POLICY STATEMENT

Recommended Childhood and Adolescent Immunization Schedule—United States, 2014

COMMITTEE ON INFECTIOUS DISEASES

The 2014 recommended childhood and adolescent immunization schedules have been approved by the American Academy of Pediatrics, the Advisory Committee on Immunization Practices of the Centers for Disease Control and Prevention, the American Academy of Family Physicians, and the American College of Obstetricians and Gynecologists. The 2014 format is similar to last year and includes a single schedule for persons 0 through 18 years of age (Fig 1). The yellow bars indicate the recommended age range for all children and contain a notation indicating the recommended dose number by age. The green bars indicate the recommended catch-up age. The purple bars designate the range for immunization for certain groups at high risk. The combined green and purple bar indicates the recommended age when hepatitis A vaccine catch-up is recommended. The white boxes show the ages when a vaccine is not recommended routinely. The catch-up schedule offers recommendations for children and adolescents who start late or are >1 month behind (Fig 2).

Footnotes contain recommendations for routine vaccination, for catch-up vaccination, and for vaccination of children and adolescents with high-risk conditions or in special circumstances. Numerous changes have been made to improve the clarity and readability of the footnotes. A parent-friendly vaccine schedule for children and adolescents is available at http://www.cdc.gov/vaccines/schedules/index.html. An adult immunization schedule also is published in February of each year and is available at www.cdc.gov/vaccines. These schedules are revised annually to reflect current recommendations for the use of vaccines licensed by the US Food and Drug Administration and include the following specific changes from last year:

- Both generic names and trade names are referenced in the title of each vaccine footnote; thereafter, only the trade name is used, as in the rotavirus footnote.
- The Tdap footnote includes information on vaccination of persons 7 years and older with a single lifetime dose of Tdap, except for pregnant adolescents, who should be vaccinated with each pregnancy. For pregnant adolescents, administration is preferred during week 27 through week 36 of gestation, regardless of time since previous Td or Tdap.
- The Haemophilus influenzae type b footnote clarifies vaccination of children 12 through 59 months of age who are at increased risk because of incomplete vaccination, asplenia, HIV infection, receipt of hematopoietic stem cell transplant, or receipt of chemotherapy or radiation treatment.

www.pediatrics.org/cgi/doi/10.1542/peds.2013-3965
doi:10.1542/peds.2013-3965
Accepted for publication Dec 4, 2013
PEDiatrics (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).
Copyright © 2014 by the American Academy of Pediatrics
The pneumococcal vaccine footnote itemizes recommendations for PCV13 and PPSV23 use in children and adolescents at increased risk on the basis of age and degree of risk.

The influenza vaccine footnote describes vaccine dosing for children 6 months through 8 years of age and for those 9 years of age and older for the 2013–2014 season.

The hepatitis A vaccine footnote includes the list of persons at increased risk of hepatitis A disease.

The HPV footnote clarifies the intervals between vaccine doses.

The meningococcal vaccine footnote includes guidance for use of Menveo (Novartis, Cambridge, MA) starting at 2 months of age for certain persons at increased risk. Clarification is added regarding immunization of children with sickle cell disease or persistent complement component deficiency, travelers to areas where meningococcal disease is hyperendemic/epidemic, and children at risk during a community outbreak. Catch-up recommendations for persons at high risk are addressed.

Clinically significant adverse events that follow immunization should be reported to the Vaccine Adverse Event Reporting System (VAERS). Guidance about how to obtain and complete a VAERS form can be obtained at www.vaers.hhs.gov or by calling 800-822-7967. Additional information can be found in the Red Book and at Red Book Online (http://aapredbook.aapublications.org/). Statements from the Advisory Committee on Immunization Practices of the Centers for Disease Control and Prevention that contain details of recommendations for individual vaccines, including recommendations for children with high-risk conditions, are available at www.cdc.gov/vaccines/pubs/ACIP-list.htm.

Information on new vaccine releases, vaccine supplies, and interim recommendations resulting from vaccine shortages and statements on specific vaccines can be found at www.aapredbook.org/news/vaccstatus.shtml and www.cdc.gov/vaccines/pubs/ACIP-list.htm.

