### FIGURE 2. Catch-up immunization schedule for persons aged 4 months through 18 years who start late or who are more than 1 month behind —United States • 2013

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 this table in conjunction with Figure 1 and the footnotes that follow.

#### Persons aged 4 months through 6 years

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Minimum Age for Dose 1</th>
<th>Minimum Interval Between Doses</th>
<th>Dose 1 to dose 2</th>
<th>Dose 2 to dose 3</th>
<th>Dose 3 to dose 4</th>
<th>Dose 4 to dose 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B*</td>
<td>Birth</td>
<td></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></td>
<td></td>
</tr>
<tr>
<td>Rotavirus*</td>
<td>6 weeks</td>
<td></td>
<td>4 weeks</td>
<td>4 weeks</td>
<td>6 months</td>
<td>6 months</td>
</tr>
<tr>
<td>Diptheria, tetanus, pertussis*</td>
<td>6 weeks</td>
<td></td>
<td>4 weeks</td>
<td>4 weeks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haemophilus influenzae type b*</td>
<td>6 weeks</td>
<td></td>
<td>4 weeks</td>
<td>8 weeks (as final dose) if current age is younger than 12 months or older and second dose administered at younger than 12 months</td>
<td>8 weeks (as final dose)</td>
<td>8 weeks (as final dose)</td>
</tr>
<tr>
<td>Pneumococcal*</td>
<td>6 weeks</td>
<td></td>
<td>4 weeks</td>
<td>4 weeks</td>
<td>6 months</td>
<td>6 months</td>
</tr>
<tr>
<td>Inactivated poliovirus*</td>
<td>6 weeks</td>
<td></td>
<td>4 weeks</td>
<td>4 weeks</td>
<td>6 months*</td>
<td></td>
</tr>
<tr>
<td>Meningococcal* 1,2</td>
<td>6 weeks</td>
<td></td>
<td>4 weeks</td>
<td>8 weeks*</td>
<td></td>
<td>see footnote 13</td>
</tr>
<tr>
<td>Measles, mumps, rubella*</td>
<td>12 months</td>
<td></td>
<td>4 weeks</td>
<td></td>
<td></td>
<td>see footnote 13</td>
</tr>
<tr>
<td>Varicella* 1,2</td>
<td>12 months</td>
<td></td>
<td>3 months</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis A* 1,2</td>
<td>12 months</td>
<td></td>
<td>6 months</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Persons aged 7 through 18 years

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Minimum Age for Dose 1</th>
<th>Minimum Interval Between Doses</th>
<th>Dose 1 to dose 2</th>
<th>Dose 2 to dose 3</th>
<th>Dose 3 to dose 4</th>
<th>Dose 4 to dose 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetanus, diphtheria; tetanus, diptheria, pertussis*</td>
<td>7 years*</td>
<td></td>
<td>4 weeks</td>
<td>4 weeks</td>
<td>6 months</td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus* 1,2</td>
<td>9 years</td>
<td></td>
<td></td>
<td>Routine dosing intervals are recommended1,2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis A* 1,2</td>
<td>12 months</td>
<td></td>
<td>6 months</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B*</td>
<td>Birth</td>
<td></td>
<td>4 weeks</td>
<td>8 weeks (and at least 16 weeks after first dose)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inactivated poliovirus*</td>
<td>6 weeks</td>
<td></td>
<td>4 weeks</td>
<td>4 weeks*</td>
<td>6 months*</td>
<td></td>
</tr>
<tr>
<td>Meningococcal* 1,2</td>
<td>6 weeks</td>
<td></td>
<td>8 weeks*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella*</td>
<td>12 months</td>
<td></td>
<td>4 weeks</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicella* 1,2</td>
<td>12 months</td>
<td></td>
<td>3 months</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Footnotes — Recommended immunization schedule for persons aged 0 through 18 years—United States, 2013

For further guidance on the use of the vaccines mentioned below, see: http://www.cdc.gov/vaccines/pubs/acip-list.htm.

1. Hepatitis B (HepB) vaccine. (Minimum age: birth)
   - Routine vaccination:
     - At birth
     - Administer monovalent HepB vaccine 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 the infant’s HBsAg status is unknown, within 12 hours of birth administer HepB vaccine to all infants regardless of birth weight. For infants weighing ≥2,000 grams, administer HBIg in addition to HepB within 12 hours of birth. Determine mother’s HBsAg status as soon as possible and, if she is HBsAg-positive, also administer HBIg for infants weighing ≥2,000 grams (no later than age 1 week).
   - 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.
     - The minimum interval between dose 1 and dose 2 is 4 weeks, and between dose 2 and 3 is 8 weeks. The final (third or fourth) dose in the HepB vaccine series should be administered no earlier than age 24 weeks, and at least 16 weeks after the first dose.
     - Administration of a total of 4 doses of HepB vaccine is recommended 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 aged 11 through 15 years.
     - For other catch-up issues, see Figure 2.

