New Immunization Schedules and Updates for 2014

A. Nelson El Amin, MD, MPH

On February 7, 2014, the Advisory Committee on Immunization Practices (ACIP) released its revised 2014 Recommended Immunization Schedules for Persons Aged 0 through 18 Years and Adults 19 Years and Older. These recommendations are based upon the best available science regarding immunization practice, as reviewed by ACIP during the preceding year. Both schedules can be found on the following pages as well as at the Centers for Disease Control and Prevention website at www.cdc.gov/vaccines/schedules/hcp/index.html.

Significant changes to the 2014 Pediatric and Adolescent Immunization Schedule (see pages 2-6) include the following updates:

• The meningococcal conjugate vaccine legend indicates that MenACWY-CRM (Menveo) may be given to infants as young as 2 months of age.
• The influenza footnotes now reflect that some children 6 months through 8 years of age need 2 doses of influenza vaccine, based upon previous vaccination history.
• The meningococcal vaccine footnote to clarify which persons need either 1 or 2 doses of meningococcal conjugate versus the meningococcal polysaccharide quadrivalent vaccines.

Significant changes to the 2014 Adult Immunization Schedule (see pages 7-10) include adding information about new influenza vaccines and simplifying language around usage recommendations for several other routine adult vaccines.

The most substantive changes are in the footnotes and include the following:

• Updating recommendations for use of Hib vaccine for certain adults at increased risk for Hib who were not previously vaccinated. Additionally, adults who have undergone a successful hematopoietic stem cell transplant are recommended to receive a 3-dose series of Hib vaccine 6-12 months after transplant regardless of prior Hib vaccination. Finally, Hib vaccination of previously unvaccinated adults with HIV infection is no longer recommended because their risk for Hib infection is low.
• Adding information on RIV and the use of RIV and IIV to the footnote that indicates that RIV or IIV can be used among patients with hives-only allergy to eggs. However, RIV contains no egg protein and can be used among persons aged 18 through 49 years with egg allergy of any severity.
• Editing the meningococcal vaccine footnote to clarify which persons need either 1 or 2 doses of vaccine and to provide greater clarity regarding which patients require the meningococcal conjugate versus the meningococcal polysaccharide quadrivalent vaccines.

Share the updated immunization schedules with all of the personnel responsible for immunization activities in your clinics. Also, replace the 2013 schedules with the revised 2014 versions in the areas of your clinic where vaccine recommendations are posted.
Figure 1. Recommended immunization schedule for persons aged 0 through 18 years – United States, 2014. (FOR THOSE WHO FALL BEHIND OR START LATE, SEE THE CATCH-UP SCHEDULE [FIGURE 2]).

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.

<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>16-18 yrs</th>
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<tbody>
<tr>
<td>Hepatitis B (HepB)</td>
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<td>2*dose</td>
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<td>Rotavirus (RV) RV1 (2-dose</td>
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<td>Meningococcal (Hib-MenCY ≥ 6</td>
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<td>weeks; MenACWY-D ≥9 mos; MenACWY-CRM ≥ 2 mos)</td>
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</table>

NOTE: The above recommendations must be read along with the footnotes of this schedule.

This schedule includes recommendations in effect as of January 1, 2014. 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 http://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 (http://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 (http://www.cdc.gov/vaccines/recs/vac-admin/contraindications.htm) or by telephone (800-232-4636).

This schedule is approved by the Advisory Committee on Immunization Practices (http://www.cdc.gov/vaccines/acip), the American Academy of Pediatrics (http://www.aap.org), the American Academy of Family Physicians (http://www.aafp.org), and the American College of Obstetricians and Gynecologists (http://www.acog.org).
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, 2014.

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 B1</td>
<td>Birth</td>
<td>4 weeks</td>
<td>8 weeks</td>
<td>8 weeks</td>
<td>6 months</td>
<td>6 months</td>
</tr>
<tr>
<td>Rotavirus1</td>
<td>6 weeks</td>
<td>4 weeks</td>
<td>4 weeks</td>
<td>6 months</td>
<td>6 months</td>
<td></td>
</tr>
<tr>
<td>Diphtheria, tetanus, &amp; acellular pertussis 2</td>
<td>6 weeks</td>
<td>4 weeks</td>
<td>4 weeks</td>
<td>6 months</td>
<td>6 months</td>
<td></td>
</tr>
<tr>
<td>Haemophilus influenzae type b2</td>
<td>6 weeks</td>
<td>4 weeks if first dose administered at younger than age 12 months</td>
<td>4 weeks if current age is younger than 12 months and first dose administered at &lt;7 months old 8 weeks and age 12 months through 59 months (as final dose) if current age is younger than 12 months and first dose administered between 7 through 11 months (regardless of Hib vaccine [PRP-T or PRP-OMP] used for first dose) OR if first dose is 12 through 59 months and first dose administered at younger than 12 months; if 1st 2 doses were PRP-OMP and administered at younger than 12 months No further doses needed if previous dose administered at age 15 months or older</td>
<td>6 months</td>
<td>8 weeks (as final dose) This dose only necessary for children aged 12 through 59 months who received 3 (PRP-T) doses before age 12 months and started the primary series before age 7 months</td>
<td></td>
</tr>
<tr>
<td>Pneumococcal</td>
<td>6 weeks</td>
<td>4 weeks if first dose administered at younger than age 12 months</td>
<td>4 weeks if current age is younger than 12 months</td>
<td>4 weeks if current age is younger than 12 months</td>
<td>6 months</td>
<td>8 weeks (as final dose) This dose only necessary for children aged 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 poliovirus1</td>
<td>6 weeks</td>
<td>4 weeks</td>
<td>4 weeks</td>
<td>6 months</td>
<td>minimum age 4 years for final dose</td>
<td></td>
</tr>
<tr>
<td>Meningococcal</td>
<td>6 weeks</td>
<td>8 weeks</td>
<td>See footnote 13</td>
<td>See footnote 13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella</td>
<td>12 months</td>
<td>4 weeks</td>
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<tr>
<td>Varicella19</td>
<td>12 months</td>
<td>3 months</td>
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<tr>
<td>Hepatitis A11</td>
<td>12 months</td>
<td>6 months</td>
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</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, diphtheria, &amp; acellular pertussis 5</td>
<td>7 years</td>
<td>4 weeks</td>
<td>4 weeks</td>
<td>4 weeks</td>
<td>6 months</td>
<td>6 months</td>
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<tr>
<td>Human papillomavirus1</td>
<td>9 years</td>
<td>Routine dosing intervals are recommended</td>
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<tr>
<td>Hepatitis A2</td>
<td>12 months</td>
<td>6 months</td>
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<tr>
<td>Hepatitis B1</td>
<td>Birth</td>
<td>4 weeks</td>
<td>8 weeks (and at least 16 weeks after first dose)</td>
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<tr>
<td>Inactivated poliovirus1</td>
<td>6 weeks</td>
<td>4 weeks</td>
<td>4 weeks</td>
<td>6 months</td>
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<tr>
<td>Meningococcal2</td>
<td>6 weeks</td>
<td>8 weeks</td>
<td>See footnote 13</td>
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<tr>
<td>Measles, mumps, rubella</td>
<td>12 months</td>
<td>4 weeks</td>
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<tr>
<td>Varicella10</td>
<td>12 months</td>
<td>3 months if person is younger than age 13 years</td>
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</table>