COMMITTEE ON INFECTIOUS DISEASES, 2013–2014
Michael T. Brady, MD, Chairperson, Red Book Associate Editor
Carrie L. Byington, MD
H. Dele Davies, MD
Kathryn M. Edwards, MD
Mary Anne Jackson, MD, Red Book Associate Editor
Yvonne A. Maldonado, MD
Dennis L. Murray, MD
Walter A. Orenstein, MD
Moeen Rathore, MD
Mark Sawyer, MD
Gordon E. Schutze, MD
Rodney E. Willoughby, MD
Theoklis E. Zaoutis, MD

LIAISONS
Marc A. Fischer, MD – Centers for Disease Control and Prevention
Bruce Gellin, MD – National Vaccine Program Office
Richard L. Gorman, MD – National Institutes of Health
Lucia Lee, MD – Food and Drug Administration
R. Douglas Pratt, MD – Food and Drug Administration
Jennifer S. Read, MD – National Vaccine Program Office
Joan Robinson, MD – Canadian Pediatric Society
Marco Aurelio Palazzi Safadi, MD – Sociedad Latinoamericana de Infectologia Pediatrica (SLIPE)
Jane Seward, MBBS, MPH – Centers for Disease Control and Prevention
Jeffrey R. Starke, MD – American Thoracic Society
Geoffrey Simon, MD – Committee on Practice Ambulatory Medicine
Tina Q. Tan, MD – Pediatric Infectious Diseases Society

EX OFFICIO
Henry H. Bernstein, DO, Red Book Online Associate Editor
David W. Kimberlin, MD, Red Book Editor
Sarah S. Long, MD, Red Book Associate Editor
H. Cody Meissner, MD, Visual Red Book Associate Editor

STAFF
Jennifer Frantz, MPH
FIGURE 1

Recommended immunization schedule for persons aged 0 through 18 years—2014. (For those who fall behind or start late, see the catch-up schedule [Fig 2].)

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>Vaccines</th>
<th>Birth</th>
<th>1 mos</th>
<th>2 mos</th>
<th>4 mos</th>
<th>6 mos</th>
<th>8 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>
</tr>
</thead>
<tbody>
<tr>
<td>Hepatitis B (HepB)</td>
<td>1st dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3rd dose</td>
<td></td>
<td></td>
<td></td>
<td>4th dose</td>
<td>5th dose</td>
<td></td>
</tr>
<tr>
<td>Rotavirus (Rot/RV) (2-dose series); RSV (3-dose series)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3rd dose</td>
<td></td>
<td></td>
<td></td>
<td>4th dose</td>
<td>5th dose</td>
<td></td>
</tr>
<tr>
<td>Diphtheria, tetanus, and acellular pertussis (DTaP; &lt;7 yrs)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>3rd dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4th dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetanus, diphtheria, and cellular pertussis (Td; ≥10 yrs)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>3rd dose</td>
<td>4th dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Influenza A, influenza B (IIV)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3rd dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal conjugate (PCV13)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>3rd dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4th dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pneumococcal polysaccharide (PPSV23)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>3rd dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4th dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inactivated Poliovirus (IPV) (≤18 yrs)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3rd dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Measles, mumps, rubella (MMR)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3rd dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicella (VAR)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis A (HepA)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>3rd dose</td>
<td>4th dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Human papillomavirus (HPV2, females only; HPV4, males and females)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>3rd dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meningococcal (Hib-Men-CO ≤ 2 yrs, MenACYW13 2–4 yrs; MenACYW-CRM 2–2 mos)</td>
<td>1st dose</td>
<td>2nd dose</td>
<td>3rd dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4th dose</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 for certain high-risk groups
Not routinely recommended

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](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 at [http://www.vaers.hhs.gov](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 at [http://www.cdc.gov/vaccines](http://www.cdc.gov/vaccines) or by telephone (800-CDC-INFO [800-232-4636]).

This schedule is approved by the Advisory Committee on Immunization Practices (ACIP) [http://www.cdc.gov/vaccines/hcp/acip-recs/index.html](http://www.cdc.gov/vaccines/hcp/acip-recs/index.html), the American Academy of Pediatrics (AAP) [http://www.aap.org](http://www.aap.org), the American Academy of Family Physicians [http://www.aafp.org](http://www.aafp.org), and the American College of Obstetricians and Gynecologists [http://www.acog.org](http://www.acog.org).

