

## APPENDIX A

### Schedules and Recommendation

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# Immunization Schedules on the Web

[www.cdc.gov/vaccines/schedules/index.htm](http://www.cdc.gov/vaccines/schedules/index.htm)

## Childhood and Adolescent Immunization Schedule:

[www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html](http://www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html)

Contains:

- Color and black & white versions
- Downloadable files for office or commercial printing
- Alternative formats (pocket size, laminated, palm, etc.)
- Simplified, parent-friendly version in English and Spanish
- Link to past years' schedules
- Interactive schedulers
- More . . .

## Adult Immunization Schedule:

[www.cdc.gov/vaccines/schedules/hcp/adult.html](http://www.cdc.gov/vaccines/schedules/hcp/adult.html)

Contains:

- Color and black & white versions
- Downloadable files
- Interactive scheduler and quiz
- Link to past years' schedules
- More . . .

## Easy-to-Read Schedules for Non-Providers:

[www.cdc.gov/vaccines/schedules/easy-to-read/index.html](http://www.cdc.gov/vaccines/schedules/easy-to-read/index.html)

# Recommended Immunization Schedules for Persons Aged 0 Through 18 Years UNITED STATES, 2015

This schedule includes recommendations in effect as of January 1, 2015. Any dose not administered at the recommended age should be administered at a subsequent visit, when indicated and feasible. The use of a combination vaccine generally is preferred over separate injections of its equivalent component vaccines. Vaccination providers should consult the relevant Advisory Committee on Immunization Practices (ACIP) statement for detailed recommendations, available online at <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).

The Recommended Immunization Schedules for  
Persons Aged 0 Through 18 Years are approved by the

**Advisory Committee on Immunization Practices**  
(<http://www.cdc.gov/vaccines/acip>)

**American Academy of Pediatrics**  
(<http://www.aap.org>)

**American Academy of Family Physicians**  
(<http://www.aafp.org>)

**American College of Obstetricians and Gynecologists**  
(<http://www.acog.org>)



U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention

**Figure 1. Recommended immunization schedule for persons aged 0 through 18 years – United States, 2015.**

**(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 shaded.

| Vaccine   | Birth                | 1 mo                               | 2 mos                | 4 mos                | 6 mos                                      | 9 mos | 12 mos  | 15 mos                             | 18 mos | 19–23 mos | 2-3 yrs                                       | 4-6 yrs              | 7-10 yrs                                     | 11-12 yrs            | 13–15 yrs       | 16–18 yrs |
|---|----------------------|------------------------------------|----------------------|----------------------|--|-------|---|------------------------------------|--------|-----------|---|----------------------|--|----------------------|-----------------|-----------|
| Hepatitis B <sup>1</sup> (HepB)   | 1 <sup>st</sup> dose | ←----- 2 <sup>nd</sup> dose -----→ |                      |                      | ←----- 3 <sup>rd</sup> dose -----→         |       |   |                                    |        |           |   |                      |  |                      |                 |           |
| Rotavirus <sup>2</sup> (RV) RV1 (2-dose series); RV5 (3-dose series)                      |                      |                                    | 1 <sup>st</sup> dose | 2 <sup>nd</sup> dose | See footnote 2                             |       |   |                                    |        |           |   |                      |  |                      |                 |           |
| Diphtheria, tetanus, & acellular pertussis <sup>2</sup> (DTaP; <7 yrs)                    |                      |                                    | 1 <sup>st</sup> dose | 2 <sup>nd</sup> dose | 3 <sup>rd</sup> dose                       |       |   | ←----- 4 <sup>th</sup> dose -----→ |        |           |   | 5 <sup>th</sup> dose |  |                      |                 |           |
| Tetanus, diphtheria, & acellular pertussis <sup>4</sup> (Tdap; ≥7 yrs)                    |                      |                                    |                      |                      |  |       |   |                                    |        |           |   |                      |  | (Tdap)               |                 |           |
| <i>Haemophilus influenzae</i> type b <sup>2</sup> (Hib)                                   |                      |                                    | 1 <sup>st</sup> dose | 2 <sup>nd</sup> dose | See footnote 5                             |       | ←----- 3 <sup>rd</sup> or 4 <sup>th</sup> dose -----→<br>See footnote 5 |                                    |        |           |   |                      |  |                      |                 |           |
| Pneumococcal conjugate <sup>6</sup> (PCV13)   |                      |                                    | 1 <sup>st</sup> dose | 2 <sup>nd</sup> dose | 3 <sup>rd</sup> dose                       |       | ←----- 4 <sup>th</sup> dose -----→                                      |                                    |        |           |   |                      |  |                      |                 |           |
| Pneumococcal polysaccharide <sup>6</sup> (PPSV23)   |                      |                                    |                      |                      |  |       |   |                                    |        |           |   |                      |  |                      |                 |           |
| Inactivated poliovirus <sup>7</sup> (IPV; <18 yrs)  |                      |                                    | 1 <sup>st</sup> dose | 2 <sup>nd</sup> dose | ←----- 3 <sup>rd</sup> dose -----→         |       |   |                                    |        |           |   | 4 <sup>th</sup> dose |  |                      |                 |           |
| Influenza <sup>8</sup> (IIV; LAIV) 2 doses for some: See footnote 8                       |                      |                                    |                      |                      | Annual vaccination (IIV only) 1 or 2 doses |       |   |                                    |        |           | Annual vaccination (LAIV or IIV) 1 or 2 doses |                      | Annual vaccination (LAIV or IIV) 1 dose only |                      |                 |           |
| Measles, mumps, rubella <sup>9</sup> (MMR)  |                      |                                    |                      |                      | See footnote 9                             |       | ←----- 1 <sup>st</sup> dose -----→                                      |                                    |        |           |   | 2 <sup>nd</sup> dose |  |                      |                 |           |
| Varicella <sup>10</sup> (VAR)   |                      |                                    |                      |                      |  |       | ←----- 1 <sup>st</sup> dose -----→                                      |                                    |        |           |   | 2 <sup>nd</sup> dose |  |                      |                 |           |
| Hepatitis A <sup>11</sup> (HepA)  |                      |                                    |                      |                      |  |       | ←----- 2-dose series, See footnote 11 -----→                            |                                    |        |           |   |                      |  |                      |                 |           |
| Human papillomavirus <sup>12</sup> (HPV2: females only; HPV4: males and females)          |                      |                                    |                      |                      |  |       |   |                                    |        |           |   |                      |  |                      | (3-dose series) |           |
| Meningococcal <sup>13</sup> (Hib-MenCY ≥ 6 weeks; MenACWY-D ≥ 9 mos; MenACWY-CRM ≥ 2 mos) |                      |                                    | See footnote 13      |                      |  |       |   |                                    |        |           |   |                      |  | 1 <sup>st</sup> dose |                 | Booster   |

Range of recommended ages for all children
  Range of recommended ages for catch-up immunization
  Range of recommended ages for certain high-risk groups
  Range of recommended ages during which catch-up is encouraged and for certain high-risk groups
  Not routinely recommended

This schedule includes recommendations in effect as of January 1, 2015. Any dose not administered at the recommended age should be administered at a subsequent visit, when indicated and feasible. The use of a combination vaccine generally is preferred over separate injections of its equivalent component vaccines. Vaccination providers should consult the relevant Advisory Committee on Immunization Practices (ACIP) statement for detailed recommendations, available online at <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-CDC-INFO [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>).

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

**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, 2015.**

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.

| Children age 4 months through 6 years  |                        |   |  |  |                       |
|--|------------------------|---|--|--|-----------------------|
| Vaccine  | Minimum Age for Dose 1 | Minimum Interval Between Doses  |  |  |                       |
|  |                        | Dose 1 to Dose 2  | Dose 2 to Dose 3   | Dose 3 to Dose 4   | Dose 4 to Dose 5      |
| Hepatitis B <sup>1</sup>   | Birth                  | 4 weeks   | 8 weeks<br>and at least 16 weeks after first dose.<br>Minimum age for the final dose is 24 weeks.  |  |                       |
| Rotavirus <sup>2</sup>   | 6 weeks                | 4 weeks   | 4 weeks <sup>2</sup>   |  |                       |
| Diphtheria, tetanus, and acellular pertussis <sup>3</sup>                      | 6 weeks                | 4 weeks   | 4 weeks  | 6 months   | 6 months <sup>3</sup> |
| <i>Haemophilus influenzae</i> type b <sup>4</sup>                              | 6 weeks                | 4 weeks<br>if first dose was administered before the 1 <sup>st</sup> birthday.<br>8 weeks (as final dose)<br>if first dose was administered at age 12 through 14 months.<br>No further doses needed if first dose was administered at age 15 months or older.   | 4 weeks <sup>5</sup><br>if current age is younger than 12 months <b>and</b> first dose was administered at younger than age 7 months, <b>and</b> at least 1 previous dose was PRP-T (ActHib, Pentacel) or unknown.<br>8 weeks<br>and age 12 through 59 months (as final dose) <sup>5</sup><br>• if current age is younger than 12 months<br><b>and</b> first dose was administered at age 7 through 11 months;<br>OR<br>• if current age is 12 through 59 months<br><b>and</b> first dose was administered before the 1 <sup>st</sup> birthday, <b>and</b> second dose administered at younger than 15 months;<br>OR<br>• if both doses were PRP-OMP (PedvaxHIB; Comvax)<br><b>and</b> were administered before the 1 <sup>st</sup> birthday.<br>No further doses needed<br>if previous dose was administered at age 15 months or older. | 8 weeks (as final dose)<br>This dose only necessary for children age 12 through 59 months who received 3 doses before the 1 <sup>st</sup> birthday.  |                       |
| Pneumococcal <sup>6</sup>  | 6 weeks                | 4 weeks<br>if first dose administered before the 1 <sup>st</sup> birthday.<br>8 weeks (as final dose for healthy children)<br>if first dose was administered at the 1 <sup>st</sup> birthday or after.<br>No further doses needed<br>for healthy children if first dose administered at age 24 months or older. | 4 weeks<br>if current age is younger than 12 months and previous dose given at <7months old.<br>8 weeks (as final dose for healthy children)<br>if previous dose given between 7-11 months (wait until at least 12 months old);<br>OR<br>if current age is 12 months or older and at least 1 dose was given before age 12 months.<br>No further doses needed for healthy children if previous dose administered at age 24 months or older.   | 8 weeks (as final dose)<br>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. |                       |
| Inactivated poliovirus <sup>7</sup>  | 6 weeks                | 4 weeks <sup>7</sup>  | 4 weeks <sup>7</sup>   | 6 months <sup>7</sup> (minimum age 4 years for final dose).  |                       |
| Meningococcal <sup>13</sup>  | 6 weeks                | 8 weeks <sup>13</sup>   | See footnote 13  | See footnote 13  |                       |
| Measles, mumps, rubella <sup>9</sup>   | 12 months              | 4 weeks   |  |  |                       |
| Varicella <sup>10</sup>  | 12 months              | 3 months  |  |  |                       |
| Hepatitis A <sup>11</sup>  | 12 months              | 6 months  |  |  |                       |
| Children and adolescents age 7 through 18 years                                |                        |   |  |  |                       |
| Tetanus, diphtheria; tetanus, diphtheria, and acellular pertussis <sup>4</sup> | 7 years <sup>4</sup>   | 4 weeks   | 4 weeks<br>if first dose of DTaP/DT was administered before the 1 <sup>st</sup> birthday.<br>6 months (as final dose)<br>if first dose of DTaP/DT was administered at or after the 1 <sup>st</sup> birthday.   | 6 months if first dose of DTaP/DT was administered before the 1 <sup>st</sup> birthday.  |                       |
| Human papillomavirus <sup>12</sup>   | 9 years                | Routine dosing intervals are recommended. <sup>12</sup>   |  |  |                       |
| Hepatitis A <sup>11</sup>  | Not applicable (N/A)   | 6 months  |  |  |                       |
| Hepatitis B <sup>1</sup>   | N/A                    | 4 weeks   | 8 weeks <b>and</b> at least 16 weeks after first dose.   |  |                       |
| Inactivated poliovirus <sup>7</sup>  | N/A                    | 4 weeks   | 4 weeks <sup>7</sup>   | 6 months <sup>7</sup>  |                       |
| Meningococcal <sup>13</sup>  | N/A                    | 8 weeks <sup>13</sup>   |  |  |                       |
| Measles, mumps, rubella <sup>9</sup>   | N/A                    | 4 weeks   |  |  |                       |
| Varicella <sup>10</sup>  | N/A                    | 3 months if younger than age 13 years.<br>4 weeks if age 13 years or older.   |  |  |                       |

**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, 2015

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  $\geq 5$  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>.
- For vaccination of persons with primary and secondary immunodeficiencies, see Table 13, “Vaccination of persons with primary and secondary immunodeficiencies,” in *General Recommendations on Immunization* (ACIP), available at <http://www.cdc.gov/mmwr/pdf/rr/rr6002.pdf>; and American Academy of Pediatrics. “Immunization in Special Clinical Circumstances,” in Pickering LK, Baker CJ, Kimberlin DW, Long SS eds. *Red Book: 2012 report of the Committee on Infectious Diseases*. 29th ed. Elk Grove Village, IL: American Academy of Pediatrics.

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

#### Routine vaccination:

##### At birth:

- Administer monovalent HepB vaccine to all newborns before hospital discharge.
- For infants born to hepatitis B surface antigen (HBsAg)-positive mothers, administer HepB vaccine and 0.5 mL of hepatitis B immune globulin (HBIG) within 12 hours of birth. These infants should be tested for HBsAg and antibody to HBsAg (anti-HBs) 1 to 2 months after completion of the HepB series at age 9 through 18 months (preferably at the next well-child visit).
- If 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 7 days.

##### Doses following the birth dose:

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

##### Catch-up vaccination:

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

### 2. Rotavirus (RV) vaccines. (Minimum age: 6 weeks for both RV1 [Rotarix] and RV5 [RotaTeq])

#### Routine vaccination:

Administer a series of RV vaccine to all infants as follows:

1. If Rotarix is used, administer a 2-dose series at 2 and 4 months of age.
2. If RotaTeq is used, administer a 3-dose series at ages 2, 4, and 6 months.
3. If any dose in the series was RotaTeq 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. Exception: DTaP-IPV [Kinrix]: 4 years)

#### Routine vaccination:

- Administer a 5-dose series of DTaP vaccine at ages 2, 4, 6, 15 through 18 months, and 4 through 6 years. The fourth dose may be administered as early as age 12 months, provided at least 6 months have elapsed since the third dose. However, the fourth dose of DTaP need not be repeated if it was administered at least 4 months after the third dose of DTaP.

### 3. Diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine (cont’d)

#### 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 2.

### 4. Tetanus and diphtheria toxoids and acellular pertussis (Tdap) vaccine. (Minimum age: 10 years for both Boostrix and Adacel)

#### 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.
- Administer 1 dose of Tdap vaccine to pregnant adolescents during each pregnancy (preferred during 27 through 36 weeks’ gestation) regardless of time since prior Td or Tdap vaccination.

#### Catch-up vaccination:

- Persons aged 7 years and older who are not fully immunized with DTaP vaccine should receive Tdap vaccine as 1 dose (preferably the first) in the catch-up series; if additional doses are needed, use Td vaccine. For children 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.
- Persons aged 11 through 18 years who have not received Tdap vaccine should receive a dose followed by tetanus and diphtheria toxoid (Td) booster doses every 10 years thereafter.
- Inadvertent 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. *Haemophilus influenzae* type b (Hib) conjugate vaccine. (Minimum age: 6 weeks for PRP-T [ACTHIB, DTaP-IPV/Hib (Pentacel) and Hib-MenCY (MenHibrix)], PRP-OMP [PedvaxHIB or COMVAX], 12 months for PRP-T [Hiberix])

#### Routine vaccination:

- Administer a 2- or 3-dose Hib vaccine primary series and a booster dose (dose 3 or 4 depending on vaccine used in primary series) at age 12 through 15 months to complete a full Hib vaccine series.
- The primary series with ActHib, MenHibrix, or Pentacel consists of 3 doses and should be administered at 2, 4, and 6 months of age. The primary series with PedvaxHib or COMVAX 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 Hiberix vaccine. Hiberix should only be used for the booster (final) dose in children aged 12 months through 4 years who have received at least 1 prior dose of Hib-containing vaccine.
- For recommendations on the use of MenHibrix in patients at increased risk for meningococcal disease, please refer to the meningococcal vaccine footnotes and also to *MMWR* February 28, 2014 / 63(RR01);1-13, available at <http://www.cdc.gov/mmwr/PDF/rr/rr6301.pdf>.

For further guidance on the use of the vaccines mentioned below, see: <http://www.cdc.gov/vaccines/hcp/acip-recs/index.html>.