**NOTE:** The above recommendations must be read along with the footnotes of this schedule.
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. Exception: DTaP-IPV [Kinrix]: 4 years

Routine vaccination:

• Administer 1 dose of Tdap vaccine to all adolescents aged 11 through 12 years.
• Tdap may be administered regardless of the interval since the last tetanus and diphtheria toxoid-containing vaccine.

Catch-up vaccination:

• Persons aged 7 years and older who are not fully immunized with DTaP vaccine should receive Tdap vaccine as 1 (preferably the first) dose in the catch-up series; if additional doses are needed, use Td vaccine. For children 7 through 10 years who receive a dose of Tdap as part of the 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.

Footnotes — Recommended immunization schedule for persons aged 0 through 18 years—United States, 2014

For further guidance on the use of the vaccines mentioned below, see: http://www.cdc.gov/vaccines/hcp/acip-recs/index.html.
For vaccine recommendations for persons 19 years of age and older, see the adult immunization schedule.

Additional 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 http://www.cdc.gov/vaccines/hcp/acip-recs/index.html.
• For 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 ≥5 days earlier than the minimum interval or minimum age 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 online at http://www.cdc.gov/mmwr/pdf/rr/rr6002.pdf.
• Information on travel vaccine requirements and recommendations is available at http://wwwnc.cdc.gov/travel/destinations/list.
6. Pneumococcal vaccines. (Minimum age: 6 weeks for PCV13, 2 years for PPSV23)

Routine vaccination:

- Administer 1 dose of PCV13

Catch-up vaccination:

- Administer 1 dose of PCV13 if 3 doses of PCV (PCV7 and/or PCV13) were received previously.
- Administer 2 doses of PCV13 at least 8 weeks apart if fewer than 3 doses of PCV (PCV7 and/or PCV13) were received previously.
- Administer 1 dose of PCV13 at least 8 weeks after dose 1, regardless of Hib vaccine used in the primary series.

For further guidance on the use of the vaccines mentioned below, see: http://www.cdc.gov/vaccines/hcp/acip-recs/index.html.
9. Measles, mumps, and rubella (MMR) vaccine. (Minimum age: 12 months for routine vaccination)

Routine vaccination:
- Administer a 2-dose series of MMR vaccine at ages 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.
- 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 least 4 weeks later.
- 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:
- 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:
- Administer a 2-dose series of VAR vaccine at ages 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:
- Ensure that all persons aged 7 through 18 years without evidence of immunity (see MMWR 2007; 56 [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 between doses is 4 weeks.

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

Routine vaccination:
- Initiate the 2-dose HepA vaccine series at 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 populations:
- 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 work with HIV-infected primates or with HIV in a research laboratory; persons with clotting factor disorders; persons at risk for chronic liver disease; and persons who anticipate close, personal contact (e.g., household or regular baby sitting) 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 the arrival of the adoptee.

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

Routine vaccination:
- Administer a 3-dose series of HPV vaccine on a schedule of 0, 1-2, and 6 months to all adolescents aged 11 through 12 years. Either HPV2 or HPV4 may be used for females, and only HPV4 may be used for males.
- The vaccine series may be started at age 9 years.
- 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:
- Administer the vaccine series to females (either HPV2 or HPV4) and males (HPV4) at age 13 through 18 years if not previously vaccinated.
- Use recommended routine dosing intervals (see above) for vaccine series catch-up.

13. Meningococcal conjugate vaccines. (Minimum age: 6 weeks for Hib-MenCY [MenHibrix], 9 months for MenACWY-D [Menactra], 2 months for MenACWY-CRM [Menveo])

Routine vaccination:
- Administer a single dose of Menactra or Menveo vaccine at age 11 through 12 years, with a booster dose at age 16 through 18 years.
- Adolescents aged 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.
- For children aged 2 months through 18 years with high-risk conditions, see below.

Catch-up vaccination:
- Administer Menactra or Menveo vaccine at age 13 through 18 years if not previously vaccinated.
- 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.
- If the first dose is administered at age 16 years or older, a booster dose is not needed.

For other catch-up guidance, see Figure 2.