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

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Minimum Age for Dose 1</th>
<th>Minimum Interval Between Doses</th>
<th>Persons aged 4 months through 6 years</th>
<th>Persons aged 7 through 19 years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Dose 1 to dose 2</td>
<td>Dose 2 to dose 3</td>
<td>Dose 3 to dose 4</td>
</tr>
<tr>
<td>Hepatitis B&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Birth</td>
<td>4 weeks</td>
<td>4 weeks</td>
<td>8 weeks and at least 16 weeks after last dose</td>
</tr>
<tr>
<td>Rotavirus&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6 weeks</td>
<td>4 weeks</td>
<td>4 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Diphtheria, tetanus, &amp; acellular pertussis&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6 weeks</td>
<td>4 weeks</td>
<td>4 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Haemophilus influenzae type b&lt;sup&gt;a&lt;/sup&gt;</td>
<td>6 weeks</td>
<td>4 weeks</td>
<td>4 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Pneumococcal&lt;sup&gt;c&lt;/sup&gt;</td>
<td>6 weeks</td>
<td>4 weeks</td>
<td>4 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Inactivated poliovirus&lt;sup&gt;c&lt;/sup&gt;</td>
<td>6 weeks</td>
<td>4 weeks</td>
<td>4 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Meningococcal&lt;sup&gt;c&lt;/sup&gt;</td>
<td>6 weeks</td>
<td>4 weeks</td>
<td>4 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Measles, mumps, rubella&lt;sup&gt;d&lt;/sup&gt;</td>
<td>12 months</td>
<td>4 weeks</td>
<td>4 weeks</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Varicella&lt;sup&gt;e&lt;/sup&gt;</td>
<td>12 months</td>
<td>3 months</td>
<td>3 months</td>
<td>3 months</td>
</tr>
<tr>
<td>Hepatitis A&lt;sup&gt;e&lt;/sup&gt;</td>
<td>12 months</td>
<td>6 months</td>
<td>6 months</td>
<td>6 months</td>
</tr>
</tbody>
</table>

**NOTE:** The above recommendations must be read along with the footnotes of this schedule.
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 calculations 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 2.5 days earlier than the minimum interval or minimum age should not be counted as valid doses and should be regarded 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 2. Recommended and minimum ages and intervals between vaccine doses available online at http://www.cdc.gov/mmwr/pdf/rd/rd6002.pdf.
- Information on travel vaccine requirements and recommendations is available at http://www.cdc.gov/travel/vaccinations.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. Infants should be tested for HBsAg and antibody to HBsAg (anti-HBs) 1 to 2 months after completion of the HepB series, at age 6 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 later than age 2 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 1, 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 6 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 months.
   - 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 is sufficient for persons who received 3 or more months of adult formulation Recombivax HB is licensed for use in children aged 11 through 18 years.
  - For other catch-up guidance, see Figure 2.

2. Rotavirus (RV) vaccine. (Minimum age: 6 weeks for both RV1 [Rotarix] and RV2 [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 age 2 and 4 months of age.
     2. If RotaTeq is used, administer a 3-dose series at ages 2, 4, and 6 months.
   - If any dose in the series was Rotarix or vaccine product is unknown for any dose 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.
     - For other catch-up guidance, see Figure 2.

3. Diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine. (Minimum age: 6 weeks)
   Routine vaccination:
   - Administer a 3-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.
   - Catch-up vaccination:
     - The fifth dose of DTaP vaccine is not necessary if the fourth dose was administered at age 4 years or older.
     - For other catch-up guidance, see Figure 3.

4. Tetanus and diphtheria toxoids and acellular pertussis (Tdap) vaccine. (Minimum age: 10 years for Boostrix, 11 years for Adacel)
   Routine vaccination:
   - Administer one dose of Tdap vaccine to all adolescents aged 11 through 12 years.
   - Tdap may be administered beginning in the transition to the last trivalent and diphtheria toxoid-containing vaccines.
   - Administer one 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 aged 7 years and older who are not fully immunized with 2 or 3-dose Td series should receive Tdap vaccine as a "booster" if 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. It should be administered instead 10 years after the Tdap dose.
     - Persons aged 11 through 18 years who have not received Tdap vaccine should receive a dose followed by tetanus and diphtheria toxoids (Td) booster doses every 10 years thereafter.
     - Infected doses of DTaP vaccine:
       - If administered inadvertently to a child aged 7 through 10 years 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.
       - If administered inadvertently to an adolescent aged 11 through 18 years, the dose should be counted as the adolescent Tdap booster.
       - For other catch-up guidance, see Figure 2.