### 5. *Haemophilus influenzae* type b (Hib) conjugate vaccine (cont'd)

#### 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 both doses were PRP-OMP (PedvaxHIB or COMVAX), and were administered before the first birthday, the third (and final) dose should be administered at age 12 through 59 months and at least 8 weeks after the second dose.
- If the first dose was administered at age 7 through 11 months, administer the second dose at least 4 weeks later and a third (and final) dose at age 12 through 15 months or 8 weeks after second dose, whichever is later.
- If first dose is administered before the first birthday and second dose administered at younger than 15 months, a third (and final) dose should be given 8 weeks later.
- For unvaccinated children aged 15 months or older, administer only 1 dose.
- For other catch-up guidance, see Figure 2. For catch-up guidance related to MenHibrix, please see the meningococcal vaccine footnotes and also *MMWR* February 28, 2014 / 63(RR01);1-13, available at <http://www.cdc.gov/mmwr/PDF/rr/rr6301.pdf>.

#### Vaccination of persons with high-risk conditions:

- Children aged 12 through 59 months who are at increased risk for Hib disease, including chemotherapy recipients and those with anatomic or functional asplenia (including sickle cell disease), human immunodeficiency virus (HIV) infection, immunoglobulin deficiency, or early component complement deficiency, who have received either no doses or only 1 dose of Hib vaccine before 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 3 months following therapy completion.
- Recipients of hematopoietic stem cell transplant (HSCT) should be revaccinated with a 3-dose regimen of Hib vaccine starting 6 to 12 months after successful transplant, regardless of vaccination history; doses should be administered at least 4 weeks apart.
- A single dose of any Hib-containing vaccine should be administered to unimmunized\* children and adolescents 15 months of age and older undergoing an elective splenectomy; 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 human immunodeficiency virus (HIV) infection.

\* Patients who have not received a primary series and booster dose or at least 1 dose of Hib vaccine after 14 months of age are considered unimmunized.

### 6. Pneumococcal vaccines. (Minimum age: 6 weeks for PCV13, 2 years for PPSV23)

#### Routine vaccination with PCV13:

- Administer a 4-dose series of PCV13 vaccine at ages 2, 4, and 6 months and at age 12 through 15 months.
- For children 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 PPSV23:

- All recommended PCV13 doses should be administered prior to PPSV23 vaccination if 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 if treated with high-dose oral corticosteroid therapy); diabetes mellitus; cerebrospinal fluid leak; cochlear implant; sickle cell disease and other hemoglobinopathies; anatomic or functional asplenia; HIV infection; chronic renal failure; nephrotic syndrome; diseases associated with treatment with immunosuppressive drugs or radiation therapy, including malignant neoplasms, leukemias, lymphomas, and Hodgkin's disease; solid organ transplantation; or congenital immunodeficiency:
  1. Administer 1 dose of PCV13 if any incomplete schedule of 3 doses of PCV (PCV7 and/or PCV13) were received previously.
  2. Administer 2 doses of PCV13 at least 8 weeks apart if unvaccinated or any incomplete schedule of fewer than 3 doses of PCV (PCV7 and/or PCV13) were received previously.
  3. Administer 1 supplemental dose of PCV13 if 4 doses of PCV7 or other age-appropriate complete PCV7 series was received previously.
  4. The minimum interval between doses of PCV (PCV7 or PCV13) is 8 weeks.
  5. For children with no history of PPSV23 vaccination, administer PPSV23 at least 8 weeks after the most recent dose of PCV13.

### 6. Pneumococcal vaccines (cont'd)

- For children aged 6 through 18 years who have cerebrospinal fluid leak; cochlear implant; sickle cell disease and other hemoglobinopathies; anatomic or functional asplenia; congenital or acquired immunodeficiencies; HIV infection; chronic renal failure; nephrotic syndrome; diseases associated with treatment with immunosuppressive drugs or radiation therapy, including malignant neoplasms, leukemias, lymphomas, and Hodgkin's disease; generalized malignancy; solid organ transplantation; or multiple myeloma:
  1. If neither PCV13 nor PPSV23 has been received previously, administer 1 dose of PCV13 now and 1 dose of PPSV23 at least 8 weeks later.
  2. If PCV13 has been received previously but PPSV23 has not, administer 1 dose of PPSV23 at least 8 weeks after the most recent dose of PCV13.
  3. If PPSV23 has been received but PCV13 has not, administer 1 dose of PCV13 at least 8 weeks after the most recent dose of PPSV23.
- For children aged 6 through 18 years with chronic heart disease (particularly cyanotic congenital heart disease and cardiac failure), chronic lung disease (including asthma if treated with high-dose oral corticosteroid therapy), diabetes mellitus, alcoholism, or chronic liver disease, who have not received PPSV23, administer 1 dose of PPSV23. If PCV13 has been received previously, then PPSV23 should be administered at least 8 weeks after any prior PCV13 dose.
- A single revaccination with PPSV23 should be administered 5 years after the first dose to children with sickle cell disease or other hemoglobinopathies; anatomic or functional asplenia; congenital or acquired immunodeficiencies; HIV infection; chronic renal failure; nephrotic syndrome; diseases associated with treatment with immunosuppressive drugs or radiation therapy, including malignant neoplasms, leukemias, lymphomas, and Hodgkin's disease; generalized malignancy; solid organ transplantation; or multiple myeloma.

### 7. Inactivated poliovirus vaccine (IPV). (Minimum age: 6 weeks)

#### Routine vaccination:

- Administer a 4-dose series of IPV at ages 2, 4, 6 through 18 months, and 4 through 6 years. The 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 intervals are only recommended if the person is at risk of imminent exposure to circulating poliovirus (i.e., travel to a polio-endemic region or during an outbreak).
- If 4 or more doses are administered before age 4 years, an additional dose should be administered at age 4 through 6 years 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 OPV and IPV were administered as part of a series, a total of 4 doses should be administered, regardless of the child's current age. IPV is not routinely recommended for U.S. residents aged 18 years or older.
- For other catch-up guidance, see Figure 2.

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

#### Routine vaccination:

- Administer influenza vaccine annually to all children beginning at age 6 months. For most healthy, nonpregnant persons aged 2 through 49 years, either LAIV or IIV may be used. However, LAIV should NOT be administered to some persons, including 1) persons who have experienced severe allergic reactions to LAIV, any of its components, or to a previous dose of any other influenza vaccine; 2) children 2 through 17 years receiving aspirin or aspirin-containing products; 3) persons who are allergic to eggs; 4) pregnant women; 5) immunosuppressed persons; 6) children 2 through 4 years of age with asthma or who had wheezing in the past 12 months; or 7) persons who have taken influenza antiviral medications in the previous 48 hours. For all other contraindications and precautions to use of LAIV, see *MMWR* August 15, 2014 / 63(32);691-697 [40 pages] available at <http://www.cdc.gov/mmwr/pdf/wk/mm6332.pdf>.

#### For children aged 6 months through 8 years:

- For the 2014-15 season, administer 2 doses (separated by at least 4 weeks) to children who are receiving influenza vaccine for the first time. Some children in this age group who have been vaccinated previously will also need 2 doses. For additional guidance, follow dosing guidelines in the 2014-15 ACIP influenza vaccine recommendations, *MMWR* August 15, 2014 / 63(32);691-697 [40 pages] available at <http://www.cdc.gov/mmwr/pdf/wk/mm6332.pdf>.
- For the 2015-16 season, follow dosing guidelines in the 2015 ACIP 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/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 HAV-infected primates or with HAV in a research laboratory; persons with clotting-factor disorders; persons with chronic liver disease; and persons who anticipate close personal contact (e.g., household or regular babysitting) with an international adoptee during the first 60 days after arrival in the United States from a country with high or intermediate endemicity. The first dose should be administered as soon as the adoption is planned, ideally 2 or more weeks before 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 HPV4 or HPV2 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 Routine vaccination 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 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.
- 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. Menveo
      - o *Children who initiate vaccination at 8 weeks through 6 months:* Administer doses at 2, 4, 6, and 12 months of age.
      - o *Unvaccinated children 7 through 23 months:* Administer 2 doses, with the second dose at least 12 weeks after the first dose AND after the first birthday.
      - o *Children 24 months and older who have not received a complete series:* Administer 2 primary doses at least 8 weeks apart.
    2. MenHibrix
      - o *Children 6 weeks through 18 months:* Administer doses at 2, 4, 6, and 12 through 15 months of age.
      - o If the first dose of MenHibrix is given at or after 12 months of age, a total of 2 doses should be given at least 8 weeks apart to ensure protection against serogroups C and Y meningococcal disease.
    3. Menactra
      - o *Children 24 months and older who have not received a complete series:* Administer 2 primary doses at least 8 weeks apart. If Menactra is administered to a child with asplenia (including sickle cell disease), do not administer Menactra until 2 years of age and at least 4 weeks after the completion of all PCV13 doses.
  - Children with persistent complement component deficiency:
    1. Menveo
      - o *Children who initiate vaccination at 8 weeks through 6 months:* Administer doses at 2, 4, 6, and 12 months of age.
      - o *Unvaccinated children 7 through 23 months:* Administer 2 doses, with the second dose at least 12 weeks after the first dose AND after the first birthday.
      - o *Children 24 months and older who have not received a complete series:* Administer 2 primary doses at least 8 weeks apart.
    2. MenHibrix
      - o *Children 6 weeks through 18 months:* Administer doses at 2, 4, 6, and 12 through 15 months of age.
      - o If the first dose of MenHibrix is given at or after 12 months of age, a total of 2 doses should be given at least 8 weeks apart to ensure protection against serogroups C and Y meningococcal disease.
    3. Menactra
      - o *Children 9 through 23 months:* Administer 2 primary doses at least 12 weeks apart.
      - o *Children 24 months and older who have not received a complete series:* Administer 2 primary doses at least 8 weeks 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 during a community outbreak attributable to a vaccine serogroup, administer or complete an age- and formulation-appropriate series of MenHibrix, Menactra, or Menveo.
  - 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/rr6202a1.htm>.

For other catch-up recommendations for these persons, and complete information on use of meningococcal vaccines, including guidance related to vaccination of persons at increased risk of infection, see *MMWR* March 22, 2013 / 62(RR02);1-22, available at <http://www.cdc.gov/mmwr/pdf/rr/rr6202.pdf>.

## Recommended Adult Immunization Schedule United States - 2015

The 2015 Adult Immunization Schedule was approved by the Centers for Disease Control and Prevention's (CDC) Advisory Committee on Immunization Practices (ACIP), American Academy of Family Physicians (AAFP), the American College of Physicians (ACP), the American College of Obstetricians and Gynecologists (ACOG), and the American College of Nurse-Midwives (ACNM). On February 3, 2015, the adult immunization schedule and a summary of changes from 2014 were published in the *Annals of Internal Medicine*, and a summary of changes was published in the *Morbidity and Mortality Weekly Report (MMWR)* on February 5, 2015.

All clinically significant postvaccination reactions should be reported to the Vaccine Adverse Event Reporting System (VAERS). Reporting forms and instructions on filing a VAERS report are available at [www.vaers.hhs.gov](http://www.vaers.hhs.gov) or by telephone, 800-822-7967.

Additional details regarding ACIP recommendations for each of the vaccines listed in the schedule can be found at [www.cdc.gov/vaccines/hcp/acip-recs/index.html](http://www.cdc.gov/vaccines/hcp/acip-recs/index.html).

American Academy of Family Physicians (AAFP)  
[www.aafp.org/](http://www.aafp.org/)

American College of Physicians (ACP)  
[www.acponline.org/](http://www.acponline.org/)

American College of Obstetricians and Gynecologists (ACOG)  
[www.acog.org/](http://www.acog.org/)

American College of Nurse-Midwives (ACNM)  
[www.midwife.org/](http://www.midwife.org/)



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## Recommended Adult Immunization Schedule—United States - 2015

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

Figure 1. Recommended adult immunization schedule, by vaccine and age group<sup>1</sup>

| VACCINE ▼  | AGE GROUP ▶ | 19-21 years  | 22-26 years | 27-49 years | 50-59 years | 60-64 years | ≥ 65 years |
|--|-------------|--|-------------|-------------|-------------|-------------|------------|
| Influenza <sup>2,2</sup>                                 |             | 1 dose annually  |             |             |             |             |            |
| Tetanus, diphtheria, pertussis (Td/Tdap) <sup>3</sup>    |             | Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs |             |             |             |             |            |
| Varicella <sup>4</sup>                                   |             | 2 doses  |             |             |             |             |            |
| Human papillomavirus (HPV) Female <sup>5</sup>           |             | 3 doses  |             |             |             |             |            |
| Human papillomavirus (HPV) Male <sup>5</sup>             |             | 3 doses  |             |             |             |             |            |
| Zoster <sup>6</sup>                                      |             |  |             |             |             | 1 dose      |            |
| Measles, mumps, rubella (MMR) <sup>7</sup>               |             | 1 or 2 doses   |             |             |             |             |            |
| Pneumococcal 13-valent conjugate (PCV13) <sup>8</sup>    |             | 1-time dose  |             |             |             |             |            |
| Pneumococcal polysaccharide (PPSV23) <sup>8</sup>        |             | 1 or 2 doses   |             |             |             |             | 1 dose     |
| Meningococcal <sup>9</sup>                               |             | 1 or more doses  |             |             |             |             |            |
| Hepatitis A <sup>10</sup>                                |             | 2 doses  |             |             |             |             |            |
| Hepatitis B <sup>11</sup>                                |             | 3 doses  |             |             |             |             |            |
| <i>Haemophilus influenzae</i> type b (Hib) <sup>12</sup> |             | 1 or 3 doses   |             |             |             |             |            |

<sup>1</sup>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 indication)
-  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](http://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/vaccinecompensation](http://www.hrsa.gov/vaccinecompensation) 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](http://www.cdc.gov/vaccines) or from the CDC-INFO Contact Center at 800-CDC-INFO (800-232-4636) in English and Spanish, 8:00 a.m. - 8:00 p.m. Eastern Time, Monday - Friday, excluding holidays.

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<sup>1</sup>

| VACCINE ▼  | INDICATION ▶ | Pregnancy                  | Immuno-compromising conditions (excluding human immunodeficiency virus (HIV)) <sup>4,6,7,8,13</sup> | HIV infection CD4+ T lymphocyte count <sup>4,6,7,8,13</sup>                    |                | Men who have sex with men (MSM) | Kidney failure, end-stage renal disease, receipt of hemodialysis | Heart disease, chronic lung disease, chronic alcoholism | Asplenia (including elective splenectomy and persistent complement component deficiencies) <sup>8,12</sup> | Chronic liver disease | Diabetes | Healthcare personnel        |
|--|--------------|----------------------------|---|--|----------------|---------------------------------|--|---|--|-----------------------|----------|-----------------------------|
|  |              |                            |   | < 200 cells/μL   | ≥ 200 cells/μL |                                 |  |   |  |                       |          |                             |
| Influenza <sup>2,2</sup>                                 |              |                            |   |  |                | 1 dose IIV or LAIV annually     |  |   |  |                       |          | 1 dose IIV or LAIV annually |
| Tetanus, diphtheria, pertussis (Td/Tdap) <sup>3</sup>    |              | 1 dose Tdap each pregnancy |   | Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs |                |                                 |  |   |  |                       |          |                             |
| Varicella <sup>4</sup>                                   |              |                            | Contraindicated   |  |                |                                 |  |   |  |                       |          | 2 doses                     |
| Human papillomavirus (HPV) Female <sup>5</sup>           |              |                            |   | 3 doses through age 26 yrs   |                |                                 |  |   |  |                       |          | 3 doses through age 26 yrs  |
| Human papillomavirus (HPV) Male <sup>5</sup>             |              |                            |   | 3 doses through age 26 yrs   |                |                                 |  |   |  |                       |          | 3 doses through age 21 yrs  |
| Zoster <sup>6</sup>                                      |              |                            | Contraindicated   |  |                |                                 |  |   |  |                       |          | 1 dose                      |
| Measles, mumps, rubella (MMR) <sup>7</sup>               |              |                            | Contraindicated   |  |                |                                 |  |   |  |                       |          | 1 or 2 doses                |
| Pneumococcal 13-valent conjugate (PCV13) <sup>8</sup>    |              |                            |   |  |                |                                 |  |   |  |                       |          | 1 dose                      |
| Pneumococcal polysaccharide (PPSV23) <sup>8</sup>        |              |                            |   |  |                |                                 |  |   |  |                       |          | 1 or 2 doses                |
| Meningococcal <sup>9</sup>                               |              |                            |   |  |                |                                 |  |   |  |                       |          | 1 or more doses             |
| Hepatitis A <sup>10</sup>                                |              |                            |   |  |                |                                 |  |   |  |                       |          | 2 doses                     |
| Hepatitis B <sup>11</sup>                                |              |                            |   |  |                |                                 |  |   |  |                       |          | 3 doses                     |
| <i>Haemophilus influenzae</i> type b (Hib) <sup>12</sup> |              |                            |   | post-HSCT recipients only  |                |                                 |  |   |  |                       |          | 1 or 3 doses                |

<sup>1</sup>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



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These schedules indicate the recommended age groups and medical indications for which administration of currently licensed vaccines is commonly recommended for adults ages 19 years and older, as of February 1, 2015. For all vaccines being recommended on the Adult Immunization Schedule: a vaccine series does not need to be restarted, regardless of the time that has elapsed between doses. Licensed combination vaccines may be used whenever any components of the combination are indicated and when the vaccine's other components are not contraindicated. 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.html](http://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.