Catch-up recommendations for persons with high-risk conditions and other persons at increased risk of disease:
- Children with anatomic or functional asplenia (including sickle cell disease):
  1. For children younger than 19 months of age, administer a 4-dose infant series of MenHibrix or Menveo at 2, 4, 6, and 12 through 15 months of age.
  2. For children aged 19 through 23 months who have not completed a series of MenHibrix or Menveo, administer 2 primary doses of Menveo at least 3 months apart.
- Children with persistent complement component deficiency:
  1. For children younger than 19 months of age, administer a 4-dose infant series of MenHibrix or Menveo at 2, 4, 6, and 12 through 15 months of age.
  2. For children aged 19 through 23 months who have not initiated vaccination, two options exist depending on age and vaccine brand:
     a. For children who initiate vaccination with Menveo at 7 months through 23 months of age, a 2-dose series should be administered with the second dose after 12 months of age and at least 3 months after the first dose.
     b. For children who initiate vaccination with Menactra at 19 months through 23 months of age, a 2-dose series of Menactra should be administered at least 3 months apart.
  3. For children aged 24 months and older who have not received a complete series of MenHibrix or Menveo or Menactra, administer 2 primary doses of either Menactra or Menveo at least 2 months apart.
- If Menactra is administered to a child with asplenia (including sickle cell disease), do not administer Menactra until 2 years of age and at least 4 weeks after the completion of all PCV13 doses.
- Children with persistent complement component deficiency:
  1. For children younger than 19 months of age, administer a 4-dose infant series of either MenHibrix or Menveo at 2, 4, 6, and 12 through 15 months of age.
  2. For children aged 19 through 23 months who have not completed a series of MenHibrix or Menveo, administer 2 primary doses of Menveo at least 3 months apart.
- For other catch-up guidance, see Figure 2.

Vaccination of persons with high-risk conditions and other persons at increased risk of disease:
- Children with anatomic or functional asplenia (including sickle cell disease):
  1. For children younger than 19 months of age, administer a 4-dose infant series of MenHibrix or Menveo at 2, 4, 6, and 12 through 15 months of age.
  2. For children aged 19 through 23 months who have not completed a series of MenHibrix or Menveo, administer 2 primary doses of Menveo at least 3 months apart.
  3. For children aged 24 months and older who have not received a complete series of MenHibrix or Menveo or Menactra, administer 2 primary doses of either Menactra or Menveo at least 2 months apart.
- If Menactra is administered to a child with asplenia (including sickle cell disease), do not administer Menactra until 2 years of age and at least 4 weeks after the completion of all PCV13 doses.
- Children with persistent complement component deficiency:
  1. For children younger than 19 months of age, administer a 4-dose infant series of either MenHibrix or Menveo at 2, 4, 6, and 12 through 15 months of age.
  2. For children aged 19 through 23 months who have not initiated vaccination, two options exist depending on age and vaccine brand:
     a. For children who initiate vaccination with Menveo at 7 months through 23 months of age, a 2-dose series should be administered with the second dose after 12 months of age and at least 3 months after the first dose.
     b. For children who initiate vaccination with Menactra at 19 months through 23 months of age, a 2-dose series of Menactra should be administered at least 3 months apart.
  3. For children aged 24 months and older who have not received a complete series of MenHibrix, Menveo, or Menactra, administer 2 primary doses of either Menactra or Menveo at least 2 months apart.
- For children who travel to or reside in countries in which meningococcal disease is hyperendemic or epidemic, including countries in the African meningitis belt or the Hajj, administer an age-appropriate formulation and series of Menactra or Menveo for protection against serogroups A and W meningococcal disease. Prior receipt of MenHibrix is not sufficient for children traveling to the meningitis belt or the Hajj because it does not contain serogroups A or W.
- For children at risk for infection, a community attributable to a vaccine serogroup, administer or complete an age- and formulation-appropriate series of MenHibrix, Menactra, or Menveo.

For further guidance on the use of the vaccines mentioned below, see: http://www.cdc.gov/vaccines/hcp/acip-recs/index.html.
Figure 1. Recommended adult immunization schedule, by vaccine and age group

**Note:** These recommendations must be read with the footnotes that follow containing number of doses, intervals between doses, and other important information.

<table>
<thead>
<tr>
<th>VACCINE</th>
<th>AGE GROUP</th>
<th>19-21 years</th>
<th>22-26 years</th>
<th>27-49 years</th>
<th>50-59 years</th>
<th>60-64 years</th>
<th>≥ 65 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza</td>
<td>A*</td>
<td>1 dose annually</td>
<td>1 dose annually</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus, diphtheria, pertussis (Td/Tdap)</td>
<td>A*</td>
<td>Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicella</td>
<td></td>
<td>2 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV) Female</td>
<td>B*</td>
<td>3 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV) Male</td>
<td>B*</td>
<td>3 doses</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Zoster</td>
<td></td>
<td>1 dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td>B*</td>
<td>1 or 2 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal 13-valent conjugate (PCV13)</td>
<td>B*</td>
<td>1 dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>1 or more doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis A</td>
<td>B*</td>
<td>2 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B</td>
<td>B*</td>
<td>3 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haemophilus influenzae type b (Hib)</td>
<td>B*</td>
<td>1 or 3 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Covered by the Vaccine Injury Compensation Program

For all persons in this category who meet the age requirements and who lack documentation of vaccination or have no evidence of previous infection; zoster vaccine recommended regardless of prior episode of zoster

Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications)

No recommendation

Report all clinically significant postvaccination reactions to the Vaccine Adverse Event Reporting System (VAERS). Reporting forms and instructions on filing a VAERS report are available at www.vaers.hhs.gov or by telephone, 800-822-7967. Information on how to file a Vaccine Injury Compensation Program claim is available at www.hrsa.gov/vaccinescompensation or by telephone, 800-338-2382. To file a claim for vaccine injury, contact the U.S. Court of Federal Claims, 717 Madison Place, N.W., Washington, D.C. 20005; telephone, 202-357-6400.

Additional information about the vaccines in this schedule, extent of available data, and contraindications for vaccination is also available at www.cdc.gov/vaccines/hcp/acip-recs/index.html.

Use of trade names and commercial sources is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services.

The recommendations in this schedule were approved by the Centers for Disease Control and Prevention’s (CDC) Advisory Committee on Immunization Practices (ACIP), the American Academy of Family Physicians (AAFP), the American College of Physicians (ACP), American College of Obstetricians and Gynecologists (ACOG) and American College of Nurse-Midwives (ACNM).