2. Rotavirus (RV) vaccines. (Minimum age: 6 weeks for both RV-1 [Rotarix] and RV-5 [RotaTeq]).
   - Routine vaccination:
     - Administer a series of RV vaccine to all infants as follows:
       1. If RV-1 is used, administer a 2-dose series at 2 and 4 months of age.
       2. If RV-5 is used, administer a 3-dose series at ages 2, 4, and 6 months.
       3. If any dose in series RV-5 vaccine product is unknown for any doses in the series, a total of 3 doses of RV vaccine should be administered.
   - Catch-up vaccination:
     - The maximum age for the first dose in the series is 14 weeks, 6 days.
     - Vaccination should not be initiated for infants aged 15 weeks 0 days or older.
     - The maximum age for the final dose in the series is 8 months, 0 days.
     - If RV-1 [Rotarix] is administered for the first and second doses, a third dose is not indicated.
     - For other catch-up issues, see Figure 2.

3. Diptheria and tetanus toxoids and acellular pertussis (DTaP) vaccine. (Minimum age: 6 weeks)
   - Routine vaccination:
     - Administer a 5-dose series of DTaP vaccine at ages 2, 4, 6, 15–18 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.
     - Catch-up vaccination:
       - The fifth (booster) dose of DTaP vaccine is not necessary if the fourth dose was administered at age 4 years or older.
       - For other catch-up issues, see Figure 2.

4. Tetanus and diptheria toxoids and acellular pertussis (Tdap) vaccine. (Minimum age: 10 years for Boostrix, 11 years for Adacel).
   - Routine vaccination:
     - Administer 1 dose of Tdap vaccine to all adolescents aged 11 through 12 years.
     - Tdap can be administered regardless of the interval since the last tetanus and diptheria toxoid-containing vaccine.
   - Doses beyond the second dose:
     - Tdap vaccine can be given at any time during pregnancy.
     - In children who are born to HBsAg-positive mothers, administer 3 doses of Tdap vaccine at ages 1 through 4 years, and at least 16 weeks after the last dose.
     - For other catch-up issues, see Figure 2.

### Note:
The above recommendations must be read along with the footnotes of this schedule.
Additional information

- For contraindications and precautions to use of a vaccine and for additional information regarding vaccine, vaccination providers should consult the relevant ACP statement available online at http://www.cdc.gov/vaccines/index.htm.
- For the purposes of calculating intervals between doses, 4 weeks = 28 days. Intervals of 4 months or greater are determined by calendar months.
- For children aged 6 months through 8 years: For children aged 6 months through 8 years, 0.5 mL is administered (separated by at least 4 weeks) to children who are receiving influenza vaccine for the first time. For additional guidance, follow dosing guidelines in the 2012 ACP influenza vaccine recommendations, MMWR 2012; 61:613–618, available at http://www.cdc.gov/mmwr/pdf/ww/mm6132.pdf.
- For children aged 9 years and older: For children aged 9 years and older, 1.0 mL is administered (separated by at least 4 weeks). See Table 14, “Vaccination of children aged 9 years and older,” in ACP Immunization Recommendations 2012, available at http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6002a1.htm and American Academy of Pediatrics.

13. Meningococcal conjugate vaccines (MCV). (Minimum age: 6 weeks to 20 years; Menomune-V4; Menactra (MCV4-CRM)). Routine vaccination:

- Administer MCV4 vaccine at age 11–12 years, with a booster dose at age 16 years. Adolescents aged 13 through 18 years of age can use human immunodeficiency virus (HIV) infection to receive a 2-dose primary series of MCV4, with at least 8 weeks between doses. See MMWR 2011; 60:1018–1019 available at http://www.cdc.gov/mmwr/pdf/ww/mm6030.pdf.
- For children aged 11–12 years, 0.5 mL is administered (separated by at least 4 weeks) to children who are receiving influenza vaccine for the first time. For additional guidance, follow dosing guidelines in the 2012 ACP influenza vaccine recommendations, MMWR 2012; 61:613–618, available at http://www.cdc.gov/mmwr/pdf/ww/mm6132.pdf.

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

Routine vaccination:

- Administer a dose of MMR vaccine at age 12 through 15 months, and the second dose at age 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.
- Administer 1 dose of MMR vaccine to infants aged 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 age 12 through 15 months (12 months if the child remains in an area where disease risk is high), and the second dose at 4 through 6 years.
- Administer 2 doses of MMR vaccine to children aged 12 months and older, before departure from the United States for international travel. The first dose should be administered on or after age 12 months and the second dose at least 4 weeks later.

Catch-up vaccination:

- For the first time for children and adolescents who have had 2 doses of MMR vaccine; the minimum interval between the 2 doses is 6 weeks.

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

Routine vaccination:

- Administer the first dose of VAR vaccine at age 12 through 15 months, and the second dose at age 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:

- Ensure that all persons aged 7 through 18 years without evidence of immunity (see MMWR 2007-056 [No. RR-4], available at http://www.cdc.gov/mmwr/pdf/rr/rr5604.pdf) have 2 doses of varicella vaccine. For children aged 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 aged 13 years and older, the minimum interval is 6 months.