## Footnotes—Recommended Immunization Schedule for Adults Aged 19 Years or Older: United States, 2015

**1. Additional information**

- Additional guidance for the use of the vaccines described in this supplement is available at [www.cdc.gov/vaccines/hcp/acip-recs/index.html](http://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/mmwr/preview/mmwrhtml/rr6002a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6002a1.htm).
- Information on travel vaccine requirements and recommendations (e.g., for hepatitis A and B, meningococcal, and other vaccines) is available at [wwwnc.cdc.gov/travel/destinations/list](http://wwwnc.cdc.gov/travel/destinations/list).
- Additional information and resources regarding vaccination of pregnant women can be found at [www.cdc.gov/vaccines/adults/rec-vac/pregnant.html](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 years or older can receive the recombinant influenza vaccine (RIV) (FluBlok). RIV does not contain any egg protein and can be given to age-appropriate persons with egg allergy of any severity.
- Healthy, nonpregnant persons aged 2 to 49 years without high-risk medical conditions can receive either intranasally administered live, attenuated influenza vaccine (LAIV) (FluMist) or IIV.
- Health care personnel who care for severely immunocompromised persons who require care in a protected environment should receive IIV or RIV; health care personnel who receive LAIV should avoid providing care for severely immunosuppressed persons for 7 days after vaccination.
- The intramuscularly or intradermally administered IIV are options for adults aged 18 through 64 years.
- Adults aged 65 years or older can receive the standard-dose IIV or the high-dose IIV (Fluzone High-Dose).
- A list of currently available influenza vaccines can be found at [www.cdc.gov/flu/protect/vaccine/vaccines.htm](http://www.cdc.gov/flu/protect/vaccine/vaccines.htm).

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

- Administer 1 dose of Tdap vaccine to pregnant women during each pregnancy (preferably 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 remaining 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 family contacts of persons with immunocompromising conditions) or are at high risk for exposure or 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:
  - documentation of 2 doses of varicella vaccine at least 4 weeks apart;
  - U.S.-born before 1980, except health care personnel and pregnant women;
  - history of varicella 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.
- 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 or termination 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 unless their condition constitutes a contraindication, such as pregnancy or severe immunodeficiency.

**7. Measles, mumps, rubella (MMR) vaccination**

- Adults born before 1957 are generally considered immune to measles and mumps. All 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.
- Persons who received inactivated (killed) measles vaccine or measles vaccine of unknown type during 1963–1967 should be revaccinated with 2 doses of MMR vaccine.

*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 a postsecondary educational institution,
  - work in a health care facility, or
  - plan to travel internationally.
- Persons vaccinated before 1979 with either killed mumps vaccine or mumps 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.

*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.

*Health care personnel born before 1957:*

- For unvaccinated health care personnel born before 1957 who lack laboratory evidence of measles, mumps, and/or rubella immunity or laboratory confirmation of disease, health care facilities should consider vaccinating personnel with 2 doses of MMR vaccine at the appropriate interval for measles and mumps or 1 dose of MMR vaccine for rubella.

**8. Pneumococcal (13-valent pneumococcal conjugate vaccine [PCV13] and 23-valent pneumococcal polysaccharide vaccine [PPSV23]) vaccination**

- General information
  - When indicated, only a single dose of PCV13 is recommended for adults.
  - No additional dose of PPSV23 is indicated for adults vaccinated with PPSV23 at or after age 65 years.
  - When both PCV13 and PPSV23 are indicated, PCV13 should be administered first; PCV13 and PPSV23 should not be administered during the same visit.
  - When indicated, PCV13 and PPSV23 should be administered to adults whose pneumococcal vaccination history is incomplete or unknown.
- Adults aged 65 years or older who
  - Have not received PCV13 or PPSV23: Administer PCV13 followed by PPSV23 in 6 to 12 months.
  - Have not received PCV13 but have received a dose of PPSV23 at age 65 years or older: Administer PCV13 at least 1 year after the dose of PPSV23 received at age 65 years or older.

(Continued on next page)

## Footnotes—Recommended Immunization Schedule for Adults Aged 19 Years or Older: United States, 2015

**8. Pneumococcal vaccination (continued)**

- Have not received PCV13 but have received 1 or more doses of PPSV23 before age 65: Administer PCV13 at least 1 year after the most recent dose of PPSV23; administer a dose of PPSV23 6 to 12 months after PCV13, or as soon as possible if this time window has passed, and at least 5 years after the most recent dose of PPSV23.
- Have received PCV13 but not PPSV23 before age 65 years: Administer PPSV23 6 to 12 months after PCV13 or as soon as possible if this time window has passed.
- Have received PCV13 and 1 or more doses of PPSV23 before age 65 years: Administer PPSV23 6 to 12 months after PCV13, or as soon as possible if this time window has passed, and at least 5 years after the most recent dose of PPSV23.
- Adults aged 19 through 64 years with immunocompromising conditions or anatomical or functional asplenia (defined below) who
  - Have not received PCV13 or PPSV23: Administer PCV13 followed by PPSV23 at least 8 weeks after PCV13; administer a second dose of PPSV23 at least 5 years after the first dose of PPSV23.
  - Have not received PCV13 but have received 1 dose of PPSV23: Administer PCV13 at least 1 year after the PPSV23; administer a second dose of PPSV23 at least 8 weeks after PCV13 and at least 5 years after the first dose of PPSV23.
  - Have not received PCV13 but have received 2 doses of PPSV23: Administer PCV13 at least 1 year after the most recent dose of PPSV23.
  - Have received PCV13 but not PPSV23: Administer PPSV23 at least 8 weeks after PCV13; administer a second dose of PPSV23 at least 5 years after the first dose of PPSV23.
  - Have received PCV13 and 1 dose of PPSV23: Administer a second dose of PPSV23 at least 5 years after the first dose of PPSV23.
- Adults aged 19 through 64 years with cerebrospinal fluid leaks or cochlear implants: Administer PCV13 followed by PPSV23 at least 8 weeks after PCV13.
- Adults aged 19 through 64 years with chronic heart disease (including congestive heart failure and cardiomyopathies, excluding hypertension), chronic lung disease (including chronic obstructive lung disease, emphysema, and asthma), chronic liver disease (including cirrhosis), alcoholism, or diabetes mellitus: Administer PPSV23.
- Adults aged 19 through 64 years who smoke cigarettes or reside in nursing home or long-term care facilities: Administer PPSV23.
- Routine pneumococcal vaccination is not recommended for American Indian/Alaska Native or other adults unless they have the indications as above; however, public health authorities may consider recommending the use of pneumococcal vaccines for American Indians/Alaska Natives or other adults who live in areas with increased risk for invasive pneumococcal disease.
- Immunocompromising conditions that are indications for pneumococcal vaccination are: Congenital or acquired immunodeficiency (including B- or T-lymphocyte deficiency, complement deficiencies, and phagocytic disorders excluding chronic granulomatous disease), HIV infection, chronic renal failure, nephrotic syndrome, leukemia, lymphoma, Hodgkin disease, generalized malignancy, multiple myeloma, solid organ transplant, and iatrogenic immunosuppression (including long-term systemic corticosteroids and radiation therapy).
- Anatomical or functional asplenia that are indications for pneumococcal vaccination are: Sickle cell disease and other hemoglobinopathies, congenital or acquired asplenia, splenic dysfunction, and splenectomy. Administer pneumococcal vaccines at least 2 weeks before immunosuppressive therapy or an elective splenectomy, and as soon as possible to adults who are newly diagnosed with asymptomatic or symptomatic HIV infection.

**9. Meningococcal vaccination**

- Administer 2 doses of quadrivalent meningococcal conjugate vaccine (MenACWY [Menactra, Menveo]) at least 2 months apart to adults of all ages with anatomical or 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.
- 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 16<sup>th</sup> 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 anatomical or functional asplenia, persistent complement component deficiencies, or microbiologists).

**10. 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 noninjection 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
  - unvaccinated persons who anticipate close personal contact (e.g., household or regular babysitting) with an international adoptee during the first 60 days after arrival in the United States from a country with high or intermediate endemicity. (See footnote 1 for more information on travel recommendations.) The first dose of the 2-dose hepatitis A vaccine series should be administered as soon as adoption is planned, ideally 2 or more weeks before the arrival of the adoptee.
- 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.

**11. 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 1 month 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 21 to 30 followed by a booster dose at month 12 may be used.
- Adult patients receiving hemodialysis or other immunocompromising conditions should receive 1 dose of 40 mcg/mL (Recombivax HB) administered on a 3-dose schedule at 0, 1, and 6 months or 2 doses of 20 mcg/mL (Engerix-B) administered simultaneously on a 4-dose schedule at 0, 1, 2, and 6 months.

**12. *Haemophilus influenzae* type b (Hib) vaccination**

- One dose of Hib vaccine should be administered to persons who have anatomical or functional 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 (HSCT) 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.

**13. 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 [www.cdc.gov/vaccines/hcp/acip-recs/index.html](http://www.cdc.gov/vaccines/hcp/acip-recs/index.html).

# Appendix A

**TABLE. Contraindications and precautions to commonly used vaccines in adults<sup>1†</sup>**

| Vaccine  | Contraindications   | Precautions  |
|--|---|--|
| Influenza, inactivated (IIV) <sup>2</sup>                                | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after previous dose of any influenza vaccine; or to a vaccine component, including egg protein</li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>History of Guillain-Barré Syndrome within 6 weeks of previous influenza vaccination</li> <li>Adults who experience only hives with exposure to eggs may receive RIV or, with additional safety precautions, IIV<sup>2</sup></li> </ul>  |
| Influenza, recombinant (RIV)   | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after previous dose of RIV or to a vaccine component. RIV does not contain any egg protein<sup>2</sup></li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>History of Guillain-Barré Syndrome within 6 weeks of previous influenza vaccination</li> </ul>  |
| Influenza, live attenuated (LAIV) <sup>2,3</sup>                         | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) to any component of the vaccine, or to a previous dose of any influenza vaccine</li> <li>In addition, ACIP recommends that LAIV not be used in the following populations:               <ul style="list-style-type: none"> <li>pregnant women</li> <li>immunosuppressed adults</li> <li>adults with egg allergy of any severity</li> <li>adults who have taken influenza antiviral medications (amantadine, rimantadine, zanamivir, or oseltamivir) within the previous 48 hours; avoid use of these antiviral drugs for 14 days after vaccination</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever.</li> <li>History of Guillain-Barré Syndrome within 6 weeks of previous influenza vaccination</li> <li>Asthma in persons aged 5 years and older</li> <li>Other chronic medical conditions, e.g., other chronic lung diseases, chronic cardiovascular disease (excluding isolated hypertension), diabetes, chronic renal or hepatic disease, hematologic disease, neurologic disease, and metabolic disorders</li> </ul>  |
| Tetanus, diphtheria, pertussis (Tdap); tetanus, diphtheria (Td)          | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> <li>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, diphtheria and tetanus toxoids and pertussis (DTP), or diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine</li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>Guillain-Barré Syndrome within 6 weeks after a previous dose of tetanus toxoid-containing vaccine</li> <li>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</li> <li>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</li> </ul> |
| Varicella <sup>3</sup>   | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> <li>Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy,<sup>4</sup> or patients with human immunodeficiency virus [HIV] infection who are severely immunocompromised)</li> <li>Pregnancy</li> </ul>  | <ul style="list-style-type: none"> <li>Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product)<sup>5</sup></li> <li>Moderate or severe acute illness with or without fever</li> <li>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</li> </ul>  |
| Human papillomavirus (HPV)   | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> </ul>  | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>Pregnancy</li> </ul>  |
| Zoster <sup>3</sup>  | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) to a vaccine component</li> <li>Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, or long-term immunosuppressive therapy,<sup>4</sup> or patients with HIV infection who are severely immunocompromised)</li> <li>Pregnancy</li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>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</li> </ul>   |
| Measles, mumps, rubella (MMR) <sup>3</sup>                               | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> <li>Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy,<sup>4</sup> or patients with HIV infection who are severely immunocompromised)</li> <li>Pregnancy</li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product)<sup>5</sup></li> <li>History of thrombocytopenia or thrombocytopenic purpura</li> <li>Need for tuberculin skin testing<sup>6</sup></li> </ul>   |
| Pneumococcal conjugate (PCV13)   | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component, including to any vaccine containing diphtheria toxoid</li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> </ul>   |
| Pneumococcal polysaccharide (PPSV23)                                     | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> </ul>  | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> </ul>   |
| Meningococcal, conjugate (MenACWY); meningococcal polysaccharide (MPSV4) | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> </ul>  | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> </ul>   |
| Hepatitis A  | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> </ul>  | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> </ul>   |
| Hepatitis B  | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> </ul>  | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> </ul>   |
| <i>Haemophilus influenzae</i> Type b (Hib)                               | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> </ul>  | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> </ul>   |

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) — United States, 2014–15 Influenza Season. *MMWR* 2014;63(32):691–97.

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  $\geq 20$  mg of prednisone or the equivalent. Vaccination should be deferred for at least 1 month after discontinuation of such therapy. Providers should consult ACIP recommendations for complete information on the use of specific live vaccines among persons on immune-suppressing medications or with immune suppression because of other reasons.

5. Vaccine should be deferred for the appropriate interval if replacement immune globulin products are being administered. See CDC. General recommendations on immunization: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 2011;60(No. RR-2). Available at [www.cdc.gov/vaccines/pubs/pinkbook/index.html](http://www.cdc.gov/vaccines/pubs/pinkbook/index.html).

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

\* Adapted from CDC. Table 6. Contraindications and precautions to commonly used vaccines. General recommendations on immunization: recommendations of the Advisory Committee on Immunization Practices. *MMWR* 2011;60(No. RR-2):40–41 and from Atkinson W, Wolfe S, Hamborsky J, eds. Appendix A. Epidemiology and prevention of vaccine preventable diseases. 12<sup>th</sup> ed. Washington, DC: Public Health Foundation, 2011. Available at [www.cdc.gov/vaccines/pubs/pinkbook/index.html](http://www.cdc.gov/vaccines/pubs/pinkbook/index.html).

<sup>†</sup> Regarding latex allergy, consult the package insert for any vaccine administered.



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Control and Prevention

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| Recommended and Minimum Ages and Intervals<br>Between Doses of Routinely Recommended Vaccines <sup>1,2,3,4</sup> |                               |                           |                                   |                               |
|--|-------------------------------|---------------------------|-----------------------------------|-------------------------------|
| Vaccine and dose number  | Recommended age for this dose | Minimum age for this dose | Recommended interval to next dose | Minimum interval to next dose |
| Diphtheria-tetanus-acellular pertussis (DTaP)-1 <sup>5</sup>   | 2 months                      | 6 weeks                   | 8 weeks                           | 4 weeks                       |
| DTaP-2   | 4 months                      | 10 weeks                  | 8 weeks                           | 4 weeks                       |
| DTaP-3   | 6 months                      | 14 weeks                  | 6-12 months                       | 6 months <sup>6</sup>         |
| DTaP-4   | 15-18 months                  | 15 months <sup>7</sup>    | 3 years                           | 6 months                      |
| DTaP-5   | 4-6 years                     | 4 years                   | —                                 | —                             |
| <i>Haemophilus influenzae</i> type b (Hib)-1 <sup>6,8</sup>  | 2 months                      | 6 weeks                   | 8 weeks                           | 4 weeks                       |
| Hib-2  | 4 months                      | 10 weeks                  | 8 weeks                           | 4 weeks                       |
| Hib-3 <sup>9</sup>   | 6 months                      | 14 weeks                  | 6-9 months                        | 8 weeks                       |
| Hib-4  | 12-15 months                  | 12 months                 | —                                 | —                             |
| Hepatitis A (HepA)-1   | 12-23 months                  | 12 months                 | 6-18 months                       | 6 months                      |
| HepA-2   | ≥18 months                    | 18 months                 | —                                 | —                             |
| Hepatitis B (HepB)-1 <sup>5</sup>  | Birth                         | Birth                     | 4 weeks-4 months                  | 4 weeks                       |
| HepB-2   | 1-2 months                    | 4 weeks                   | 8 weeks-17 months                 | 8 weeks                       |
| HepB-3 <sup>10</sup>   | 6-18 months                   | 24 weeks                  | —                                 | —                             |
| Herpes zoster (HZV) <sup>11</sup>  | ≥60 years                     | 60 years                  | —                                 | —                             |
| Human papillomavirus (HPV)-1 <sup>12</sup>   | 11-12 years                   | 9 years                   | 8 weeks                           | 4 weeks                       |
| HPV-2  | 11-12 years<br>(+ 2 months)   | 9 years<br>(+ 4 weeks)    | 4 months                          | 12 weeks <sup>13</sup>        |
| HPV-3 <sup>13</sup>  | 11-12 years<br>(+ 6 months)   | 9 years<br>(+24 weeks)    | —                                 | —                             |
| Influenza, inactivated (IIV) <sup>14</sup>   | ≥6 months                     | 6 months <sup>15</sup>    | 4 weeks                           | 4 weeks                       |
| Influenza, live attenuated (LAIV) <sup>14</sup>  | 2-49 years                    | 2 years                   | 4 weeks                           | 4 weeks                       |
| Measles-mumps-rubella (MMR)-1 <sup>16</sup>  | 12-15 months                  | 12 months                 | 3-5 years                         | 4 weeks                       |
| MMR-2 <sup>16</sup>  | 4-6 years                     | 13 months                 | —                                 | —                             |
| Meningococcal conjugate (MCV)-1 <sup>17</sup>  | 11-12 years                   | 6 weeks <sup>18</sup>     | 4-5 years                         | 8 weeks                       |
| MCV-2  | 16 years                      | 11 years<br>(+ 8 weeks)   | —                                 | —                             |
| Meningococcal polysaccharide (MPSV4)-1 <sup>17</sup>   | —                             | 2 years                   | 5 years                           | 5 years                       |
| MPSV4-2  | —                             | 7 years                   | —                                 | —                             |
| Pneumococcal conjugate (PCV)-1 <sup>8</sup>  | 2 months                      | 6 weeks                   | 8 weeks                           | 4 weeks                       |
| PCV-2  | 4 months                      | 10 weeks                  | 8 weeks                           | 4 weeks                       |
| PCV-3  | 6 months                      | 14 weeks                  | 6 months                          | 8 weeks                       |
| PCV-4  | 12-15 months                  | 12 months                 | —                                 | —                             |
| Pneumococcal polysaccharide (PPSV)-1   | —                             | 2 years                   | 5 years                           | 5 years                       |
| PPSV-2 <sup>19</sup>   | —                             | 7 years                   | —                                 | —                             |
| Poliovirus, Inactivated (IPV)-1 <sup>5</sup>   | 2 months                      | 6 weeks                   | 8 weeks                           | 4 weeks                       |
| IPV-2  | 4 months                      | 10 weeks                  | 8 weeks-14 months                 | 4 weeks                       |
| IPV-3  | 6-18 months                   | 14 weeks                  | 3-5 years                         | 6 months                      |
| IPV-4 <sup>20</sup>  | 4-6 years                     | 4 years                   | —                                 | —                             |
| Rotavirus (RV)-1 <sup>21</sup>   | 2 months                      | 6 weeks                   | 8 weeks                           | 4 weeks                       |
| RV-2   | 4 months                      | 10 weeks                  | 8 weeks                           | 4 weeks                       |
| RV-3 <sup>22</sup>   | 6 months                      | 14 weeks                  | —                                 | —                             |
| Tetanus-diphtheria (Td)  | 11-12 years                   | 7 years                   | 10 years                          | 5 years                       |
| Tetanus-diphtheria-acellular pertussis (Tdap) <sup>23</sup>  | ≥11 years                     | 7 years                   | —                                 | —                             |
| Varicella (Var)-1 <sup>16</sup>  | 12-15 months                  | 12 months                 | 3-5 years                         | 12 weeks <sup>24</sup>        |
| Var-2 <sup>16</sup>  | 4-6 years                     | 15 months <sup>25</sup>   | —                                 | —                             |