Figure 2. Vaccines that might be indicated for adults based on medical and other indications

<table>
<thead>
<tr>
<th>VACCINE</th>
<th>INDICATION</th>
<th>Pregnancy</th>
<th>Immuno-compromising conditions (excluding human immunodeficiency virus [HIV])</th>
<th>HIV infection (CD4+ T lymphocyte count ≤ 200 cells/μL)</th>
<th>Men who have sex with men (MSM)</th>
<th>Kidney failure, end-stage renal disease, receipt of hemodialysis</th>
<th>Heart disease, chronic lung disease, chronic alcoholism</th>
<th>Asplenia (including elective splenectomy and persistent complement component deficiencies)</th>
<th>Chronic liver disease</th>
<th>Diabetes</th>
<th>Healthcare personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza</td>
<td>A*</td>
<td>1 dose IIV annually</td>
<td>1 dose IIV annually</td>
<td>1 dose IIV annually</td>
<td>1 dose IIV annually</td>
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<td></td>
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</tr>
<tr>
<td>Tetanus, diphtheria, pertussis (Td/Tdap)</td>
<td>A*</td>
<td>Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs</td>
<td></td>
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</tr>
<tr>
<td>Varicella</td>
<td></td>
<td>Contraindicated</td>
<td>2 doses</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV) Female</td>
<td>B*</td>
<td>3 doses through age 26 yrs</td>
<td>3 doses through age 26 yrs</td>
<td></td>
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<tr>
<td>Human papillomavirus (HPV) Male</td>
<td>B*</td>
<td>3 doses through age 26 yrs</td>
<td>3 doses through age 21 yrs</td>
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<tr>
<td>Zoster</td>
<td></td>
<td>Contraindicated</td>
<td>1 dose</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td>B*</td>
<td>Contraindicated</td>
<td>1 or 2 doses</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal 13-valent conjugate (PCV13)</td>
<td>B*</td>
<td>1 dose</td>
<td></td>
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<tr>
<td>Pneumococcal polysaccharide (PPSV23)</td>
<td></td>
<td>1 or 2 doses</td>
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<tr>
<td>Meningococcal</td>
<td></td>
<td>1 or more doses</td>
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<tr>
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<td>B*</td>
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<tr>
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<td>B*</td>
<td>3 doses</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Haemophilus influenzae type b (Hib)</td>
<td>B*</td>
<td>1 or 3 doses</td>
<td></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

*Covered by the Vaccine Injury Compensation Program

For all persons in this category who meet the age requirements and who lack documentation of vaccination or have no evidence of previous infection; zoster vaccine recommended regardless of prior episode of zoster

Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications)

No recommendation

For detailed recommendations on all vaccines, including those used primarily for travelers or that are issued during the year, consult the manufacturers’ package inserts and the complete statements from the Advisory Committee on Immunization Practices (www.cdc.gov/vaccines/hcp/acip-recs/index.htm). Use of trade names and commercial sources is for identification only and does not imply endorsement by the U.S. Department of Health and Human Services.
Footnotes

Recommended Immunization Schedule for Adults Aged 19 Years or Older: United States, 2014

1. Additional information

• Additional guidance for the use of the vaccines described in this supplement is available at www.cdc.gov/vaccineshcp/acip-recs/index.html.

• Information on vaccination recommendations when vaccination status is unknown and other general immunization information can be found in the General Recommendations on Immunization at www.cdc.gov/vaccines/pubs/recs/index.htm.

• Information on travel vaccine requirements and recommendations (e.g., for hepatitis A and B, meningococcal, and other vaccines) is available at http://wwwnc.cdc.gov/travel/destinations/list.

• Additional information and resources regarding vaccination of pregnant women can be found at http://www.cdc.gov/vaccines/adults/rec-vac-pregnant.html.

2. Influenza vaccination

• Annual vaccination against influenza is recommended for all persons aged 6 months or older.

• Persons aged 6 months or older, including pregnant women and persons with hives-only allergy to eggs, can receive the inactivated influenza vaccine (IIV). An age-appropriate IIV formulation should be used.

• Adults aged 18 to 49 years can receive the recombinant influenza vaccine (RIV) (FluBloc). RIV does not contain any egg protein.

• Healthy, nonpregnant persons aged 2 to 49 years with high-risk clinical conditions can receive either intranasally administered live, attenuated influenza vaccine (LAIV) (Flumist), or IIV. Health care personnel who care for severely immunocompromised persons (e.g., those who are under care in a protected environment) should receive IIV rather than LAIV.

• The intramuscularly or intradermally administered IIV are options for adults aged 18 to 64 years.

• Adults aged 65 years or older can receive the standard-dose IIV or the high-dose IIV (Fluzone High-Dose).

3. Tetanus, diphtheria, and acellular pertussis (Td/Tdap) vaccination

• Administer 1 dose of Tdap vaccine to pregnant women during each pregnancy (preferred during 27 to 36 weeks’ gestation) regardless of interval since prior Td or Tdap vaccination.

• Persons aged 11 years or older who have not received Tdap vaccine or for whom vaccine status is unknown should receive a dose of Tdap followed by tetanus and diphtheria toxoids (Td) booster doses every 10 years thereafter. Tdap can be administered regardless of interval since the most recent tetanus or diphtheria-toxoid-containing vaccine.

• Adults with an unknown or incomplete history of completing a 3-dose primary vaccination series with Td-containing vaccines should begin or complete a primary vaccination series including a Tdap dose.

• For unvaccinated adults, administer the first 2 doses at least 4 weeks apart and the third dose 6 to 12 months after the second.

• For incompletely vaccinated (i.e., less than 3 doses) adults, administer at least 2 additional doses.

• Refer to the ACIP statement for recommendations for administering Td/Tdap as prophylaxis in wound management (see footnote 1).

4. Varicella vaccination

• All adults without evidence of immunity to varicella (as defined below) should receive 2 doses of single-antigen varicella vaccine or a second dose if they have received only 1 dose.

