedule.

To order additional copies of this laminated document, visit the Immunization Action Coalition’s website for healthcare professionals at www.immunize.org/shop, call (651) 647-9009, or email admininfo@immunize.org.