# Appendix A

- 1 Combination vaccines are available. Use of licensed combination vaccines is generally preferred to separate injections of their equivalent component vaccines. When administering combination vaccines, the minimum age for administration is the oldest age for any of the individual components (*exception*: the minimum age for the first dose of MenHibrix is 6 weeks); the minimum interval between doses is equal to the greatest interval of any of the individual components.
- 2 Information on travel vaccines including typhoid, Japanese encephalitis, and yellow fever, is available at [www.cdc.gov/travel](http://www.cdc.gov/travel). Information on other vaccines that are licensed in the US but not distributed, including anthrax and smallpox, is available at [www.bt.cdc.gov](http://www.bt.cdc.gov).
- 3 Ages and intervals less than 4 months may be expressed in weeks. When the term “months” is used to express an age or interval, it means calendar months.
- 4 A hyphen used to express a range (as in “12-15 months”) means “through.”
- 5 Combination vaccines containing a hepatitis B component (Comvax, Pediarix, and Twinrix) are available. These vaccines should not be administered to infants younger than 6 weeks because of the other components (i.e., Hib, DTaP, HepA, and IPV).
- 6 The minimum recommended interval between DTaP-3 and DTaP-4 is 6 months. However, DTaP-4 need not be repeated if administered at least 4 months after DTaP-3. This is a special grace period (2 months long) that can be used while evaluating records retrospectively. An additional 4 days should not be added to this grace period.
- 7 A special grace period of 3 months, based on expert opinion, can be applied to the minimum age of 15 months when evaluating records retrospectively, which will result in an acceptable minimum age of 12 months. An additional 4 days should not be added to this grace period.
- 8 Children receiving the first dose of Hib or PCV vaccine at age 7 months or older require fewer doses to complete the series.
- 9 If PRP-OMP (Pedvax-Hib) was administered at ages 2 and 4 months, a dose at age 6 months is not required.
- 10 HepB-3 should be administered at least 8 weeks after HepB-2 and at least 16 weeks after HepB-1, and should not be administered before age 24 weeks.
- 11 Herpes zoster vaccine is recommended as a single dose for persons 60 years of age and older.
- 12 Bivalent HPV vaccine (Cervarix) is approved for females 9 through 25 years of age. Quadrivalent HPV vaccine (Gardasil) is approved for males and females 9 through 26 years of age.
- 13 The minimum age for HPV-3 is based on the baseline minimum age for the first dose (9 years) and the minimum interval of 24 weeks between the first and third doses. Dose 3 need not be repeated if it is given at least 16 weeks after the first dose (and if the intervals between doses 1 and 2 and doses 2 and 3 are maintained at 4 weeks and 12 weeks, respectively).
- 14 One dose of influenza vaccine per season is recommended for most people. Children younger than 9 years of age who are receiving Influenza vaccine for the first time should receive 2 doses this season. See current influenza recommendations for other factors affecting the decision to administer one vs. two doses to children younger than 9 years.
- 15 The minimum age for inactivated influenza vaccine varies by vaccine manufacturer and formulation. See package inserts for vaccine-specific minimum ages.
- 16 Combination measles-mumps-rubella-varicella (MMRV) vaccine can be used for children aged 12 months through 12 years. (See CDC. General Recommendations on Immunization: recommendations of the ACIP. *MMWR* 2011;60[No. RR-2],7.)
- 17 Revaccination with meningococcal vaccine is recommended for previously vaccinated persons who remain at high risk for meningococcal disease. (See CDC. Updated recommendations from the ACIP for vaccination of persons at prolonged increased risk for meningococcal disease. *MMWR* 2009;58:[1042-3])
- 18 Menactra can be given as young as 9 months for high-risk children. Menveo can be given as young as 2 months for high-risk children. MenHibrix can be given as young as 6 weeks for high-risk children. MenHibrix is given as a four dose series at 2 months, 4 months, 6 months and 12-18 months.
- 19 A second dose of PPSV 5 years after the first dose is recommended for persons  $\leq 65$  years of age at highest risk for serious pneumococcal infection, and for those who are likely to have a rapid decline in pneumococcal antibody concentration. (See CDC. Prevention of pneumococcal disease: recommendations of the ACIP. *MMWR* 1997;46[No. RR-8].)
- 20 A fourth dose is not needed if the third dose was administered on or after the 4<sup>th</sup> birthday and at least 6 months after the previous dose.
- 21 The first dose of rotavirus must be administered between 6 weeks 0 days and 14 weeks 6 days. The vaccine series should not be started after age 15 weeks 0 days. Rotavirus vaccine should not be administered to children older than 8 months 0 days, regardless of the number of doses received before that age.
- 22 If two doses of Rotarix are administered as age appropriate, a third dose is not necessary.
- 23 Only one dose of Tdap is recommended. Subsequent doses should be given as Td. For management of a tetanus-prone wound in a person who has received a primary series of a tetanus-toxoid containing vaccine, the minimum interval after a previous dose of any tetanus-containing vaccine is 5 years.
- 24 For persons beginning the series on or after the 13<sup>th</sup> birthday, the minimum interval from varicella-1 to varicella-2 is 4 weeks. While it is not recommended, if a child younger than 13 years receives varicella-2 at an interval of 4 weeks or longer from varicella-1, the dose does not need to be repeated.
- 25 A special grace period of 2 months, based on expert opinion, can be applied to the minimum age of 15 months when evaluating records retrospectively, which will result in an acceptable minimum age of 13 months. An additional 4 days should not be added to this grace period.

Adapted from Table 1, ACIP General Recommendations on Immunization.

June 2014

# Summary of Recommendations for Child/Teen Immunization (Age birth through 18 years) (Page 1 of 5)

| Vaccine name and route   | Schedule for routine vaccination and other guidelines (any vaccine can be given with another)  | Schedule for catch-up vaccination and related issues   | Contraindications and precautions (mild illness is not a contraindication)   |
|--|--|--|--|
| <b>Hepatitis B (HepB)</b><br><i>Give IM</i>                                  | <ul style="list-style-type: none"> <li>Vaccinate all children age 0 through 18yrs.</li> <li>Vaccinate all newborns with monovalent vaccine prior to hospital discharge. Give dose #2 at age 1–2m and the final dose at age 6–18m (the last dose in the infant series should not be given earlier than age 24wks). After the birth dose, the series may be completed using 2 doses of single-antigen vaccine (ages 1–2m, 6–18m) or up to 3 doses of Comvax (ages 2m, 4m, 12–15m) or with 3 doses of Pediarix (ages 2m, 4m, 6m), which may result in giving a total of 4 doses of hepatitis B vaccine.</li> <li><b>If mother is HBsAg-positive:</b> Give the newborn HBIG and dose #1 within 12hrs of birth; complete series by age 6m.</li> <li><b>If mother's HBsAg status is unknown:</b> Give the newborn dose #1 within 12hrs of birth. If low birth weight (less than 2000 grams), also give HBIG within 12hrs. For infants weighing 2000 grams or more whose mother is subsequently found to be HBsAg positive, give the infant HBIG ASAP (no later than age 7d) and follow HepB immunization schedule for infants born to HBsAg-positive mothers.</li> </ul> | <ul style="list-style-type: none"> <li>Do not restart series, no matter how long since previous dose.</li> <li>3-dose series can be started at any age.</li> <li>Minimum intervals between doses: 4wks between #1 and #2, 8wks between #2 and #3, and at least 16wks between #1 and #3.</li> </ul> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p><b>Special Notes on Hepatitis B Vaccine (HepB)</b></p> <p><b>Dosing of HepB:</b> Monovalent vaccine brands are interchangeable. For people age 0 through 19yrs, give 0.5 mL of either Engerix-B or Recombivax HB.</p> <p><b>Alternative dosing schedule for unvaccinated adolescents age 11 through 15yrs:</b> Give 2 doses Recombivax HB 1.0 mL (adult formulation) spaced 4–6m apart. (Engerix-B is not licensed for a 2-dose schedule.)</p> <p><b>For preterm infants:</b> See ACIP hepatitis B recommendations <a href="http://www.cdc.gov/mmwr/PDF/rr/tr5416.pdf">www.cdc.gov/mmwr/PDF/rr/tr5416.pdf</a>.</p> </div> | <p><b>Contraindication</b></p> <p>Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components.</p> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>Moderate or severe acute illness.</li> <li>For infants who weigh less than 2000 grams, see ACIP recommendations.*</li> </ul>   |
| <b>DTaP, DT (Diphtheria, tetanus, acellular pertussis)</b><br><i>Give IM</i> | <ul style="list-style-type: none"> <li>Give to children at ages 2m, 4m, 6m, 15–18m, and 4–6yrs.</li> <li>May give dose #1 as early as age 6wks.</li> <li>May give #4 as early as age 12m if 6m have elapsed since #3.</li> <li>Do not give DTaP/DT to children age 7yrs and older.</li> <li>If possible, use the same DTaP product for all doses.</li> </ul>   | <ul style="list-style-type: none"> <li>#2 and #3 may be given 4wks after previous dose.</li> <li>#4 may be given 6m after #3.</li> <li>If #4 is given before 4th birthday, wait at least 6m for #5 (age 4–6yrs).</li> <li>If #4 is given after 4th birthday, #5 is not needed.</li> </ul>  | <p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components.</li> <li>For all pertussis-containing vaccines: Encephalopathy not attributable to an identifiable cause, within 7d after DTP/DTaP/Tdap.</li> </ul> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>Moderate or severe acute illness.</li> <li>History of arthus reaction following a prior dose of tetanus or diphtheria toxoid-containing vaccine; defer vaccination until at least 10yrs have elapsed since the last tetanus toxoid-containing vaccine.</li> <li>Guillain-Barré syndrome (GBS) within 6wks after previous dose of tetanus-toxoid-containing vaccine.</li> <li>For DTaP only: Any of these events following a previous dose of DTP/DTaP: 1) temperature of 105°F (40.5°C) or higher within 48hrs; 2) continuous crying for 3hrs or more within 48hrs; 3) collapse or shock-like state within 48hrs; 4) seizure within 3d.</li> <li>For all 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.</li> </ul> |
| <b>Td, Tdap (Tetanus, diphtheria, acellular pertussis)</b><br><i>Give IM</i> | <ul style="list-style-type: none"> <li>For children and teens lacking previous Tdap: Give Tdap routinely at age 11–12yrs and vaccinate older teens on a catch-up basis; then boost every 10yrs with Td.</li> <li>Make special efforts to give Tdap to children and teens who are (1) in contact with infants younger than age 12m and, (2) healthcare workers with direct patient contact.</li> <li>Give Tdap to pregnant adolescents during each pregnancy (preferred during 27–36 weeks' gestation), regardless of interval since prior Td or Tdap.</li> </ul>   | <ul style="list-style-type: none"> <li>Children as young as age 7yrs and teens who are unvaccinated or behind schedule should complete a primary Td series (spaced at 0, 1–2m, and 6–12m intervals); substitute Tdap for any dose in the series, preferably as dose #1.</li> <li>Tdap should be given regardless of interval since previous Td.</li> </ul>   |  |

\* This document was adapted from the recommendations of the Advisory Committee on Immunization Practices (ACIP). To obtain copies of these recommendations, visit CDC's website at [www.cdc.gov/vaccines/hcp/ACIP-recs/index.html](http://www.cdc.gov/vaccines/hcp/ACIP-recs/index.html) or visit the Immunization Action Coalition (IAC) website at [www.immunize.org/acip](http://www.immunize.org/acip). This table is revised periodically. Visit IAC's website at [www.immunize.org/childrules](http://www.immunize.org/childrules) to make sure you have the most current version.