5. Hemophilus influenzae type b (HIB) conjugate vaccine. (Minimum age: 6 weeks for PRP-T (ACIP); DTaP, DTaP/Hib (Pentacel) and Hib-MenCY (Menomune); PRP-O/P (PedvaxHIB) or CONVIVAX, 12 months for PRP-T [HibLatin]):
   Routine vaccination:
   - Administer a 3-dose of Hib vaccine in primary series and a booster dose (dose 4 or depending on vaccine used in primary series at age 12 through 15 months to complete a full Hib vaccine series.
   - The primary series with ACIP, Menomune, or Pentacel consists of 3 doses and should be administered at 2, 4, and 6 months of age. The primary series with PedvaxHIB or CONVIVAX consists of 2 doses and should be administered at 2 and 4 months of age; a dose at age 6 months is not indicated.
   - One booster dose (dose 3 or 4 depending on vaccine used in primary series) of any Hib vaccine should be administered at age 12 through 15 months. An exception is HibMenCY vaccine. HibMenCY should only be used for the booster (dose 2) in children aged 12 months through 6 years who have received at least prior dose of Hib-containing vaccine.
For further guidance on the use of the vaccines mentioned below, see: http://www.cdc.gov/vaccines/hcp/acip-recs/index.html.

5. Hemophilus influenzae type b (Hib) conjugate vaccine (contd)
   - For recommendations on the use of MenB vaccine in patients at increased risk for meningococcal disease, please refer to the meningococcal vaccine fact sheet and also to MMWR Mar 22, 2013 / 62(RR02): 1-22, available at https://www.cdc.gov/mmwr/pdf/mm/mm6202.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 PPV23 (PedvaxHIB or Cal Quadrax), and were administered at age 11 months or younger, the third (and final) dose should be administered at age 12 through 15 months and at least 8 weeks after the second dose.
   - If the first dose was administered at age 12 through 15 months, administer the second dose at least 4 weeks later and a third (and final) dose at age 12 through 15 months or 4 weeks after second dose, whichever is later, regardless of Hib vaccine used for first dose.
   - If first dose is administered at younger than 12 months of age and second dose is given between 12 through 14 months of age, the third (and final) dose should be given 8 weeks later.
   - For unvaccinated children aged 15 months or older, administer only dose 1.

For other catch-up guidance, see Figure 2. For catch-up guidance related to MenB vaccine, please see the meningococcal vaccine fact sheet and also MMWR Mar 22, 2013 / 62(RR02): 1-22, available at https://www.cdc.gov/mmwr/pdf/mm/mm6202.pdf.

Vaccination of persons with high-risk conditions:
   - Children aged 12 through 59 months who are at increased risk for Hib disease, including those with anatomic or functional asplenia (including sickle cell disease), human immunodeficiency virus (HIV) infection, immunodeficiency disorders, or other complement deficiencies who, have received either no doses or only 1 dose of Hib vaccine before 12 months of age, should receive 2 additional doses of Hib vaccine 8 weeks apart; children who received 2 or more doses of Hib vaccine before 12 months of age should receive 1 additional dose.
   - For patients younger than 5 years of age 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 4 weeks following therapy completion.
   - Recipients of hematopoietic stem cell transplant (HSCT) should be revaccinated with a 3-dose regimen of Hib vaccine starting 8 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 15 months of age and older undergoing an elective spine surgery, if possible, vaccine should be administered at least 14 days before procedure.
   - Hib vaccine is not routinely recommended for patients 5 years or older. However, 1 dose of Hib vaccine should be administered to unimmunized* persons aged 5 years or older who have anatomic or functional asplenia (including sickle cell disease) and unvaccinated persons 5 through 18 years of age with sickle cell disease and/or 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 vaccine:
   - Minimum age: 6 weeks for PCV13, 2 years for PPV23

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.
   - Children aged 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 with PCV13:
   - Administer 1 dose of PCV13 to all healthy children aged 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 PPV23:
   - All recommendations should be followed prior to PCV13 vaccination (possible).
   - For children 2 through 5 years of age with any of the following conditions: chronic heart disease (particularly cyanotic congenital heart disease and cardiac failure), chronic lung disease (including asthma treated with high-dose oral corticosteroids); diabetes mellitus; end-stage renal disease; coeliaic disease; sickle cell disease and other hemoglobinopathies; congenital or functional asplenia; HIV infection; chronic renal failure; nephrotic syndrome; diseases associated with treatment with immunosuppressive drugs or radiation therapy, including malignancies, lymphomas, leukemias, and infectious diseases; sickle cell disease and/or HIV infection.