• Vaccination should be emphasized for those who have close contact with persons at high risk for severe disease (e.g., health care personnel) and persons with family members or contacts with persons with immunocompromising conditions (e.g., those at high risk for exposure to measles) or are at high risk for exposure to transmission (e.g., teachers; child care employees; residents and staff members of institutional settings, including correctional institutions; college students; military personnel; adolescents and adults living in households with children; nonpregnant women of childbearing age; and international travelers).

• Pregnant women should be assessed for evidence of varicella immunity. Women who do not have evidence of immunity should receive the first dose of varicella vaccine upon completion or termination of pregnancy and before discharge from the health care facility. The second dose should be administered 4 to 8 weeks after the first dose.

• Evidence of immunity to varicella in adults includes any of the following:

— laboratory evidence of immunity to both varicella-zoster virus components
— history of varicella in a household contact or person who lived with the patient during the presumed incubation period
— history of varicella vaccination
— history of herpes zoster based on diagnosis or verification of varicella disease by a health care provider
— history of herpes zoster based on diagnosis or verification of herpes zoster disease by a health care provider or
— laboratory evidence of immunity or laboratory confirmation of disease.

5. Human papillomavirus (HPV) vaccination

• Two vaccines are licensed for use in females, bivalent HPV vaccine (HPV2) and quadrivalent HPV vaccine (HPV4), and one HPV vaccine for use in males (HPV4).

• For females, either HPV4 or HPV2 is recommended in a 3-dose series for routine vaccination at age 11 or 12 years and for those aged 13 through 26 years if not previously vaccinated.

• For males, HPV4 is recommended in a 3-dose series for routine vaccination at age 11 or 12 years and for those aged 13 through 21 years, if not previously vaccinated. Males aged 22 through 26 years may be vaccinated.

• Additional guidance for the use of the vaccines described in this supplement is available at www.cdc.gov/vaccines/hcp/acip-recs/index.html.

• Information on vaccination recommendations when vaccination status is unknown and other general immunization information can be found in the General Recommendations on Immunization at www.cdc.gov/vaccines/pubs/recs/index.htm.

• Information on travel vaccine requirements and recommendations (e.g., for hepatitis A and B, meningococcal, and other vaccines) is available at http://wwwnc.cdc.gov/travel/destinations/list.

• Additional information and resources regarding vaccination of pregnant women can be found at http://www.cdc.gov/vaccines/adults/rec-vac-pregnant.html.

5. Human papillomavirus (HPV) vaccination (cont’d)

• HPV4 is recommended for men who have sex with men through age 26 years for those who did not get any or all doses when they were younger.

• Vaccination is recommended for immunocompromised persons (including those with HIV infection) through age 26 years for those who did not get any or all doses when they were younger.

• A complete series for either HPV4 or HPV2 consists of 3 doses. The second dose should be administered 4 to 8 weeks (minimum interval of 4 weeks) after the first dose; the third dose should be administered 24 weeks after the first dose and 16 weeks after the second dose (minimum interval of at least 12 weeks).

• HPV vaccines are not recommended for use in pregnant women. However, pregnancy testing is not needed before vaccination. If a woman is found to be pregnant after initiating the vaccination series, no intervention is needed; the remainder of the 3-dose series should be delayed until completion of pregnancy.

6. Zoster vaccination

• A single dose of zoster vaccine is recommended for adults aged 60 years or older regardless of whether they report a prior episode of herpes zoster.

• Although the vaccine is licensed by the U.S. Food and Drug Administration for use among and can be administered to persons aged 50 years or older, ACIP recommends that vaccination begin at age 60 years.

• Persons aged 60 years or older with chronic medical conditions may be vaccinated.

7. Measles, mumps, rubella (MMR) vaccination

• Adults born before 1957 are generally considered immune to measles and mumps. Adults born in 1957 or later should have documentation of 1 or more doses of MMR vaccine unless they have a medical contraindication to the vaccine or laboratory evidence of immunity to each of the three diseases.

• Documentation of provider-diagnosed disease is not considered acceptable evidence of immunity for measles, mumps, or rubella.

• Measles component:

— A routine second dose of MMR vaccine, administered a minimum of 28 days after the first dose, is recommended for adults who:

— are students in postsecondary educational institutions;
— work in a health care facility; or
— plan to travel internationally.

• Rubella component:

— For women of childbearing age, regardless of birth year, rubella immunity should be determined. If there is no evidence of immunity, women who are not pregnant should be vaccinated. Pregnant women who do not have evidence of immunity should receive MMR vaccine upon completion or termination of pregnancy and before discharge from the health care facility.

• Mumps component:

— A routine second dose of MMR vaccine, administered a minimum of 28 days after the first dose, is recommended for adults who:

— are students in postsecondary educational institutions;
— work in a health care facility; or
— plan to travel internationally.

• Persons vaccinated before 1979 with either killed mumps vaccine or a vaccine of unknown type who are at high risk for mumps infection (e.g., persons who are working in a health care facility) should be considered for revaccination with 2 doses of MMR vaccine.

8. Pneumococcal conjugate (PCV13) vaccination

• Adults aged 19 years or older with immunocompromising conditions (including chronic renal failure and nephritic syndrome), functional or anatomic asplenia, cerebrospinal fluid leaks, or cochlear implants who have not previously received PCV13 or PSVP23 should receive a single dose of PCV13 followed by a dose of PSVP23 at least 8 weeks later.

• Adults aged 19 years or older with the aforementioned conditions who have previously received 1 or more doses of PSVP23 should receive a dose of PCV13 one or more years after the last PSVP23 dose was received. For adults who require additional doses of PSVP23, the first such dose should be given no sooner than 8 weeks after PCV13 and at least 5 years after the most recent dose of PSVP23.

• When indicated, PCV13 should be administered to patients who are uncertain of their vaccination status history and have no record of previous vaccination.