## Summary of Recommendations for Child/Teen Immunization (Age birth through 18 years) (Page 2 of 5)

| Vaccine name and route                                      | Schedule for routine vaccination and other guidelines<br>(any vaccine can be given with another)  | Schedule for catch-up vaccination and related issues   | Contraindications and precautions<br>(mild illness is not a contraindication)   |
|---|---|--|---|
| <b>Rotavirus</b><br>(RV)<br><i>Give orally</i>              | <ul style="list-style-type: none"> <li>• Rotarix (RV1): give at ages 2m, 4m.</li> <li>• RotaTeq (RV5): give at ages 2m, 4m, 6m.</li> <li>• May give dose #1 as early as age 6wks.</li> <li>• Give final dose no later than age 8m-0d.</li> </ul>  | <ul style="list-style-type: none"> <li>• Do not begin series in infants older than age 14wks 6 days.</li> <li>• Intervals between doses may be as short as 4wks.</li> <li>• If prior vaccination included use of different or unknown brand(s), a total of 3 doses should be given.</li> </ul>   | <p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>• Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components. If allergy to latex, use RV5.</li> <li>• History of intussusception.</li> <li>• Diagnosis of severe combined immunodeficiency (SCID).</li> </ul> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>• Moderate or severe acute illness.</li> <li>• Altered immunocompetence other than SCID.</li> <li>• Chronic gastrointestinal disease.</li> <li>• For RV1 only, spina bifida or bladder exstrophy.</li> </ul>  |
| <b>Varicella</b><br>(Var)<br>(Chickenpox)<br><i>Give SC</i> | <ul style="list-style-type: none"> <li>• Give dose #1 at age 12–15m.</li> <li>• Give dose #2 at age 4–6yrs. Dose #2 of Var or MMRV may be given earlier if at least 3m since dose #1. If the 2nd dose was given at least 4wks after 1st dose, it can be accepted as valid.</li> <li>• Give a 2nd dose to all older children/teens with history of only 1 dose.</li> <li>• MMRV may be used in children age 12m through 12yrs (see note below).</li> </ul> <p><b>Note:</b> For the first dose of MMR and varicella given at age 12–47m, either MMR and Var or MMRV may be used. Unless the parent or caregiver expresses a preference for MMRV, CDC recommends that MMR and Var be used for the first doses in this age group.</p> | <ul style="list-style-type: none"> <li>• If younger than age 13yrs, space dose #1 and #2 at least 3m apart. If age 13yrs or older, space at least 4wks apart.</li> <li>• May use as postexposure prophylaxis if given within 5d.</li> <li>• If Var and either MMR, LAIV, and/or yellow fever vaccine are not given on the same day, space them at least 28d apart.</li> </ul>        | <p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>• Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components.</li> <li>• Pregnancy or possibility of pregnancy within 4wks.</li> <li>• Children on high-dose immunosuppressive therapy or who are immunocompromised because of malignancy and primary or acquired immunodeficiency, including HIV/AIDS (although vaccination may be considered if CD4+ T-lymphocyte percentages are 15% or greater in children age 1 through 8yrs or 200 cells/μL in children age 9yrs and older)</li> </ul> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>• Moderate or severe acute illness.</li> <li>• If blood, plasma, and/or immune globulin (IG or VZIG) were given in past 11m, see ACIP's <i>General Recommendations on Immunization</i>* regarding time to wait before vaccinating.</li> <li>• Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24hrs before vaccination, if possible; delay resumption of these antiviral drugs for 14d after vaccination.</li> <li>• For MMRV only, personal or family (i.e., sibling or parent) history of seizures.</li> </ul> <p><b>Note:</b> For patients with humoral immunodeficiency or leukemia, see ACIP recommendations at <a href="http://www.cdc.gov/mmwr/pdf/rr/rr5604.pdf">www.cdc.gov/mmwr/pdf/rr/rr5604.pdf</a>.*</p>  |
| <b>MMR</b><br>(Measles, mumps, rubella)<br><i>Give SC</i>   | <ul style="list-style-type: none"> <li>• Give dose #1 at age 12–15m.</li> <li>• Give MMR at age 6–11m if traveling internationally; revaccinate with 2 doses of MMR at age 12–15m and at least 4wks later. The dose given at younger than 12m does not count toward the 2-dose series.</li> <li>• Give dose #2 at age 4–6yrs. Dose #2 may be given earlier if at least 4wks since dose #1. For MMRV: dose #2 may be given earlier if at least 3m since dose #1.</li> <li>• Give a 2nd dose to all older children and teens with history of only 1 dose.</li> <li>• MMRV may be used in children age 12m through 12 years (see note above).</li> </ul>   | <ul style="list-style-type: none"> <li>• If MMR and either Var, LAIV, and/or yellow fever vaccine are not given on the same day, space them at least 28d apart.</li> <li>• When using MMR for both doses, minimum interval is 4wks.</li> <li>• When using MMRV for both doses, minimum interval is 3m.</li> <li>• May use as postexposure prophylaxis if given within 3d.</li> </ul> | <p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>• Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components.</li> <li>• Pregnancy or possibility of pregnancy within 4wks.</li> <li>• Severe immunodeficiency (e.g., hematologic and solid tumors; receiving chemotherapy; congenital immunodeficiency; long-term immunosuppressive therapy, or severely symptomatic HIV).<br/>Note: HIV infection is NOT a contraindication to MMR for children who are not severely immunocompromised (consult ACIP MMR recommendations [<i>MMWR</i> 2013;62 [RR-4] for details).*</li> <li>• Vaccination is recommended if indicated for 1) children age 12m through 5yrs whose CD4+ T-lymphocyte percentage has been greater than 15% for at least 6m or 2) for children age 6yrs and older whose CD4+ T-lymphocyte counts have been 200 cells/μL or greater for at least 6m.</li> </ul> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>• Moderate or severe acute illness.</li> <li>• If blood, plasma, or immune globulin given in past 11m, see ACIP's <i>General Recommendations on Immunization</i>* regarding time to wait before vaccinating.</li> <li>• History of thrombocytopenia or thrombocytopenic purpura.</li> <li>• For MMRV only, personal or family (i.e., sibling or parent) history of seizures.</li> <li>• Need for tuberculin skin testing (TST). If TST needed, give TST before or on same day as MMR, or give TST 4wks following MMR.</li> </ul> |

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## Summary of Recommendations for Child/Teen Immunization (Age birth through 18 years) (Page 3 of 5)

| Vaccine name and route  | Schedule for routine vaccination and other guidelines (any vaccine can be given with another)   | Schedule for catch-up vaccination and related issues   | Contraindications and precautions (mild illness is not a contraindication)  |
|---|---|--|---|
| <p><b>Pneumococcal conjugate (PCV13)</b><br/><i>Give IM</i></p>                                       | <ul style="list-style-type: none"> <li>Give at ages 2m, 4m, 6m, 12–15m (booster dose).</li> <li>Dose #1 may be given as early as age 6wks.</li> <li>When children are behind on PCV13 schedule, minimum interval for doses given to children younger than age 12m is 4wks; for doses given at 12m and older, it is 8wks.</li> <li>For age 24 through 59m and healthy: If unvaccinated or any incomplete schedule or if 4 doses of PCV7 or any other age-appropriate complete PCV7 schedule, give 1 supplemental dose of PCV13 at least 8wks after the most recent dose.</li> <li>For high-risk** children ages 2 through 5 yrs: Give 2 doses at least 8wks apart if they previously received fewer than 3 doses; give 1 dose at least 8wks after the most recent dose if they previously received 3 doses.</li> <li>For high-risk** children: All recommended PCV13 doses should be given prior to PPSV vaccination.</li> <li>PCV13 is not routinely given to healthy children age 5yrs and older.</li> </ul> <p><b>** High-risk:</b> For both PCV13 and PPSV, those with sickle cell disease; anatomic or functional asplenia; chronic cardiac, pulmonary, or renal disease; diabetes; cerebrospinal fluid leaks; HIV infection; immunosuppression; diseases associated with immunosuppressive and/or radiation therapy; solid organ transplantation; or who have or will have a cochlear implant and, for PPSV only, alcoholism and/or chronic liver disease.</p> | <ul style="list-style-type: none"> <li>For minimum intervals, see 3rd bullet at left.</li> <li>For age 7 through 11m: If history of 0 doses, give 2 doses of PCV13, 4wks apart, with a 3rd dose at age 12–15m; if history of 1 or 2 doses, give 1 dose of PCV13 with a 2nd dose at age 12–15m at least 8wks later.</li> <li>For age 12 through 23m: If unvaccinated or history of 1 dose before age 12m, give 2 doses of PCV13 8wks apart; if history of 1 dose at or after age 12m or 2 or 3 doses before age 12m, give 1 dose of PCV13 at least 8wks after most recent dose; if history of 4 doses of PCV7 or other age-appropriate complete PCV7 schedule, give 1 supplemental dose of PCV13 at least 8wks after the most recent dose.</li> <li>For age 2 through 5yrs and at high risk**: If unvaccinated or any incomplete schedule of 1 or 2 doses, give 2 doses of PCV13, 1 at least 8wks after the most recent dose and another dose at least 8wks later; if any incomplete series of 3 doses, or if 4 doses of PCV7 or any other age-appropriate complete PCV7 schedule, give 1 supplemental dose of PCV13 at least 8wks after the most recent PCV7 dose.</li> <li>For children ages 6 through 18yrs with functional or anatomic asplenia (including sickle cell disease), HIV infection or other immunocompromising condition, cochlear implant, or CSF leak, give 1 dose of PCV13 if no previous history of PCV13.</li> </ul> | <p><b>Contraindication</b><br/>Previous severe allergic reaction (e.g., anaphylaxis) to a PCV vaccine, to any of its components, or to any diphtheria toxoid-containing vaccine.</p> <p><b>Precaution</b><br/>Moderate or severe acute illness.</p>                     |
| <p><b>Pneumococcal polysaccharide (PPSV)</b><br/><i>Give IM or SC</i></p>                             | <ul style="list-style-type: none"> <li>Give 1 dose at least 8wks after final dose of PCV13 to high-risk** children age 2yrs and older.</li> <li>For children who have sickle cell disease, functional or anatomic asplenia, HIV infection, or other immunocompromising condition, give a 2nd dose of PPSV 5yrs after previous PPSV. (See ACIP pneumococcal recommendations at <a href="http://www.cdc.gov/mmwr/pdf/rr/rr5911.pdf">www.cdc.gov/mmwr/pdf/rr/rr5911.pdf</a>.)</li> </ul>   |  | <p><b>Contraindication</b><br/>Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components.</p> <p><b>Precaution</b><br/>Moderate or severe acute illness.</p>  |
| <p><b>Human papillomavirus (HPV)</b><br/>(HPV2, Cervarix)<br/>(HPV4, Gardasil)<br/><i>Give IM</i></p> | <ul style="list-style-type: none"> <li>Give 3-dose series of either HPV2 or HPV4 to girls at age 11–12yrs on a 0, 1–2, 6m schedule. (May give as early as age 9yrs.)</li> <li>Give 3-dose series of HPV4 to boys age 11–12yrs on a 0, 1–2, 6m schedule. (May give as early as age 9yrs.)</li> <li>Give a 3-dose series of either HPV2 or HPV4 to all older girls/women (through age 26yrs) and 3-dose series of HPV4 to all older boys/men (through age 21yrs) who were not previously vaccinated.</li> </ul>   | <p>Minimum intervals between doses: 4wks between #1 and #2; 12wks between #2 and #3. Overall, there must be at least 24wks between doses #1 and #3. If possible, use the same vaccine product for all doses.</p>   | <p><b>Contraindication</b><br/>Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components.</p> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>Moderate or severe acute illness.</li> <li>Pregnancy.</li> </ul> |

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## Summary of Recommendations for Child/Teen Immunization (Age birth through 18 years) (Page 4 of 5)

| Vaccine name and route  | Schedule for routine vaccination and other guidelines (any vaccine can be given with another)   | Schedule for catch-up vaccination and related issues  | Contraindications and precautions (mild illness is not a contraindication)   |
|---|---|---|--|
| <b>Hepatitis A (HepA)</b><br>Give IM  | <ul style="list-style-type: none"> <li>Give 2 doses spaced 6–18m apart to all children at age 1yr (12–23m).</li> <li>Vaccinate all previously unvaccinated children and adolescents age 2yrs and older who               <ul style="list-style-type: none"> <li>Want to be protected from HAV infection and lack a specific risk factor.</li> <li>Live in areas where vaccination programs target older children.</li> <li>Travel anywhere except U.S., W. Europe, N. Zealand, Australia, Canada, or Japan.</li> <li>Have chronic liver disease, clotting factor disorder, or are adolescent males who have sex with other males.</li> <li>Use illicit drugs (injectable or non-injectable).</li> <li>Anticipate close personal contact with an international adoptee from a country of high or intermediate endemicity during the first 60 days following the adoptee's arrival in the U.S.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>Minimum interval between doses is 6m.</li> <li>Children who are not fully vaccinated by age 2yrs can be vaccinated at a subsequent visit.</li> <li>Administer 2 doses 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.</li> <li>Give 1 dose as postexposure prophylaxis to incompletely vaccinated children and teens age 12m and older who have recently (during the past 2wks) been exposed to hepatitis A virus.</li> </ul> | <p><b>Contraindication</b></p> <p>Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components.</p> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>Moderate or severe acute illness.</li> </ul>   |
| <b>Inactivated Polio (IPV)</b><br>Give SC or IM   | <ul style="list-style-type: none"> <li>Give to children at ages 2m, 4m, 6–18m, 4–6yrs.</li> <li>May give dose #1 as early as age 6wks.</li> <li>Not routinely recommended for U.S. residents age 18yrs and older (except certain travelers). For information on polio vaccination for international travelers, see <a href="http://wwwnc.cdc.gov/travel/diseases/poliomyelitis">wwwnc.cdc.gov/travel/diseases/poliomyelitis</a>.</li> </ul>   | <ul style="list-style-type: none"> <li>The final dose should be given on or after the 4th birthday and at least 6m from the previous dose.</li> <li>If dose #3 is given after 4th birthday, dose #4 is not needed if dose #3 is given at least 6m after dose #2.</li> </ul>   | <p><b>Contraindication</b></p> <p>Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components.</p> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>Moderate or severe acute illness.</li> <li>Pregnancy.</li> </ul>   |
| <b>Influenza</b><br>Inactivated influenza vaccine (IIV)<br>Give IM<br><hr/> Live attenuated influenza vaccine (LAIV)<br>Give intranasally | <ul style="list-style-type: none"> <li>Vaccinate all children and teens age 6m and older.</li> <li>LAIV is preferred for healthy children ages 2 through 8yrs if immediately available; it may be given to non-pregnant people through age 49yrs who lack a contraindication or precaution.</li> <li>Give 2 doses, spaced 4wks apart, to children age 6m through 8yrs who 1) are first-time vaccinees, or 2) who meet any of the additional guidance in the current year's ACIP influenza vaccine recommendations*.</li> <li>For IIV, give 0.25 mL dose to children age 6–35m and 0.5 mL dose if age 3yrs and older.</li> <li>If LAIV and either MMR, Var, and/or yellow fever vaccine are not given on the same day, space them at least 28d apart.</li> </ul>   |   | <p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine, to any of its components, including egg protein. Note: People age 18yrs and older with egg allergy of any severity can receive the recombinant influenza vaccine (RIV) (Flublok). RIV does not contain any egg protein.</li> <li>For LAIV only: Age younger than 2yrs; pregnancy; immunosuppression (including that caused by medications or HIV); for children and teens ages 6m through 18yrs, current long-term aspirin therapy; for children age 2 through 4yrs, wheezing or asthma within the past 12m, per health-care provider statement. Receipt of specific antivirals (i.e., amantadine, rimantadine, zanamivir, or oseltamivir) 48hrs before vaccination. Avoid use of these antiviral drugs for 14d after vaccination. For children/teens who experience only hives with exposure to eggs, give IIV with additional safety precautions (i.e., observe patients for 30 minutes after receipt of vaccine for signs of a reaction).</li> </ul> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>Moderate or severe acute illness.</li> <li>History of Guillain-Barré syndrome (GBS) within 6wks of a previous influenza vaccination.</li> <li>For LAIV only: Chronic pulmonary (including asthma in children age 5yrs and older), cardiovascular (except hypertension), renal, hepatic, neurological/neuromuscular, hematologic or metabolic (including diabetes) disorders.</li> </ul> |

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## Summary of Recommendations for Child/Teen Immunization (Age birth through 18 years) (Page 5 of 5)

| Vaccine name and route   | Schedule for routine vaccination and other guidelines<br>(any vaccine can be given with another)  | Schedule for catch-up vaccination and related issues   | Contraindications and precautions<br>(mild illness is not a contraindication)  |
|--|---|--|--|
| <p><b>Hib</b><br/>(<i>Haemophilus influenzae</i> type b)<br/>Give IM</p>   | <ul style="list-style-type: none"> <li>ActHib (PRP-T): give at age 2m, 4m, 6m, 12–15m (booster dose).</li> <li>PedvaxHIB or Comvax (containing PRP-OMP): give at age 2m, 4m, 12–15m (booster dose).</li> <li>Dose #1 of Hib vaccine should not be given earlier than age 6wks.</li> <li>Give final dose (booster dose) no earlier than age 12m and a minimum of 8wks after the previous dose.</li> <li>Hib vaccines are interchangeable; however, if different brands of Hib vaccines are administered for dose #1 and dose #2, a total of 3 doses is necessary to complete the primary series in infants.</li> <li>For vaccination of children 12 months and older who are immunocompromised or asplenic: if previously received no doses or only 1 dose before age 12m, give 2 additional doses at least 8wks apart; if previously received 2 or more doses before age 12m, give 1 additional dose.</li> <li>Hib is not routinely given to healthy children age 5yrs and older.</li> <li>1 dose of Hib vaccine should be administered to children age 5 years and older who have anatomic or functional asplenia (including sickle cell disease) and who have not received a primary series and booster dose or at least 1 dose of Hib vaccine after age 14m.</li> <li>1 dose of Hib vaccine should be administered to unvaccinated persons 5 through 18 years of age with HIV infection.</li> <li>Hiberix is approved ONLY for the booster dose at age 12m through 4yrs.</li> </ul>  | <p><b>All Hib vaccines:</b></p> <ul style="list-style-type: none"> <li>If #1 was given at 12–14m, give booster in 8wks.</li> <li>Give only 1 dose to unvaccinated children ages 15–59m.</li> </ul> <p><b>ActHib:</b></p> <ul style="list-style-type: none"> <li>#2 and #3 may be given 4wks after previous dose.</li> <li>If #1 was given at age 7–11m, only 3 doses are needed; #2 is given at least 4wks after #1, then final dose at age 12–15m (wait at least 8wks after dose #2).</li> </ul> <p><b>PedvaxHIB and Comvax:</b></p> <ul style="list-style-type: none"> <li>#2 may be given 4wks after dose #1.</li> </ul> <p>Recipients of hematopoietic stem cell transplant should receive 3 doses of Hib vaccine at least 4wks apart beginning 6–12m after transplant, regardless of Hib vaccination history.</p> | <p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components.</li> <li>Age younger than 6wks.</li> </ul> <p><b>Precaution</b></p> <p>Moderate or severe acute illness.</p> |
| <p><b>Meningococcal conjugate, quadrivalent (MenACWY)</b><br/>Give IM</p> <p>Menactra (MenACWY-D)<br/>Menveo (MenACWY-CRM)<br/>Give IM</p> <p>Hib-MenCY<br/>Give IM</p> <p><b>Meningococcal polysaccharide (MPSV4)</b><br/>Give SC</p> | <ul style="list-style-type: none"> <li>Give a 2-dose series of quadrivalent MCV (Menactra [MenACWY-D] or Menveo [MenACWY-CRM]) with dose #1 routinely at age 11–12yrs and dose #2 at age 16yrs.</li> <li>Give MenACWY to all unvaccinated teens age 13 through 18yrs. If vaccinated at age 13–15yrs, give dose #2 at age 16 through 18yrs with a minimum interval of at least 8wks between doses.</li> <li>For college students, give 1 initial dose to unvaccinated first-year students age 19 through 21yrs who live in residence halls; give dose #2 if most recent dose given when younger than age 16yrs.</li> <li>Give Hib-MenCY (MenHibrix) or MenACWY-CRM (Menveo) to children age 2–18m with persistent complement component deficiency or anatomic/functional asplenia; give at ages 2, 4, 6, 12–15m.</li> <li>For unvaccinated or partially vaccinated children age 7–23m with persistent complement component deficiency: 1) if age 7–23m and using MenACWY-CRM (Menveo), give a 2-dose series at least 3m apart with dose #2 given after age 12m or, 2) if age 9–23m and using MenACWY-D (Menactra), give a 2-dose series at least 3m apart.</li> <li>Give either brand of MenACWY to unvaccinated children age 24m and older with persistent complement component deficiency or anatomic or functional asplenia; give 2 doses, 2m apart. If MenACWY-D is given, it must be separated by 4wks from the final dose of PCV13.</li> <li>Give age-appropriate series of meningococcal conjugate vaccine (brand must be licensed for age of child) to 1) children age 2m and older at risk during a community outbreak attributable to a vaccine serogroup and 2) children age 9m and older travelling to or living in countries with hyperendemic or epidemic meningococcal disease. Prior receipt of Hib-MenCY is not sufficient for children travelling to the meningitis belt or the Hajj.</li> </ul> | <ul style="list-style-type: none"> <li>If previously vaccinated and risk of meningococcal disease persists, revaccinate with MenACWY in 3yrs (if previous dose given when younger than age 7yrs) or in 5yrs (if previous dose given at age 7yrs or older). Then, give additional booster doses every 5yrs if risk continues.</li> <li>When administering MenACWY to children and teens with HIV infection, give 2 initial doses, separated by 8wks.</li> <li>Minimum ages for MCV: 6wks (Hib-MenCY), 2m (MenACWY-CRM), 9m (MenACWY-D). See ACIP schedule footnotes for additional information on catch-up vaccination of high-risk persons and for Hib-MenCY.</li> </ul>   | <p><b>Contraindication</b></p> <p>Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components.</p> <p><b>Precautions</b></p> <p>Moderate or severe acute illness.</p>  |