   1. Administer 1 dose of PCV13 if 3 doses of PCV (PCV7 and/or PCV13) were received previously.
   2. Administer 2 doses of PCV13 at least 4 weeks apart fewer than 3 doses of PCV (PCV7 and/or PCV13) were received previously.

   3. Pneumococcal vaccines (contd)
   - Administer 1 supplemental dose of PCV13 for doses of PCV23 or other age-appropriate complete PCV7 series was received previously.
   - The minimum interval between doses of PCV (PCV7 or PCV13) is 8 weeks.
   - For children with no history of PPV23 vaccination, administer PPV23 at least 4 weeks after the most recent dose of PCV13.
   - For children aged 6 through 8 years who have had bivalent or tetravalent pneumococcal conjugate vaccines and other pneumococcal vaccines and who have not received PPV23, administer 1 dose of PCV13 now and 1 dose of PPV23 at least 8 weeks later.
   - If either PPV13 or PPV23 has been received previously, administer 1 dose of PCV13 now and 1 dose of PPV23 at least 8 weeks later.
   - If PPV13 has been received previously but PPV23 has not, administer 1 dose of PCV13 now and 8 weeks after the most recent dose of PCV13.
   - If PPV23 has been received but PCV13 has not, administer 1 dose of PCV13 now and 8 weeks after the most recent dose of PPV23.

   - For children aged 4 through 18 years with chronic heart disease (particularly cyanotic congenital heart disease and cardiac failure), chronic lung disease (including asthma treated with high-dose oral corticosteroids); diabetes mellitus; end-stage renal disease; and chronic liver disease, who have not received PPV23, administer 1 dose of PCV13. If PCV13 has been received previously, then PPV23 should be administered at least 8 weeks after any prior PCV13 dose.
   - A single revaccination with PPV23 should be administered 5 years after the first dose to children with sickle cell disease or other hemoglobinopathies; congenital 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 malignancies, lymphomas, leukemias, and infectious diseases; sickle cell disease and/or HIV infection. (Issued 11 April 2013). (See also tubing,multiperfsynology, polysaccharide vaccines [PPV].)


Routine vaccination:
   - Administer 6 doses of IPV at ages 2, 4, 6 through 18 months, and 4 through 6 years.

Final dose in the series should be administered on or after the fourth birthday and at least 6 months after the previous dose.

Catch-up vaccination:
   - In the first 6 months of life, minimum age and minimum interval are only recommended if the person is at risk for imminent exposure to circulating poliovirus in a poliomyelitis 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 and at least 6 months after the previous dose.
   - 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.
   - 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 children aged 18 years or older.

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

8. Influenza vaccines. Minimum age: 3 months for live attenuated influenza vaccines (LAIV), 4 months for inactivated influenza vaccines (IFV).

Routine vaccination:
   - Administer influenza vaccine yearly to all children beginning at age 6 months. For most healthy, nonpregnant persons aged 2 through 48 years, either LAIV or IFV may be used. However, LAIV should NOT be administered to some persons, including 1) those with asthma, 2) children 2 through 4 years who have had wheezing in the past 12 months, or 3) those who have any other underlying medical conditions that predispose them to influenza complications, for all other contraindications to use of LAIV, see MMWR 2013; 62:No. RR01: 4-6, available at http://www.cdc.gove/mmwr; and MMWR 2013; 62:No. RR01: 4-6, available at http://www.cdc.gov/mmwr; and MMWR 2013; 62:No. RR01: 4-6, available at http://www.cdc.gov/mmwr; and MMWR 2013; 62:No. RR01: 4-6, available at http://www.cdc.gov/mmwr.