• Although PCV13 is licensed by the U.S. Food and Drug Administration for use among and can be administered to persons aged 50 years or older, ACIP recommends PCV13 for adults aged 19 years or older with the specific medical conditions noted above.
9. Pneumococcal polysaccharide (PPSV23) vaccination
• When PCV13 is also indicated, PCV13 should be given first (see footnote 8).
• Vaccinate all persons with the following indications:
  — all adults aged 65 years or older;
  — adults younger than 65 years with chronic lung disease (including chronic obstructive pulmonary disease, emphysema, and asthma), chronic cardiac or vascular diseases, diabetes mellitus, chronic renal failure, nephrotic syndrome, chronic liver disease (including cirrhosis), alcoholism, coelomic implants, cerebrospinal fluid leaks, immunocompromising conditions, and functional or anatomic asplenia (e.g., sickle cell disease and other hemoglobinopathies, congenital or acquired asplenia, splenic dysfunction, or splenectomy if elective splenectomy is planned, vaccinate at least 2 weeks before surgery);
  — residents of nursing homes or long-term care facilities; and
  — adults who smoke cigarettes.
• Persons with immunocompromising conditions and other selected conditions are recommended to receive PCV13 and PPSV23 vaccines. See footnote 8 for information on timing of PCV13 and PPSV23 vaccinations.
• Persons with asymptomatic or symptomatic HIV infection should be vaccinated as soon as possible after their diagnosis.
• When cancer chemotherapy or other immunosuppressive therapy is being considered, the interval between vaccination and initiation of immunosuppressive therapy should be at least 2 weeks. Vaccination during chemotherapy or radiation therapy should be avoided.
• Routine use of PPSV23 vaccine is not recommended for American Indians/Alaska Natives or other persons younger than 65 years unless they have underlying medical conditions that are PPSV23 indications. However, public health authorities may consider recommending PPSV23 for American Indians/Alaska Natives who are living in areas where the risk for invasive pneumococcal disease is increased.
• When indicated, PPSV23 vaccine should be administered to patients who are uncertain of their vaccination status and have no record of vaccination.
10. Revaccination with PPSV23
• One-time revaccination 5 years after the first dose of PPSV23 is recommended for persons aged 19 through 64 years with chronic renal failure or nephrotic syndrome, functional or anatomic asplenia (e.g., sickle cell disease or splenectomy), or immunocompromising conditions.
• Persons who received 1 or 2 doses of PPSV23 before age 65 years for any indication should receive another dose of the vaccine at age 65 years or later if at least 5 years have passed since their previous dose.
• No further doses of PPSV23 are needed for persons vaccinated with PPSV23 at or after age 65 years.
11. Meningococcal vaccination
• Administer 2 doses of quadrivalent meningococcal conjugate vaccine (MenACWY (Menactra, Menveo)) at least 2 months apart to adults of all ages with functional asplenia or persistent complement component deficiencies. HIV infection is not an indication for routine vaccination with MenACWY. If an HIV-infected person of any age is vaccinated, 2 doses of MenACWY should be administered at least 2 months apart. Alternative regimens include a single-antigen vaccine formulation of MenACWY at 40 mcg/mL (Recombivax MenACWY) administered simultaneously on a 4-dose schedule, followed by a 4-dose Twinrix schedule, administered on days 0, 7, and 21 to 30 followed by a booster dose at 12 months.
• Administer a single dose of meningococcal vaccine to microbiologists routinely exposed to isolates of Neisseria meningitidis, military recruits, persons at risk during an outbreak attributable to a vaccine serogroup, and persons who travel to or live in countries in which meningococcal disease is hyperendemic or epidemic.
• First-year college students up through age 21 years who are living in residence halls should be vaccinated if they have not received a dose on or after their 16th birthday.
• MenACWY is preferred for adults with any of the preceding indications who are aged 55 years or younger as well as for adults aged 56 years or older who a) were vaccinated previously with MenACWY and are recommended for revaccination, or b) for whom multiple doses are anticipated. Meningococcal polysaccharide vaccine (MPSV4 (Menomune)) is preferred for adults aged 56 years or older who have not received MenACWY previously and who require a single dose only (e.g., travelers).
• Revaccination with MenACWY every 5 years is recommended for adults previously vaccinated with MenACWY or MPSV4 who remain at increased risk for infection (e.g., adults with anatomic or functional asplenia, persistent complement component deficiencies, or microbiologists).
12. Hepatitis A vaccination
• Vaccinate any person seeking protection from hepatitis A virus (HAV) infection and persons with any of the following indications:
  — men who have sex with men and persons who use injection or non-injection illicit drugs;
  — persons working with HAV-infected primates or with HAV in a research laboratory setting;
  — persons with chronic liver disease and persons who receive clotting factor concentrates;
  — persons traveling to or working in countries that have high or intermediate endemicity of hepatitis A; and
• Vaccinate all persons with the following indications:
  — all adults aged 65 years or older;
  — adults younger than 65 years with chronic lung disease (including chronic obstructive pulmonary disease, emphysema, and asthma), chronic cardiac or vascular diseases, diabetes mellitus, chronic renal failure, nephrotic syndrome, chronic liver disease (including cirrhosis), alcoholism, coelomic implants, cerebrospinal fluid leaks, immunocompromising conditions, and functional or anatomic asplenia (e.g., sickle cell disease and other hemoglobinopathies, congenital or acquired asplenia, splenic dysfunction, or splenectomy if elective splenectomy is planned, vaccinate at least 2 weeks before surgery);
  — residents of nursing homes or long-term care facilities; and
  — adults who smoke cigarettes.
• Single-antigen vaccine formulations should be administered in a 2-dose schedule at either 0 and 6 to 12 months (Havrix), or 0 and 6 to 18 months (Vaqta). If the combined hepatitis A and hepatitis B vaccine (Twinrix) is used, administer 3 doses at 0, 1, and 6 months; alternatively, a 4-dose schedule may be used, administered on days 0, 7, and 21 to 30 followed by a booster dose at month 12.
13. Hepatitis B vaccination
• Vaccinate persons with any of the following indications and any person seeking protection from hepatitis B virus (HBV) infection:
  — sexually active persons who are not in a long-term, mutually monogamous relationship (e.g., persons with more than 1 sex partner during the previous 6 months); persons seeking evaluation or treatment for a sexually transmitted disease (STD); current or recent injection drug users; and men who have sex with men;
  — health care personnel and public safety workers who are potentially exposed to blood or other infectious body fluids;
  — persons with diabetes who are younger than age 60 years as soon as feasible after diagnosis; persons with diabetes who are age 60 years or older at the discretion of the treating clinician based on the likelihood of acquiring HBV infection, including the risk posed by an increased need for assisted blood glucose monitoring in long-term care facilities, the likelihood of experiencing chronic sequelae if infected with HBV, and the likelihood of immune response to vaccination;
  — persons with end-stage renal disease, including patients receiving hemodialysis, persons with HIV infection, and persons with chronic liver disease;
  — household contacts and sex partners of hepatitis B surface antigen–positive persons, clients and staff members of institutions for persons with developmental disabilities, and international travelers to countries with high or intermediate prevalence of chronic HBV infection; and
  — all adults in the following settings: STD treatment facilities, HIV testing and treatment facilities, facilities providing drug abuse treatment and prevention services, health care settings targeting services to injection drug users or men who have sex with men, correctional facilities, end-stage renal disease programs and facilities for chronic hemodialysis patients, and institutions and nonresidential day care facilities for persons with developmental disabilities.
• Administer missing doses to complete a 3-dose series of hepatitis B vaccine to those persons not vaccinated or not completely vaccinated. The second dose should be administered at least 4 months after the first dose; the third dose should be given at least 2 months after the second dose (and at least 4 months after the first dose). If the combined hepatitis A and hepatitis B vaccine (Twinrix) is used, give 3 doses at 0, 1, and 6 months; alternatively, a 4-dose Twinrix schedule, administered on days 0, 7, and 30 followed by a booster dose at month 12 may be used.
• Adult patients receiving hemodialysis or with other immunocompromising conditions should receive 1 dose of 40 mcg/mL (Engerix-B) administered simultaneously on a 4-dose schedule at 0, 1, 2, and 6 months.
14. Haemophilus influenzae type b (Hib) vaccination
• One dose of Hib vaccine should be administered to persons who have functional or anatomic asplenia or sickle cell disease or are undergoing elective splenectomy if they have not previously received Hib vaccine. Hib vaccination 14 or more days before splenectomy is suggested.
• Recipients of a hematopoietic stem cell transplant should be vaccinated with a 3-dose regimen 6 to 12 months after a successful transplant, regardless of vaccination history; at least 4 weeks should separate doses.
• Hib vaccine is not recommended for adults with HIV infection since their risk for Hib infection is low.
15. Immunocompromising conditions
• Inactivated vaccines generally are acceptable (e.g., pneumococcal, meningococcal, and inactivated influenza vaccine) and live vaccines generally are avoided in persons with immune deficiencies or immunocompromising conditions. Information on specific conditions is available at  http://www.cdc.gov/vaccines/hcp/acip-recs/index.html.
TABLE. Contraindications and precautions to commonly used vaccines in adults: United States, 2014*†