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## Summary of Recommendations for Adult Immunization (Age 19 years and older)

(Page 1 of 5)

| Vaccine name and route   | People for whom vaccination is recommended  | Schedule for vaccination administration (any vaccine can be given with another)  | Contraindications and precautions (mild illness is not a contraindication)   |
|--|---|--|--|
| <p><b>Influenza</b><br/>Inactivated Influenza vaccine (IIV*)<br/><i>Give IM or ID (intradermally)</i></p> <p><i>*includes recombinant influenza vaccine (RIV)</i></p> <p>Live attenuated influenza vaccine (LAIV)<br/><i>Give intranasally</i></p> | <p>For people through age 18 years, consult “Summary of Recommendations for Child/Teen Immunization” at <a href="http://www.immunize.org/catg.d/p2010.pdf">www.immunize.org/catg.d/p2010.pdf</a>.</p> <ul style="list-style-type: none"> <li>Vaccination is recommended for all adults.</li> <li>LAIV (Flumist) is approved only for healthy nonpregnant people age 2–49yrs.</li> <li>Adults age 18 through 64yrs may be given any intramuscular IIV product (Fluzone, Fluvirin, Afluria, Flucelvax), or the intradermal IIV product (Fluzone Intradermal), or RIV (FluBlok).</li> <li>Adults age 18 through 64 yrs may be given intramuscular IIV (Afluria) via jet injector (Stratis)</li> <li>Adults age 65yrs and older may be given standard-dose IIV, or high-dose IIV (Fluzone High-Dose), or RIV.</li> </ul> <p><b>Note:</b> Healthcare personnel who care for severely immunocompromised persons (i.e., those who require care in a protective environment) should receive IIV rather than LAIV. For information on other contraindications and precautions to LAIV, see far right column.</p> | <ul style="list-style-type: none"> <li>Give 1 dose every year in the fall or winter.</li> <li>Begin vaccination services as soon as vaccine is available and continue until the supply is depleted.</li> <li>Continue to give vaccine to unvaccinated adults throughout the influenza season (including when influenza activity is present in the community) and at other times when the risk of influenza exists.</li> <li>If 2 or more of the following live virus vaccines are to be given—LAIV, MMR, Var, HZV, and/or yellow fever—they should be given on the same day. If they are not, space them by at least 28d.</li> </ul> | <p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine, to any of its components, including egg protein. Adults with egg allergy of any severity may receive RIV or, adults who experience only hives with exposure to eggs may receive other IIV with additional safety precautions (i.e., observe patient for 30 minutes after receipt of vaccine for signs of a reaction).</li> <li>For LAIV only: pregnancy; immunosuppression; receipt of specific antivirals (i.e., amantadine, rimantadine, zanamivir, or oseltamivir) within the previous 48hrs. Avoid use of these antiviral drugs for 14d after vaccination.</li> </ul> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>Moderate or severe acute illness.</li> <li>History of Guillain-Barré syndrome (GBS) within 6wks following previous influenza vaccination.</li> <li>For LAIV only: Chronic pulmonary (including asthma), cardiovascular (except hypertension), renal, hepatic, neurologic, hematologic, or metabolic (including diabetes) disorders; immunosuppression (including that caused by medications or HIV).</li> </ul> |
| <p><b>Td, Tdap</b><br/>(Tetanus, diphtheria, pertussis)<br/><i>Give IM</i></p> <p>Do not use tetanus toxoid (TT) in place of Tdap or Td.</p>   | <p>For people through age 18 years, consult “Summary of Recommendations for Child/Teen Immunization” at <a href="http://www.immunize.org/catg.d/p2010.pdf">www.immunize.org/catg.d/p2010.pdf</a>.</p> <ul style="list-style-type: none"> <li>All people who lack written documentation of a primary series consisting of at least 3 doses of tetanus- and diphtheria-toxoid-containing vaccine.</li> <li>A booster dose of Td or Tdap may be needed for wound management, so consult ACIP recommendations.*</li> </ul> <p><b>For Tdap only:</b></p> <ul style="list-style-type: none"> <li>Adults who have not already received Tdap or whose Tdap history is not known.</li> <li>Healthcare personnel of all ages.</li> <li>Give Tdap to pregnant women during each pregnancy (preferred during 27–36 weeks’ gestation), regardless of the interval since prior Td or Tdap.</li> </ul>   | <ul style="list-style-type: none"> <li>For people who are unvaccinated or behind, complete the primary Td series (spaced at 0, 1 to 2m, 6 to 12m intervals); substitute a one-time dose of Tdap for one of the doses in the series, preferably the first.</li> <li>Give Td booster every 10yrs after the primary series has been completed.</li> <li>Tdap should be given regardless of interval since previous Td.</li> </ul>   | <p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components.</li> <li>For Tdap only, history of encephalopathy not attributable to an identifiable cause, within 7d following DTP/DTaP, or Tdap.</li> </ul> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>Moderate or severe acute illness.</li> <li>Guillain-Barré syndrome within 6wks following previous dose of tetanus-toxoid-containing vaccine.</li> <li>History of arthus reaction following a prior dose of tetanus- or diphtheria toxoid-containing vaccine (including MCV4); defer vaccination until at least 10yrs have elapsed since the last tetanus toxoid-containing vaccine.</li> <li>For pertussis-containing vaccines only, progressive or unstable neurologic disorder, uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized.</li> </ul>   |

\* This document was adapted from the recommendations of the Advisory Committee on Immunization Practices (ACIP). To obtain copies of these recommendations, visit CDC’s website at [www.cdc.gov/vaccines/hcp/ACIP-recs/index.html](http://www.cdc.gov/vaccines/hcp/ACIP-recs/index.html) or visit the Immunization Action Coalition (IAC) website at [www.immunize.org/acip](http://www.immunize.org/acip). This table is revised periodically. Visit IAC’s website at [www.immunize.org/adultrules](http://www.immunize.org/adultrules) to make sure you have the most current version.

# Summary of Recommendations for Adult Immunization (Age 19 years and older)

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| Vaccine name and route  | People for whom vaccination is recommended   | Schedule for vaccination administration (any vaccine can be given with another)   | Contraindications and precautions (mild illness is not a contraindication)  |
|---|--|---|---|
| <p><b>MMR</b><br/>(Measles, mumps, rubella)<br/><i>Give SC</i></p>    | <p>For people through age 18 years, consult “Summary of Recommendations for Child/Teen Immunization” at <a href="http://www.immunize.org/catg.d/p2010.pdf">www.immunize.org/catg.d/p2010.pdf</a>.</p> <ul style="list-style-type: none"> <li>• People born in 1957 or later (especially those born outside the U.S.) should receive at least 1 dose of MMR if they have no laboratory evidence of immunity to each of the 3 diseases or documentation of a dose given on or after the first birthday.</li> <li>• People in high-risk groups, such as healthcare personnel (paid, unpaid, or volunteer), students entering college and other post-high school educational institutions, and international travelers, should receive a total of 2 doses.</li> <li>• People born before 1957 are usually considered immune, but evidence of immunity (serology or documented history of 2 doses of MMR) should be considered for healthcare personnel.</li> <li>• Women of childbearing age who do not have acceptable evidence of rubella immunity or vaccination.</li> </ul>  | <ul style="list-style-type: none"> <li>• Give 1 or 2 doses (see criteria in 1st and 2nd bullets in box to left).</li> <li>• If dose #2 is recommended, give it no sooner than 4wks after dose #1.</li> <li>• If woman of childbearing-age is found to be rubella susceptible and is not pregnant, give 1 dose of MMR; if she is pregnant, the dose should be given postpartum. This includes women who have already received 1 or 2 doses of rubella-containing vaccine.</li> <li>• If 2 or more of the following live virus vaccines are to be given—LAIV, MMR, Var, HZV, and/or yellow fever—they should be given on the same day. If they are not, space them by at least 28d. May use as post-exposure prophylaxis if given within 3d of exposure.</li> </ul> | <p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>• Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components.</li> <li>• Pregnancy or possibility of pregnancy within 4wks.</li> <li>• Severe immunodeficiency (e.g., hematologic and solid tumors; receiving chemotherapy; congenital immunodeficiency; long-term immunosuppressive therapy; or severely symptomatic HIV).</li> </ul> <p><b>Note:</b> HIV infection is NOT a contraindication to MMR for those who are not severely immunocompromised (i.e., CD4+ T-lymphocyte counts are greater than or equal to 200 cells/<math>\mu</math>L) for 6 months.*</p> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>• Moderate or severe acute illness.</li> <li>• If blood, plasma, and/or immune globulin were given in past 11m, see ACIP’s <i>General Recommendations on Immunization</i>* regarding time to wait before vaccinating.</li> <li>• History of thrombocytopenia or thrombocytopenic purpura.</li> </ul> <p><b>Note:</b> If TST (tuberculosis skin test) and MMR are both needed but not given on same day, delay TST for at least 4wks after MMR.</p> |
| <p><b>Varicella</b><br/>(chickenpox)<br/>(Var)<br/><i>Give SC</i></p> | <p>For people through age 18 years, consult “Summary of Recommendations for Child/Teen Immunization” at <a href="http://www.immunize.org/catg.d/p2010.pdf">www.immunize.org/catg.d/p2010.pdf</a>.</p> <ul style="list-style-type: none"> <li>• All adults without evidence of immunity.</li> </ul> <p><b>Note:</b> Evidence of immunity is defined as written documentation of 2 doses of varicella vaccine; a history of varicella disease or herpes zoster (shingles) based on healthcare-provider diagnosis; laboratory evidence of immunity or confirmation of disease; and/or birth in the U.S. before 1980, with the exceptions that follow.</p> <ul style="list-style-type: none"> <li>- Healthcare personnel (HCP) born in the U.S. before 1980 who do not meet any of the criteria above should be tested or given the 2-dose vaccine series. If testing indicates they are not immune, give the 1st dose of varicella vaccine immediately. Give the 2nd dose 4–8wks later.</li> <li>- Pregnant women born in the U.S. before 1980 who do not meet any of the criteria above should either 1) be tested for susceptibility during pregnancy and if found susceptible, given the 1st dose of varicella vaccine postpartum before hospital discharge, or 2) not be tested for susceptibility and given the 1st dose of varicella vaccine postpartum before hospital discharge. Give the 2nd dose 4–8wks later.</li> </ul> | <ul style="list-style-type: none"> <li>• Give 2 doses.</li> <li>• Dose #2 is given 4–8wks after dose #1.</li> <li>• If dose #2 is delayed, do not repeat dose #1. Just give dose #2.</li> <li>• If 2 or more of the following live virus vaccines are to be given—LAIV, MMR, Var, HZV, and/or yellow fever—they should be given on the same day. If they are not, space them by at least 28d.</li> <li>• May use as postexposure prophylaxis if given within 5d of exposure.</li> </ul>   | <p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>• Previous severe allergic reaction (e.g., anaphylaxis) anaphylactic reaction to this vaccine or to any of its components.</li> <li>• Pregnancy or possibility of pregnancy within 4wks.</li> <li>• People on long-term immunosuppressive therapy or who are immunocompromised because of malignancy and primary or acquired immunodeficiency, including HIV/AIDS (although vaccination may be considered if CD4+ T-lymphocyte counts are greater than or equal to 200 cells/<math>\mu</math>L. See <i>MMWR</i> 2007;56,RR-4).</li> </ul> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>• Moderate or severe acute illness.</li> <li>• If blood, plasma, and/or immune globulin (IG or VZIG) were given in past 11m, see ACIP’s <i>General Recommendations on Immunization</i>* regarding time to wait before vaccinating.</li> <li>• Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24hrs before vaccination, if possible; delay resumption of these antiviral drugs for 14d after vaccination.</li> </ul>   |

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## Summary of Recommendations for Adult Immunization (Age 19 years and older)

(Page 3 of 5)

| Vaccine name and route  | People for whom vaccination is recommended  | Schedule for vaccination administration (any vaccine can be given with another)  | Contraindications and precautions (mild illness is not a contraindication)   |
|---|---|--|--|
| <p><b>Hepatitis A (HepA)</b></p> <p><i>Give IM</i></p> <p>Brands may be used interchangeably.</p> | <p>For people through age 18 years, consult “Summary of Recommendations for Child/Teen Immunization” at <a href="http://www.immunize.org/catg.d/p2010.pdf">www.immunize.org/catg.d/p2010.pdf</a>.</p> <ul style="list-style-type: none"> <li>All adults who want to be protected from hepatitis A virus (HAV) infection and lack a specific risk factor.</li> <li>People who travel or work anywhere EXCEPT the U.S., Western Europe, New Zealand, Australia, Canada, and Japan.</li> <li>People with chronic liver disease; injecting and non-injecting drug users; men who have sex with men; people who receive clotting-factor concentrates; people who work with HAV in lab settings; food handlers when health authorities or private employers determine vaccination to be appropriate.</li> <li>People who anticipate close personal contact with an international adoptee from a country of high or intermediate endemicity during the first 60 days following the adoptee’s arrival in the U.S.</li> <li>Postexposure: adults age 40yrs or younger with recent (within 2 wks) exposure to HAV, give HepA. For people older than age 40yrs with recent (within 2 wks) exposure to HAV, immune globulin is preferred over HepA vaccine.</li> </ul>  | <ul style="list-style-type: none"> <li>Give 2 doses, spaced 6–18m apart (depending on brand).</li> <li>If dose #2 is delayed, do not repeat dose #1. Just give dose #2.</li> </ul> <div style="border: 1px solid black; border-radius: 15px; padding: 5px; margin: 10px 0;"> <p>For Twinrix (hepatitis A and B combination vaccine [GSK]) for patients age 18yrs and older only: give 3 doses on a 0, 1, 6m schedule. There must be at least 4wks between doses #1 and #2, and at least 5m between doses #2 and #3.</p> </div> <p>An alternative schedule can also be used at 0, 7d, 21–30d, and a booster at 12m.</p>   | <p><b>Contraindication</b></p> <p>Previous severe allergic reaction (e.g. anaphylaxis) to this vaccine or to any of its components.</p> <p><b>Precautions</b></p> <p>Moderate or severe acute illness.</p> |
| <p><b>Hepatitis B (HepB)</b></p> <p><i>Give IM</i></p> <p>Brands may be used interchangeably.</p> | <p>For people through age 18 years, consult “Summary of Recommendations for Child/Teen Immunization” at <a href="http://www.immunize.org/catg.d/p2010.pdf">www.immunize.org/catg.d/p2010.pdf</a>.</p> <ul style="list-style-type: none"> <li>All adults who want to be protected from hepatitis B virus infection and lack a specific risk factor.</li> <li>Household contacts and sex partners of HBsAg-positive people; injecting drug users; sexually active people not in a long-term, mutually monogamous relationship; men who have sex with men; people with HIV; people seeking STD evaluation or treatment; hemodialysis patients and those with renal disease that may result in dialysis; diabetics younger than age 60yrs (diabetics age 60yrs and older may be vaccinated at the clinician’s discretion [see ACIP recommendations*]); healthcare personnel and public safety workers who are exposed to blood; clients and staff of institutions for the developmentally disabled; inmates of long-term correctional facilities; certain international travelers; and people with chronic liver disease.</li> </ul> <p><b>Note:</b> Provide serologic screening for immigrants from endemic areas. If patient is chronically infected, assure appropriate disease management. For sex partners and household contacts of HBsAg-positive people, provide serologic screening and administer initial dose of HepB vaccine at same visit.</p> | <p>Give 3 doses on a 0, 1, 6m schedule.</p> <ul style="list-style-type: none"> <li>Alternative timing options for vaccination include 0, 2, 4m; 0, 1, 4m; and 0, 1, 2, 12m (Engerix brand only).</li> <li>There must be at least 4wks between doses #1 and #2, and at least 8wks between doses #2 and #3. Overall, there must be at least 16wks between doses #1 and #3.</li> <li>Give adults on hemodialysis or with other immunocompromising conditions 1 dose of 40 µg/mL (Recombivax HB) at 0, 1, 6m or 2 doses of 20 µg/mL (Engerix-B) given simultaneously at 0, 1, 2, 6m.</li> <li><b>Schedule for those who have fallen behind:</b> If the series is delayed between doses, DO NOT start the series over. Continue from where the schedule was interrupted.</li> </ul> | <p><b>Contraindication</b></p> <p>Previous severe allergic reaction (e.g. anaphylaxis) to this vaccine or to any of its components.</p> <p><b>Precaution</b></p> <p>Moderate or severe acute illness.</p>  |