For children aged 6 months through 8 years:
   - For the 2013-14 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 guidelines in the 2013-14 AIP influenza vaccine recommendations. MMWR 2013; 62:No. RR01: 4-6, available at http://www.cdc.gov/mmwr; and MMWR 2013; 62:No. RR01: 4-6, available at http://www.cdc.gov/mmwr.

For the 2013-14 season, following guidelines in the 2014-15 AIP influenza vaccine recommendations:
   - For persons aged 9 years and older:
     - Administer 1 dose.
For further guidance on the use of the vaccines mentioned below, see: http://www.cdc.gov/vaccines/hcp/aid-rec/index.html.

9. Measles, mumps, and rubella (MMR) vaccine. (Minimum age: 12 months for 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 a child remains in an area where disease risk is high), and the second dose at least 4 weeks later.
   - Administer 1 dose 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 (VarVax) vaccine. (Minimum age: 12 months)
   - Administer a 2-dose series of VarVax 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 after 4 weeks before 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 2002; 51 [No. RR-4], available at http://www.cdc.gov/mmwr/external/rr/rr5104.htm) 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)
   - Administer a 2-dose series of HepA vaccine at ages 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 2 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 HEV in research laboratories, persons with clotting factor disorders, persons with HIV/AIDS, or other acquired immune deficiency, 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 countries with high or intermediate endemicity. The first dose should be administered as soon as the adoption is planned (ideally 2 to 4 weeks) before the arrival of the adoptee.

12. Human papillomavirus (HPV) vaccines. (Minimum age: 9 years for HPV2 [Cervarix] and HPV4 [Gardasil])
   - Preferential 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. Other 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) and the third dose at least 6 months after the second dose.
   - Catch-up vaccination:
     - Administer the vaccine series to females (either HPV2 or HPV4) and males (HPV4) at age 13 through 14 years if not previously vaccinated.
     - Use the recommended routine dosing intervals (see above) for vaccine series catch-up.

13. Meningococcal conjugate vaccines. (Minimum age: 6 weeks for Hib-Mening-CV [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 years.
     - Adolescents aged 11 through 18 years with human immunodeficiency virus (HIV) infection should receive 2 doses primary series of Menactra or Menveo with at least 8 weeks between doses.
     - For children aged 2 years 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.
   - 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 9 months of age, administer a 4-dose series of Menactra or Menveo at 2, 4, 6, and 12 through 15 months of age.
     - For children aged 9 through 23 months who have not completed a series of Menactra or Menveo, administer 2 primary doses of Menactra or Menveo at least 2 months apart.
     - For children aged 24 months and older who have not received a complete series of Menactra or Menveo in Minnac, administer 2 primary doses of either Menactra or Menveo at least 2 months apart.
     - If Menactra is administered to a child with aplasia (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 9 months of age, administer a 4-dose infant series of either Menactra or Menveo at 2, 4, 6, and 12 through 15 months of age.
       2. For children aged 9 through 23 months who have not initiated vaccination, two options exist depending on age and vaccine brand:
         a. For children who initiate vaccination with Menactra at 7 months through 23 months of age, a 2-dose series should be administered with the second dose after 2 months of age and at least 3 months after the first dose.
         b. For children who initiate vaccination with Menveo at 7 months through 23 months of age, a 2-dose series of Menactra should be administered at least 3 months apart.
         c. For children aged 24 months and older who have not received a complete series of Menactra or Menveo or Menacta, 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 HAG, administer an age-appropriate formulation and series of Menactra or Menveo for protection against serogroups A and W135 meningococcal disease. Prior receipt of MenHibrix is not sufficient for children traveling to the meningitis belt or the HAG because it does not contain serogroup A.
     - For infants at risk due to a community outbreak attributable to a vaccine serogroup, administer an age-appropriate formulation and series of Menactra or Menveo for protection against serogroups A and W135 meningococcal disease.
     - For booster doses among persons with high-risk conditions, refer to MMWR 2013; 62(RR02);1-22, available at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6202a1.htm.
   - Catch-up recommendations for persons with high-risk conditions:
     1. If Menactra is administered to achieve protection against meningococcal disease, a complete age-appropriate series of Menactra should be administered.
     2. If the first dose of MenHibrix is given or at 6 months of age, a total of 2 doses should be given at least 6 weeks apart to ensure protection against serogroups C and Y meningococcal disease.
     3. For children who initiate vaccination with Menactra at 7 months through 23 months of age, a 2-dose series should be administered with the second dose after 2 months of age and at least 3 months after the first dose.
     4. For other catch-up recommendations for these persons, refer to MMWR 2013; 62(RR02);1-22, available at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6202a1.htm.
   - For complete information on use of meningococcal vaccines, including guidance related to vaccination of persons at increased risk of infection, see MMWR March 23, 2015; 64(RR02);1-22, available at http://www.cdc.gov/mmwr/pdf/rr/rr6402.pdf.
Recommended Childhood and Adolescent Immunization Schedule—United States, 2014