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Contraindications</th>
<th>Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza, inactivated vaccine</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after previous dose of any IV or LAIV or to a vaccine component, including egg protein.</td>
<td>Moderate or severe acute illness with or without fever. History of Guillain-Barré Syndrome within 6 weeks of previous influenza vaccination. Persons who experience only hives with exposure to eggs may receive RIV (if age 18-49 years) or, with additional safety precautions, IV.</td>
</tr>
<tr>
<td>Influenza, recombinant (RIV)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after previous dose of RIV or to a vaccine component. RIV does not contain any egg protein.</td>
<td>Moderate or severe acute illness with or without fever. History of Guillain-Barré Syndrome within 6 weeks of previous influenza vaccination.</td>
</tr>
<tr>
<td>Influenza, live attenuated</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after previous dose of any IV or LAIV or to a vaccine component, including egg protein.</td>
<td>Moderate or severe acute illness with or without fever. History of Guillain-Barré Syndrome within 6 weeks of previous influenza vaccination.</td>
</tr>
<tr>
<td>(LAIV)</td>
<td>Conditions for which the Advisory Committee on Immunization Practices (ACIP) recommends against use, but which are not contraindications in vaccine package insert: immune suppression, certain chronic medical conditions (such as asthma, diabetes, heart or kidney disease), and pregnancy.</td>
<td></td>
</tr>
<tr>
<td>Tetanus, diphtheria, pertussis</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component. For pertussis-containing vaccines: encephalopathy (e.g., coma, decreased level of consciousness, or prolonged seizures) not attributable to another identifiable cause within 7 days of administration of a previous dose of Tdap or diphtheria and tetanus toxoids and pertussis (DTaP) vaccine.</td>
<td>Moderate or severe acute illness with or without fever. Guillain-Barré Syndrome within 6 weeks after a previous dose of tetanus toxoid–containing vaccine. 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. For pertussis-containing vaccines: progressive or unstable neurologic disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized.</td>
</tr>
<tr>
<td>Varicella</td>
<td>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 human immunodeficiency virus (HIV) infection who are severely immunocompromised. Pregnancy.</td>
<td>Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product). Moderate or severe acute illness with or without fever. Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination; avoid use of these antiviral drugs for 14 days after vaccination.</td>
</tr>
<tr>
<td>Human papillomavirus (HPV)</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. Pregnancy.</td>
</tr>
<tr>
<td>Zoster</td>
<td>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, or long-term immunosuppressive therapy) or patients with HIV infection who are severely immunocompromised. Pregnancy.</td>
<td>Moderate or severe acute illness with or without fever.</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. 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.</td>
<td>Moderate or severe acute illness with or without fever.</td>
</tr>
<tr>
<td>Pneumococcal conjugate (PCV13)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component, including any vaccine containing diphtheria toxoid.</td>
<td>Moderate or severe acute illness with or without fever.</td>
</tr>
<tr>
<td>Pneumococcal polysaccharide</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>(PPSV23)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal, conjugate,</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>(MenACWY), meningococcal,</td>
<td></td>
<td></td>
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<tr>
<td>polysaccharide (MPSV4)</td>
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<tr>
<td>Hepatitis A (HepA)</td>
<td>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component.</td>
<td>Moderate or severe acute illness with or without fever.</td>
</tr>
<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>Haemophilus influenzae Type b</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>
</tbody>
</table>

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 excipients. 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 is a condition in a recipient that increases the chance of a serious adverse reaction. Therefore, a vaccine should not be administered when a contraindication is present.