February 2015

# Summary of Recommendations for Adult Immunization (Age 19 years and older)

| Vaccine name and route  | People for whom vaccination is recommended  | Schedule for vaccination administration (any vaccine can be given with another)  | Contraindications and precautions (mild illness is not a contraindication)  |
|---|---|--|---|
| <p><b>Zoster</b><br/>(shingles)<br/>(HZV)<br/><i>Give SC</i></p>                                      | <ul style="list-style-type: none"> <li>• People age 60yrs and older.</li> </ul> <p><b>Note:</b> Do not test people age 60yrs or older for varicella immunity prior to zoster vaccination. Persons born in the U.S. prior to 1980 can be presumed to be immune to varicella for the purpose of zoster vaccination, regardless of their recollection of having had chickenpox.</p>  | <ul style="list-style-type: none"> <li>• Give 1-time dose if unvaccinated, regardless of previous history of herpes zoster (shingles) or chickenpox.</li> <li>• If 2 or more of the following live virus vaccines are to be given—MMR, Var, HZV, and/or yellow fever—they should be given on the same day. If they are not, space them by at least 28d.</li> </ul>   | <p><b>Contraindications</b></p> <ul style="list-style-type: none"> <li>• Previous severe allergic reaction (e.g., anaphylaxis) to any component of zoster vaccine.</li> <li>• Primary cellular or acquired immunodeficiency.</li> <li>• Pregnancy.</li> </ul> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>• Moderate or severe acute illness.</li> <li>• Receipt of specific antivirals (i.e., acyclovir, famciclovir, or valacyclovir) 24hrs before vaccination, if possible; delay resumption of these antiviral drugs for 14d after vaccination.</li> </ul> |
| <p><b>Hib</b><br/>(<i>Haemophilus influenzae</i> type b)<br/><i>Give IM</i></p>                       | <p>For people through age 18 years, consult “Summary of Recommendations for Child/Teen Immunization” at <a href="http://www.immunize.org/catg.d/p2010.pdf">www.immunize.org/catg.d/p2010.pdf</a>.</p> <ul style="list-style-type: none"> <li>• Not routinely recommended for healthy adults.</li> <li>• Those adults at highest risk of serious Hib disease include people who 1) have anatomic or functional asplenia, 2) are undergoing an elective splenectomy, or 3) are recipients of hematopoietic stem cell transplant (HSCT).</li> </ul>  | <ul style="list-style-type: none"> <li>• Give 1 dose of any Hib conjugate vaccine to adults in categories 1 or 2 (see 2nd bullet in column to left) if no history of previous Hib vaccine.</li> <li>• For HSCT patients, regardless of Hib vaccination history, give 3 doses, at least 4wks apart, beginning 6–12m after transplant.</li> </ul>  | <p><b>Contraindication</b></p> <p>Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components.</p> <p><b>Precautions</b></p> <p>Moderate or severe acute illness.</p>   |
| <p><b>Human papillomavirus (HPV)</b><br/>(HPV2, Cervarix)<br/>(HPV4, Gardasil)<br/><i>Give IM</i></p> | <p>For people through age 18 years, consult “Summary of Recommendations for Child/Teen Immunization” at <a href="http://www.immunize.org/catg.d/p2010.pdf">www.immunize.org/catg.d/p2010.pdf</a>.</p> <ul style="list-style-type: none"> <li>• For unvaccinated females through age 26yrs: Complete a 3-dose series of HPV2 or HPV4.</li> <li>• For unvaccinated males through age 21yrs: Complete a 3-dose series of HPV4.</li> <li>• For unvaccinated males age 22 through 26yrs: Complete a 3-dose series of HPV4 for those who 1) have sex with men or 2) are immunocompromised as a result of infection (including HIV), disease, or medications, or 3) want to be protected from HPV.</li> </ul>        | <ul style="list-style-type: none"> <li>• Give 3 doses on a 0, 1–2, 6m schedule. Use either HPV2 or HPV4 for women, and only HPV4 for men.</li> <li>• There must be at least 4wks between doses #1 and #2 and at least 12wks between doses #2 and #3. Overall, there must be at least 24wks between doses #1 and #3, and 16wks between doses #2 and #3. If possible, use the same vaccine product for all three doses.</li> </ul> | <p><b>Contraindication</b></p> <p>Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components.</p> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>• Moderate or severe acute illness.</li> <li>• Pregnancy.</li> </ul>  |
| <p><b>Inactivated Polio (IPV)</b><br/><i>Give IM or SC</i></p>  | <p>For people through age 18 years, consult “Summary of Recommendations for Child/Teen Immunization” at <a href="http://www.immunize.org/catg.d/p2010.pdf">www.immunize.org/catg.d/p2010.pdf</a>.</p> <ul style="list-style-type: none"> <li>• Not routinely recommended for U.S. residents age 18yrs and older.</li> </ul> <p><b>Note:</b> Adults living in the U.S. who never received or completed a primary series of polio vaccine need not be vaccinated unless they intend to travel to areas where exposure to wild-type virus is likely. Adults with documented prior vaccination can receive 1 booster dose if traveling to polio endemic areas or to areas where the risk of exposure is high.</p> | <ul style="list-style-type: none"> <li>• Refer to ACIP recommendations* regarding unique situations, schedules, and dosing information.</li> </ul>   | <p><b>Contraindication</b></p> <p>Previous severe allergic reaction (e.g., anaphylaxis) to this vaccine or to any of its components.</p> <p><b>Precautions</b></p> <ul style="list-style-type: none"> <li>• Moderate or severe acute illness.</li> <li>• Pregnancy.</li> </ul>  |

February 2015

## Recommended intervals between administration of immune globulin preparations and measles- or varicella-containing vaccine

| Product / Indication   | Dose, including mg immunoglobulin G (IgG)/kg body weight | Recommended interval before measles or varicella-containing <sup>1</sup> vaccine administration |
|--|--|---|
| Blood transfusion  |  |   |
| - Red blood cells (RBCs), washed   | 10 mL/kg (negligible IgG/kg) IV                          | None  |
| - RBCs, adenine-saline added   | 10 mL/kg (10 mg IgG/kg) IV                               | 3 months  |
| - Packed RBCs (hematocrit 65%) <sup>2</sup>  | 10 mL/kg (60 mg IgG/kg) IV                               | 6 months  |
| - Whole blood (hematocrit 35%-50%) <sup>2</sup>                                      | 10 mL/kg (80-100 mg IgG/kg) IV                           | 6 months  |
| - Plasma/platelet products   | 10 mL/kg (160 mg IgG/kg) IV                              | 7 months  |
| Botulinum Immune Globulin Intravenous (Human)  | 1.5 mL/kg (75 mg IgG/kg) IV                              | 6 months  |
| Cytomegalovirus IGIV   | 150 mg/kg maximum  | 6 months  |
| Hepatitis A IG   |  |   |
| - Contact prophylaxis  | 0.02 mL/kg (3.3 mg IgG/kg) IM                            | 3 months  |
| - International travel   | 0.06 mL/kg (10 mg IgG/kg) IM                             | 3 months  |
| Hepatitis B IG (HBIG)  | 0.06 mL/kg (10 mg IgG/kg) IM                             | 3 months  |
| IGIV   |  |   |
| - Replacement therapy for immune deficiencies <sup>3</sup>                           | 300-400 mg/kg IV   | 8 months  |
| - Immune thrombocytopenic purpura treatment  | 400 mg/kg IV   | 8 months  |
| - Measles IG, contact prophylaxis (immunocompromised contact)                        | 400 mg/kg IV   | 8 months  |
| - Postexposure varicella prophylaxis   | 400 mg/kg IV   | 8 months  |
| - Immune thrombocytopenic purpura treatment  | 1,000 mg/kg IV   | 10 months   |
| Measles IG, contact prophylaxis  |  |   |
| - Standard (i.e., nonimmunocompromised) contact                                      | 0.5 mL/kg (80 mg IgG/kg) IM                              | 6 months  |
| Monoclonal antibody to respiratory syncytial virus F protein (Synagis™) <sup>4</sup> | 15 mg/kg (IM)  | None  |
| Rabies IG (RIG)  | 20 IU/kg (22 mg IgG/kg) IM                               | 4 months  |
| Tetanus IG (TIG)   | 250 units (10 mg IgG/kg) IM                              | 3 months  |
| Varicella IG <sup>5</sup>  | 125 units/10 kg (60-200 mg IgG/kg) IM, maximum 625 units | 5 months  |

This table is not intended for determining the correct indications and dosages for using antibody-containing products. Unvaccinated persons might not be fully protected against measles during the entire recommended interval, and additional doses of IG or measles vaccine might be indicated after measles exposure. Concentrations of measles antibody in an IG preparation can vary by manufacturer's lot. Rates of antibody clearance after receipt of an IG preparation also might vary. Recommended intervals are extrapolated from an estimated half-life of 30 days for passively acquired antibody and an observed interference with the immune response to measles vaccine for 5 months after a dose of 80 mg IgG/kg.

- 1 Does not include zoster vaccine. Zoster vaccine may be given with antibody-containing blood products.
- 2 Assumes a serum IgG concentration of 16 mg/mL.
- 3 Measles vaccination is recommended for children with mild or moderate immunosuppression from human immunodeficiency virus (HIV) infection, and varicella vaccination may be considered for children with mild or moderate immunosuppression from HIV, but both are contraindicated for persons with severe immunosuppression from HIV or any other immunosuppressive disorder.
- 4 Contains antibody only to respiratory syncytial virus.
- 5 Licensed VariZIG is a purified human IG preparation made from plasma containing high levels of anti-varicella antibodies (IgG).

Adapted from Table 5, ACIP General Recommendations on Immunization

June 2014

# Healthcare Personnel Vaccination Recommendations

## VACCINES AND RECOMMENDATIONS IN BRIEF

**Hepatitis B** – If previously unvaccinated, give 3-dose series (dose #1 now, #2 in 1 month, #3 approximately 5 months after #2). Give intramuscularly (IM). For HCP who perform tasks that may involve exposure to blood or body fluids, obtain anti-HBs serologic testing 1–2 months after dose #3.

**Influenza** – Give 1 dose of influenza vaccine annually. Inactivated injectable vaccine is given IM, except when using the intradermal influenza vaccine. Live attenuated influenza vaccine (LAIV) is given intranasally.

**MMR** – For healthcare personnel (HCP) born in 1957 or later without serologic evidence of immunity or prior vaccination, give 2 doses of MMR, 4 weeks apart. For HCP born prior to 1957, see below. Give subcutaneously (SC).

**Varicella (chickenpox)** – For HCP who have no serologic proof of immunity, prior vaccination, or diagnosis or verification of a history of varicella or herpes zoster (shingles) by a healthcare provider, give 2 doses of varicella vaccine, 4 weeks apart. Give SC.

**Tetanus, diphtheria, pertussis** – Give 1 dose of Tdap as soon as feasible to all HCP who have not received Tdap previously and to pregnant HCP with each pregnancy (see below). Give Td boosters every 10 years thereafter. Give IM.

**Meningococcal** – Give 1 dose to microbiologists who are routinely exposed to isolates of *Neisseria meningitidis* and boost every 5 years if risk continues. Give MCV4 IM; if necessary to use MPSV4, give SC.

*Hepatitis A, typhoid, and polio vaccines are not routinely recommended for HCP who may have on-the-job exposure to fecal material.*

## Hepatitis B

Unvaccinated healthcare personnel (HCP) and/or those who cannot document previous vaccination should receive a 3-dose series of hepatitis B vaccine at 0, 1, and 6 months. HCP who perform tasks that may involve exposure to blood or body fluids should be tested for hepatitis B surface antibody (anti-HBs) 1–2 months after dose #3 to document immunity.

- If anti-HBs is at least 10 mIU/mL (positive), the vaccinee is immune. No further serologic testing or vaccination is recommended.
- If anti-HBs is less than 10 mIU/mL (negative), the vaccinee is not protected from hepatitis B virus (HBV) infection, and should receive 3 additional doses of HepB vaccine on the routine schedule, followed by anti-HBs testing 1–2 months later. A vaccinee whose anti-HBs remains less than 10 mIU/mL after 6 doses is considered a “non-responder.”

**For non-responders:** HCP who are non-responders should be considered susceptible to HBV and should be counseled regarding precautions to prevent HBV infection and the need to obtain HBIG prophylaxis for any known or probable parenteral exposure to hepatitis B surface antigen (HBsAg)-positive blood or blood with unknown HBsAg status. It is also possible that non-responders are people who are HBsAg positive. HBsAg testing is recommended. HCP found to be HBsAg positive should be counseled and medically evaluated.

**For HCP with documentation of a complete 3-dose HepB vaccine series but no documentation of anti-HBs of at least 10 mIU/mL (e.g., those vaccinated in childhood):** HCP who are at risk for occupational blood or body fluid exposure might undergo anti-HBs testing upon hire or matriculation. See references 2 and 3 for details.

## Influenza

All HCP, including physicians, nurses, paramedics, emergency medical technicians, employees of nursing homes and chronic care facilities, students in these professions, and volunteers, should receive annual vaccination against influenza. Live attenuated influenza vaccine (LAIV) may be given only to non-pregnant healthy HCP age 49 years and younger. Inactivated injectable influenza vaccine (IIV) is preferred over LAIV for HCP who are in close contact with severely immunosuppressed patients (e.g., stem cell transplant recipients) when they require protective isolation.

## Measles, Mumps, Rubella (MMR)

HCP who work in medical facilities should be immune to measles, mumps, and rubella.

- HCP born in 1957 or later can be considered immune to measles, mumps, or rubella only if they have documentation of (a) laboratory confirmation of disease or immunity or (b) appropriate vaccination against measles, mumps, and rubella (i.e., 2 doses of live measles and mumps vaccines given on or after

the first birthday and separated by 28 days or more, and at least 1 dose of live rubella vaccine). HCP with 2 documented doses of MMR are not recommended to be serologically tested for immunity; but if they are tested and results are negative or equivocal for measles, mumps, and/or rubella, these HCP should be considered to have presumptive evidence of immunity to measles, mumps, and/or rubella and are not in need of additional MMR doses.

- Although birth before 1957 generally is considered acceptable evidence of measles, mumps, and rubella immunity, 2 doses of MMR vaccine should be considered for unvaccinated HCP born before 1957 who do not have laboratory evidence of disease or immunity to measles and/or mumps. One dose of MMR vaccine should be considered for HCP with no laboratory evidence of disease or immunity to rubella. For these same HCP who do not have evidence of immunity, 2 doses of MMR vaccine are recommended during an outbreak of measles or mumps and 1 dose during an outbreak of rubella.

## Varicella

It is recommended that all HCP be immune to varicella. Evidence of immunity in HCP includes documentation of 2 doses of varicella vaccine given at least 28 days apart, laboratory evidence of immunity, laboratory confirmation of disease, or diagnosis or verification of a history of varicella or herpes zoster (shingles) by a healthcare provider.

## Tetanus/Diphtheria/Pertussis (Td/Tdap)

All HCPs who have not or are unsure if they have previously received a dose of Tdap should receive a dose of Tdap as soon as feasible, without regard to the interval since the previous dose of Td. Pregnant HCP should be revaccinated during each pregnancy. All HCPs should then receive Td boosters every 10 years thereafter.

## Meningococcal

Vaccination with MCV4 is recommended for microbiologists who are routinely exposed to isolates of *N. meningitidis*.