COMMITTEE ON INFECTIOUS DISEASES

Pediatrics 2014;133;357
DOI: 10.1542/peds.2013-3965

Updated Information & Services
including high resolution figures, can be found at:
http://pediatrics.aappublications.org/content/133/2/357

Subspecialty Collections
This article, along with others on similar topics, appears in the following collection(s):
Infectious Disease
http://classic.pediatrics.aappublications.org/cgi/collection/infectious_diseases_sub
Vaccine/Immunization
http://classic.pediatrics.aappublications.org/cgi/collection/vaccine:immunization_sub

Permissions & Licensing
Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at:
https://shop.aap.org/licensing-permissions/

Reprints
Information about ordering reprints can be found online:
http://classic.pediatrics.aappublications.org/content/reprints

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since . Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2014 by the American Academy of Pediatrics. All rights reserved. Print ISSN: .

Several corrections have been made in the online version of the American Academy of Pediatrics’ “Recommended Childhood and Adolescent Immunization Schedule—United States, 2014” (*Pediatrics* 2014;133[2]:357–363; doi: 10.1542/peds.2013-3965). Please note that the following corrections have been made to the electronic version available at http://pediatrics.aappublications.org/content/133/2/357.full?sid=a26ca8bf-796e-47a4-82e8-35775f90c3a5 and that these corrections should be made to the version that appeared in the printed journal.

- In Fig 1 (0–18 yrs schedule), in the first box for Tetanus, diphtheria, & acellular pertussis, the parentheses should read: *(Tdap ≥7 yrs)*
- In Fig 1 (0–18 yrs schedule), in the first box for Meningococcal, the parentheses should read: *(Hib-MenCY: ≥6 weeks; MenACWY: ≥9 mos; MenACWY-CRM ≥2 mos)*
- Under Fig 1 (0–18 yrs schedule), the first URL should be http://www.cdc.gov/vaccines/hcp/acip-recs/index.html
- In Fig 2 (catch-up schedule), under Persons aged 4 months to 6 years, the entry for Inactivated poliovirus, Dose 2 to dose 3, should include footnote 7, so it should read: *4 weeks*7
- In Fig 2 (catch-up schedule), under Persons aged 7 through 18 years, the entry for Meningococcal, Dose 1 to dose 2, the parenthetical phrase should be deleted, so it should read: *8 weeks*13


An error occurred in the Guidance for the Clinician by Hudak ML et al, titled “Neonatal Drug Withdrawal,” published in the February 2012 issue of *Pediatrics* (2012;129(2):e540–e560; originally published online January 30, 2012; doi:10.1542/2012-3212). On page e547, the formatting of Fig 1 (Modified Finnegan’s Neonatal Abstinence Scoring Tool) could be misinterpreted to indicate that 19 rather than 21 independent signs should be scored to assess the clinical severity of neonatal abstinence syndrome. The formatting has been changed (see Table) to differentiate clearly the 21 independent signs.

doi:10.1542/peds.2014-0557
Recommended Childhood and Adolescent Immunization Schedule—United States, 2014

COMMITTEE ON INFECTIOUS DISEASES

*Pediatrics* 2014;133;357

DOI: 10.1542/peds.2013-3965

The online version of this article, along with updated information and services, is located on the World Wide Web at:

http://pediatrics.aappublications.org/content/133/2/357

An erratum has been published regarding this article. Please see the attached page for:

http://pediatrics.aappublications.org/content/133/5/937.1.full.pdf

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 141 Northwest Point Boulevard, Elk Grove Village, Illinois, 60007. Copyright © 2014 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 0031-4005.