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

Routine vaccination:

- Administer 1 dose of HepA vaccine to children aged 12 through 23 months; separate the 2 doses by 6 to 18 months.
- 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.
- For any person aged 2 years and 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 desired.

Catch-up vaccination:

- The minimum interval between the two doses is 6 months.

Special population:

- Administer 2 doses of Hep A 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.

12. Haemophilus influenzae type b (HiB) vaccine. (Minimum age: 6 weeks; HiB-tetra; HiB-Dex [Cervarix].) (Minimum age: 9 years)

Routine vaccination:

- Administer a 3-dose series of HPV vaccine on a schedule of 0,1, 2, and 6 months to all children aged 11-12 years.
- Either all 4 or 2 HPV vaccines may be used for females, and only HPV4 may be used for males.
- The vaccine series can be started beginning at age 9 years.
- Administer the second dose 1 to 2 months after the first dose and the third dose 6 months after the first dose for females.
- For males, administer the first and second doses.
- For other catch-up issues, see Figure 2.

Catch-up vaccination:

- Administer the vaccine series to females (either HPV2 or HPV4) and males (HPV4) at age 13 through 18 years if not previously seen.
- Use recommended routine dosing intervals (see above) for vaccine series catch-up.


Routine vaccination:

- Administer a series of IPV at ages 2, 4, 6–18 months, with a booster at age 4–6 years. The final dose in the series should be administered on or after the fourth birthday and at least 6 months before the previous dose.

Catch-up vaccination:

- In infants and young children under age 3 years, minimum age and minimum intervals are only recommended if the person is at risk for imminent exposure to circulating poliovirus (i.e., travel to a polio-endemic region or during an outbreak).
- If 4 or more doses are administered before age 4 years, an additional dose should be administered at age 4 through 6 years.
- A fourth dose is not necessary if the third dose was administered at age 4 years or older and at least 6 months before the previous dose.
- If both IPV and OPV were administered as part of a series, a total of 4 doses should be administered, regardless of the child’s current age.
- IPV is not routinely recommended for U.S. residents aged 18 years or older.

Vaccination of persons with high-risk conditions:

- For children younger than 19 years of age with anatomic or functional asplenia (including sickle cell disease), administer an infant series of Hep-MeNCy2 at 2, 4, 6, and 12–15 months.
- For children aged 2 through 18 months with persistent complement component deficiency, administer either an infant series of Hep-MeNCy2 at 2, 4, 6, and 12 through 15 months or a 2-dose primary series of MCV4-D starting at age 12 through 15 months, with at least 8 weeks between doses. For children aged 19 through 23 months with persistent complement component deficiency who have not received a complete series of Hep-MeNCy2 or MCV4-D, administer 2 primary doses of MCV4-D at least 8 weeks apart.
- For children aged 24 months and older with persistent complement component deficiency or anatomic or functional asplenia (including sickle cell disease), who have not received a complete series of Hep-MeNCy2 or MCV4-D, administer 1 primary dose of either MCV4-D or MCV4-CRM. If MCV4-D (Menactra) is administered, the child has asplenia (including sickle cell disease), do not administer MCV4-D until 2 years of age and at least 4 weeks after the completion of all IPV3 doses. See MMWR 2011;60:1391–2, available at http://www.cdc.gov/mmwr/pdf/rr/rr6034.pdf.
- For children aged 9 months and older who are residents or travelers to countries in the African meningitis belt or to the Hajj, administer an age appropriate formulation and series of MCV4 for protection against serogroups A and C, if the meningococcal vaccine is not sufficient for children traveling to the meningitis belt or the Hajj. See MMWR 2011;60:1391–2, available at http://www.cdc.gov/mmwr/pdf/ww/mm6040.pdf.
- For children who are present during outbreaks caused by a vaccine serogroup, administer or complete an age and formulation-appropriate series of Hep-MeNCy2 or MCV4. For booster doses among persons with high-risk conditions refer to http://www.cdc.gov/vaccines/pubs/acip-list.htm.

For further guidance on the use of the vaccines mentioned below, see: http://www.cdc.gov/vaccines/pubs/acip-list.htm.

- Administer one dose of Tdap vaccine to pregnant adolescents during each pregnancy (preferred during 27 through 36 weeks gestation) regardless of number of years from prior Td or Tdap vaccination.
- Persons aged 7 through 10 years who are not fully immunized with the childhood DTAP vaccine series, should receive Tdap vaccine as the first dose in the catch-up series; if additional doses are needed, use Td vaccine. For these children, an adolescent Tdap vaccine should not be given.
- Persons aged 11 through 18 years who have not received Tdap vaccine should receive a dose followed by tetanus and diptheria toxoids (Td) booster every 10 years thereafter.
- An inadvertent dose of Tdap vaccine administered to children aged 7 through 10 years can count as part of the catch-up series. This dose can count as the Td dose, or the child can later receive a Td booster dose at age 11–12 years.
- For other catch-up see, page 2.