2. 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 receiving LAIV, see CDC. Prevention and control of seasonal influenza with vaccines: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2013;62(RR-7):1-19. At www.cdc.gov/immunization/acip/resources/cvteacip2013.htm.

3. LAIV, MMR, varicella, or zoster vaccines can be administered on the same day. If not administered on the same day, live vaccines should be separated by at least 28 days.

4. Immunosuppressive steroid dose is considered to be >2 weeks of daily receipt of 20 mg of prednisone or the equivalent. Vaccination should be deferred for at least 1 month after discontinuation of immunosuppressive steroid therapy.

5. Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product). Moderate or severe acute illness with or without fever. Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination; avoid use of these antiviral drugs for 14 days after vaccination.

6. History of Guillain-Barré Syndrome within 6 weeks of previous influenza vaccination. Avoid use of these antiviral drugs for 14 days after vaccination.

7. History of thrombocytopenia or thrombocytopenic purpura. Need for tuberculin skin testing.


† Regarding latex allergy, consult the package insert for any vaccine administered.
Pregnant women are at high risk for developing serious illness caused by seasonal influenza (flu) due to the physiological changes that occur during pregnancy. Inoculation with an inactivated flu vaccine is the most effective way to protect pregnant women from the flu and its resulting complications. In addition, vaccination during pregnancy significantly reduces the chance of flu illness among infants up to 6 months of age. Therefore, it protects babies who are at high risk of severe illness from flu but who are too young to be vaccinated.

According to the Los Angeles Mommy and Baby (LAMB) Project, a public health surveillance project that collects countywide population-based data on maternal attitudes and experiences before, during, and shortly after pregnancy, less than half (46.7%) of mothers who received prenatal care and recently delivered a baby received the flu vaccine during pregnancy. This is well below the Healthy People 2020 target of 80% for pregnant women. Low flu vaccination rates were seen among African American and Hispanic women (32.5% and 43.8%, respectively), women under 25 years of age (37.0%), and women receiving Medi-Cal benefits during pregnancy (38.0%).

How Health Care Providers Can Help Increase Vaccination Rates

Health care providers play a critical role in advising pregnant and postpartum women to obtain a flu vaccine. LAMB data analysis showed that more than 61% of women who reported that their health care provider discussed the flu vaccine with them received it, about 8 times the coverage compared to women whose providers did not discuss the flu vaccine. This punctuates the importance of this discussion.

Health care providers can increase flu vaccination rates among pregnant women by taking the following steps:

- Educate staff and pregnant women about the importance of obtaining a flu vaccination during pregnancy. Provide information related to its safety and a strong recommendation for vaccination for the health of her newborn.
- Issue standing orders for flu vaccinations for pregnant and postpartum women.
- Establish a flu vaccination reminder system.
- Post flu prevention posters/information in waiting rooms and exam rooms, and provide brochures to prompt vaccination requests from clients.
- Offer vaccinations to pregnant women at the earliest opportunity and throughout flu season (October-April).
- Vaccinate postpartum women who were not vaccinated during pregnancy, preferably before hospital discharge or at the 6-week postpartum visit.
- Educate staff and postpartum women that flu vaccination during pregnancy should not impede breastfeeding, which is not a contraindication to the vaccine.
- Know where to refer patients if flu vaccine is not available in the practice.
- Vaccinate all health care personnel in your office to prevent staff from acquiring flu and to reduce the chance of spreading it to patients and coworkers.

For more information about the Los Angeles Mommy and Baby (LAMB) Project, visit www.publichealth.lacounty.gov/mch/lamb/LAMB.html.

Resources

- LA County Acute Communicable Disease Control [www.publichealth.lacounty.gov/acd/Flu.htm](http://www.publichealth.lacounty.gov/acd/Flu.htm).
- LA County Find a Flu Shot [www.publichealth.lacounty.gov/ip/Flu/FluLocatorMain.htm](http://www.publichealth.lacounty.gov/ip/Flu/FluLocatorMain.htm).

All case reporting forms from the LA County Department of Public Health are available by telephone or Internet.

Reportable Diseases & Conditions
Confidential Morbidity Report
Morbidity Unit (888) 397-3993
Acute Communicable Disease Control
(213) 240-7941

Sexually Transmitted Disease
Confidential Morbidity Report
(213) 744-3070
www.publichealth.lacounty.gov/dhsp/ReportCase.htm
www.publichealth.lacounty.gov/dhsp/ReportCase/STD_CMR.pdf (form)

Adult HIV/AIDS Case Report Form
For patients over 13 years of age at time of diagnosis
Division of HIV and STD Programs
(213) 351-8196
www.publichealth.lacounty.gov/dhsp/ReportCase.htm

Pediatric HIV/AIDS Case Report Form
For patients less than 13 years of age at time of diagnosis
(213) 351-8153
Must first call program before reporting
www.publichealth.lacounty.gov/dhsp/ReportCase.htm

Pediatric AIDS Surveillance Program
Tuberculosis Suspects & Cases
Confidential Morbidity Report
Tuberculosis Control (213) 745-0800
www.publichealth.lacounty.gov/tb/forms/cmr.pdf

Lead Reporting
No reporting form. Reports are taken over the phone.
Lead Program (323) 869-7195

Animal Bite Report Form
Veterinary Public Health (877) 747-2243
www.publichealth.lacounty.gov/vet/biteintro.htm

Animal Diseases and Syndrome Report Form
Veterinary Public Health (877) 747-2243
www.publichealth.lacounty.gov/vet/disintro.htm

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