## REFERENCES

- 1 CDC. Immunization of Health-Care Personnel: Recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR*, 2011; 60(RR-7).
- 2 CDC. CDC Guidance for Evaluating Health-Care Personnel for Hepatitis B Virus Protection and for Administering Postexposure Management, *MMWR*, 2013; 62(10):1–19.
- 3 IAC. Pre-exposure Management for Healthcare Personnel with a Documented Hepatitis B Vaccine Series Who Have Not Had Post-vaccination Serologic Testing. Accessed at [www.immunize.org/catg.d/p2108.pdf](http://www.immunize.org/catg.d/p2108.pdf).

For additional specific ACIP recommendations, visit CDC's website at [www.cdc.gov/vaccines/hcp/acip-recs/index.html](http://www.cdc.gov/vaccines/hcp/acip-recs/index.html) or visit IAC's website at [www.immunize.org/acip](http://www.immunize.org/acip).

Technical content reviewed by the Centers for Disease Control and Prevention

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## Vaccination of Persons with Primary and Secondary Immune Deficiencies

| PRIMARY                                  |   |  |   |  |
|--|---|--|---|--|
| Category                                 | Specific Immunodeficiency   | Contraindicated Vaccines <sup>1</sup>  | Risk-Specific Recommended Vaccines <sup>1</sup>                       | Effectiveness & Comments   |
| B-lymphocyte (humoral)                   | Severe antibody deficiencies (e.g., X-linked agammaglobulinemia and common variable immunodeficiency)         | OPV <sup>2</sup><br>Smallpox<br>LAIV<br>BCG<br>Ty21a (live oral typhoid)<br>Yellow fever | Pneumococcal<br><br>Consider measles and varicella vaccination.       | The effectiveness of any vaccine is uncertain if it depends only on the humoral response (e.g., PPSV or MPSV4).<br>IGIV interferes with the immune response to measles vaccine and possibly varicella vaccine. |
|  | Less severe antibody deficiencies (e.g., selective IgA deficiency and IgG subclass deficiency)                | OPV <sup>2</sup><br>BCG<br>Yellow fever<br>Other live vaccines appear to be safe.        | Pneumococcal  | All vaccines likely effective. Immune response might be attenuated.  |
| T-lymphocyte (cell-mediated and humoral) | Complete defects (e.g., severe combined immunodeficiency [SCID] disease, complete DiGeorge syndrome)          | All live vaccines <sup>3,4,5</sup>   | Pneumococcal  | Vaccines may be ineffective.   |
|  | Partial defects (e.g., most patients with DiGeorge syndrome, Wiskott-Aldrich syndrome, ataxia-telangiectasia) | All live vaccines <sup>3,4,5</sup>   | Pneumococcal<br>Meningococcal<br>Hib (if not administered in infancy) | Effectiveness of any vaccine depends on degree of immune suppression.  |
| Complement                               | Persistent complement, properdin, or factor B deficiency  | None   | Pneumococcal<br>Meningococcal   | All routine vaccines likely effective.   |
| Phagocytic function                      | Chronic granulomatous disease, leukocyte adhesion defect, and myeloperoxidase deficiency.                     | Live bacterial vaccines <sup>3</sup>   | Pneumococcal <sup>6</sup>   | All inactivated vaccines safe and likely effective.<br>Live viral vaccines likely safe and effective.  |

<sup>1</sup> Other vaccines that are universally or routinely recommended should be given if not contraindicated.

<sup>2</sup> OPV is no longer available in the United States.

<sup>3</sup> Live bacterial vaccines: BCG, and Ty21a *Salmonella typhi* vaccine.

<sup>4</sup> Live viral vaccines: MMR, MMRV, OPV, LAIV, yellow fever, varicella, zoster, rotavirus, and vaccinia (smallpox). Smallpox vaccine is not recommended for children or the general public.

<sup>5</sup> Regarding T-lymphocyte immunodeficiency as a contraindication for rotavirus vaccine, data exist only for severe combined immunodeficiency.

<sup>6</sup> Pneumococcal vaccine is not indicated for children with chronic granulomatous disease beyond age-based universal recommendations for PCV. Children with chronic granulomatous disease are not at increased risk for pneumococcal disease..

## Vaccination of Persons with Primary and Secondary Immune Deficiencies

| SECONDARY   |  |  |  |
|---|--|--|--|
| Specific Immunodeficiency   | Contraindicated Vaccines <sup>1</sup>  | Risk-Specific Recommended Vaccines <sup>1</sup>  | Effectiveness & Comments   |
| HIV/AIDS  | OPV <sup>2</sup><br>Smallpox<br>BCG<br>LAIV<br>Withhold MMR and varicella in severely immunocompromised persons.<br>Yellow fever vaccine might have a contraindication or a precaution depending on clinical parameters of immune function. <sup>3</sup> | Pneumococcal<br><br>Consider Hib (if not administered in infancy) and Meningococcal vaccination. | MMR, varicella, rotavirus, and all inactivated vaccines, including inactivated influenza, might be effective. <sup>4</sup> |
| Malignant neoplasm, transplantation, immunosuppressive or radiation therapy | Live viral and bacterial, depending on immune status. <sup>5,6</sup>   | Pneumococcal   | Effectiveness of any vaccine depends on degree of immune suppression.  |
| Asplenia  | None   | Pneumococcal<br>Meningococcal<br>Hib (if not administered in infancy)                            | All routine vaccines likely effective.   |
| Chronic renal disease   | LAIV   | Pneumococcal<br>Hepatitis B <sup>7</sup>   | All routine vaccines likely effective.   |

<sup>1</sup> Other vaccines that are universally or routinely recommended should be given if not contraindicated.

<sup>2</sup> OPV is no longer available in the United States.

<sup>3</sup> Symptomatic HIV infection or CD4+ T-lymphocyte count of <200/mm<sup>3</sup> or <15% of total lymphocytes for children <6 years of age is a contraindication to yellow fever vaccine administration. Asymptomatic HIV infection with CD4+ T-lymphocyte count of 200 to 499/ mm<sup>3</sup> for persons ≥6 years of age or 15% to 24% of total lymphocytes for children <6 years of age is a precaution for yellow fever vaccine administration. Details of yellow fever vaccine recommendations are available from CDC. (CDC. Yellow Fever Vaccine: Recommendations of the ACIP. *MMWR* 2010;59 [No. RR-7].)

<sup>4</sup> HIV-infected children should receive IG after exposure to measles, and may receive varicella, measles, and yellow fever vaccine if CD4+ T-lymphocyte count is ≥15%.

<sup>5</sup> Live bacterial vaccines: BCG, and Ty21a *Salmonella typhi* vaccine.

<sup>6</sup> Live viral vaccines: MMR, MMRV, OPV, LAIV, yellow fever, varicella, zoster, rotavirus, and vaccinia (smallpox). Smallpox vaccine is not recommended for children or the general public.

<sup>7</sup> Indicated based on the risk from dialysis-based bloodborne transmission.

Adapted from Table 13, ACIP General Recommendations on Immunization.

January 2011

# Appendix A

## Guide to Contraindications and Precautions to Commonly Used Vaccines<sup>1,\*†</sup> (page 1 of 2)

| Vaccine   | Contraindications   | Precautions   |
|---|---|---|
| <b>Hepatitis B (HepB)</b>   | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> </ul>  | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>Infant weighing less than 2000 grams (4 lbs, 6.4 oz)<sup>2</sup></li> </ul>  |
| <b>Rotavirus (RV5 [RotaTeq], RV1 [Rotarix])</b>   | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> <li>Severe combined immunodeficiency (SCID)</li> <li>History of intussusception</li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>Altered immunocompetence other than SCID</li> <li>Chronic gastrointestinal disease<sup>3</sup></li> <li>Spina bifida or bladder exstrophy<sup>3</sup></li> </ul>   |
| <b>Diphtheria, tetanus, pertussis (DTaP)</b><br><br><b>Tetanus, diphtheria, pertussis (Tdap)</b><br><br><b>Tetanus, diphtheria (DT, Td)</b> | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> <li>For pertussis-containing vaccines: encephalopathy (e.g., coma, decreased level of consciousness, prolonged seizures) not attributable to another identifiable cause within 7 days of administration of a previous dose of DTP or DTaP (for DTaP); or of previous dose of DTP, DTaP, or Tdap (for Tdap)</li> </ul>            | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>Guillain-Barré syndrome (GBS) within 6 weeks after a previous dose of tetanus toxoid-containing vaccine</li> <li>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</li> <li>For pertussis-containing vaccines: progressive or unstable neurologic disorder (including infantile spasms for DTaP), uncontrolled seizures, or progressive encephalopathy until a treatment regimen has been established and the condition has stabilized</li> </ul> <p><b>For DTaP only:</b></p> <ul style="list-style-type: none"> <li>Temperature of 105° F or higher (40.5° C or higher) within 48 hours after vaccination with a previous dose of DTP/DTaP</li> <li>Collapse or shock-like state (i.e., hypotonic hyporesponsive episode) within 48 hours after receiving a previous dose of DTP/DTaP</li> <li>Seizure within 3 days after receiving a previous dose of DTP/DTaP</li> <li>Persistent, inconsolable crying lasting 3 or more hours within 48 hours after receiving a previous dose of DTP/DTaP</li> </ul> |
| <b>Haemophilus influenzae type b (Hib)</b>  | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> <li>Age younger than 6 weeks</li> </ul>  | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> </ul>  |
| <b>Inactivated poliovirus vaccine (IPV)</b>   | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> </ul>  | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>Pregnancy</li> </ul>   |
| <b>Pneumococcal (PCV13 or PPSV23)</b>   | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component (including, for PCV13, to any diphtheria toxoid-containing vaccine)</li> </ul>  | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> </ul>  |
| <b>Measles, mumps, rubella (MMR)<sup>4</sup></b>  | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> <li>Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy<sup>5</sup> or patients with human immunodeficiency virus [HIV] infection who are severely immunocompromised<sup>6</sup>)</li> <li>Pregnancy</li> </ul> | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product)<sup>7</sup></li> <li>History of thrombocytopenia or thrombocytopenic purpura</li> <li>Need for tuberculin skin testing<sup>8</sup></li> </ul>  |
| <b>Varicella (Var)<sup>4</sup></b>  | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> <li>Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy<sup>5</sup> or patients with HIV infection who are severely immunocompromised<sup>6</sup>)</li> <li>Pregnancy</li> </ul>                                | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product)<sup>7</sup></li> <li>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.</li> </ul>  |
| <b>Hepatitis A (HepA)</b>   | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> </ul>  | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> </ul>  |

(continued on page 2)

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Appendix A-28

## Guide to Contraindications and Precautions to Commonly Used Vaccines<sup>1,\*†</sup> (page 2 of 2)

| Vaccine   | Contraindications  | Precautions  |
|---|--|--|
| <b>Influenza, inactivated injectable (IIV)<sup>9</sup></b>        | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose of any influenza vaccine or to a vaccine component, including egg protein</li> <li>In addition, ACIP recommends that LAIV not be used in the following populations: pregnant women; immunosuppressed adults; adults with egg allergy of any severity; adults who have taken influenza antiviral medications (amantadine, rimantadine, zanamivir, or oseltamivir) within the previous 48 hours; avoid use of these antiviral drugs for 14 days after vaccination</li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>History of GBS within 6 weeks of previous influenza vaccination</li> <li>Persons who experience only hives with exposure to eggs may receive RIV or, with additional safety precautions, IIV.<sup>9</sup></li> </ul>  |
| <b>Influenza, recombinant (RIV)<sup>9</sup></b>                   | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose of RIV or to a vaccine component. RIV does not contain any egg protein.<sup>9</sup></li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>History of GBS within 6 weeks of previous influenza vaccination</li> </ul>  |
| <b>Influenza, live attenuated (LAIV)<sup>4,9</sup></b>            | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) to any component of the vaccine, or to a previous dose of any influenza vaccine</li> <li>Concomitant use of aspirin or aspirin-containing medication in children or adolescents</li> <li>In addition, ACIP recommends that LAIV not be used in the following populations: pregnant women; immunosuppressed adults; adults with egg allergy of any severity; adults who have taken influenza antiviral medications (amantadine, rimantadine, zanamivir, or oseltamivir) within the previous 48 hours; avoid use of these antiviral drugs for 14 days after vaccination</li> </ul> | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>History of GBS within 6 weeks of previous influenza vaccination</li> <li>Asthma in persons age 5 years and older</li> <li>Other chronic medical conditions (e.g., other chronic lung diseases, chronic cardiovascular disease [excluding isolated hypertension], diabetes, chronic renal or hepatic disease, hematologic disease, neurologic disease, and metabolic disorders)</li> </ul> |
| <b>Human papillomavirus (HPV)</b>                                 | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>Pregnancy</li> </ul>  |
| <b>Meningococcal: conjugate (MenACWY), polysaccharide (MPSV4)</b> | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> </ul>   |
| <b>Zoster (HZV)<sup>4</sup></b>                                   | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) to a vaccine component</li> <li>Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, or long-term immunosuppressive therapy<sup>6</sup> or patients with HIV infection who are severely immunocompromised).</li> <li>Pregnancy</li> </ul>  | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>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.</li> </ul>  |

### FOOTNOTES

- 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 increases the chance of a serious adverse reaction. Therefore, a vaccine should not be administered when a contraindication is present. Whether and when to administer DTaP to children with proven or suspected underlying neurologic disorders should be decided on a case-by-case basis.
- Hepatitis B vaccination should be deferred for preterm infants and infants weighing less than 2000 g if the mother is documented to be hepatitis B surface antigen (HBsAg)-negative at the time of the infant's birth. Vaccination can commence at chronological age 1 month or at hospital discharge. For infants born to women who are HBsAg-positive, hepatitis B immunoglobulin and hepatitis B vaccine should be administered within 12 hours of birth, regardless of weight.
- For details, see CDC. "Prevention of Rotavirus Gastroenteritis among Infants and Children: Recommendations of the Advisory Committee on Immunization Practices. (ACIP)" *MMWR* 2009;58(No. RR-2), available at [www.cdc.gov/vaccines/hcp/acip-recs/index.html](http://www.cdc.gov/vaccines/hcp/acip-recs/index.html).
- LAIV, MMR, varicella, or zoster vaccines can be administered on the same day. If not administered on the same day, these live vaccines should be separated by at least 28 days.
- Immunosuppressive steroid dose is considered to be 2 or more weeks of daily receipt of 20 mg prednisone or equivalent. Vaccination should be deferred for at least 1 month after discontinuation of such therapy. Providers should consult ACIP recommendations for complete information on the use of specific live vaccines among persons on immune-suppressing medications or with immune suppression because of other reasons.
- HIV-infected children may receive varicella and measles vaccine if CD4+ T-lymphocyte count is >15%. (Source: Adapted from American Academy of Pediatrics. Immunization in Special Clinical Circumstances. In: Pickering LK, ed. *Red Book: 2012 Report of the Committee on Infectious Diseases*. 29th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2012.)
- Vaccine should be deferred for the appropriate interval if replacement immune globulin products are being administered (see "General Recommendations on Immunization: Recommendations of the Advisory Committee on Immunization Practices (ACIP)" *MMWR* 2011;60(No. RR-2) available at [www.cdc.gov/vaccines/hcp/acip-recs/index.html](http://www.cdc.gov/vaccines/hcp/acip-recs/index.html).)
- Measles vaccination might suppress tuberculin reactivity temporarily. Measles-containing vaccine may be administered on the same day as tuberculin skin testing. If testing cannot be performed until after the day of MMR vaccination, the test should be postponed for at least 4 weeks after the vaccination. If an urgent need exists to skin test, do so with the understanding that reactivity might be reduced by the vaccine.
- For more information on use of influenza vaccines among persons with egg allergies and a complete list of conditions that CDC considers to be reasons to avoid getting LAIV, see CDC. "Prevention and Control of Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP) – United States, 2014–15" *MMWR* 2014;63(32):691–97.

\* Adapted from "Table 6. Contraindications and Precautions to Commonly Used Vaccines" found in: CDC. "General Recommendations on Immunization: Recommendations of the Advisory Committee on Immunization Practices (ACIP)." *MMWR* 2011; 60(No. RR-2), p. 40–41, and from Atkinson W, Wolfe S, Hamborsky J, eds. *Appendix A. Epidemiology and Prevention of Vaccine-Preventable Diseases*. 12th ed.

† Regarding latex allergy, consult the package insert for any vaccine administered.

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## Guide to Contraindications and Precautions to Commonly Used Vaccines in Adults<sup>1,\*†</sup>

| Vaccine   | Contraindications <sup>1</sup>   | Precautions <sup>1</sup>   |
|---|--|--|
| <b>Influenza, inactivated (IIV)</b><br><b>Influenza, recombinant (RIV)</b>          | <ul style="list-style-type: none"> <li>For IIV, severe allergic reaction (e.g., anaphylaxis) after a previous dose of any influenza vaccine; or to a vaccine component, including egg protein</li> <li>For RIV, severe allergic reaction (e.g., anaphylaxis) after a previous dose of RIV or to a vaccine component. RIV does not contain egg protein<sup>2</sup></li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>History of Guillain-Barré Syndrome (GBS) within 6 weeks of previous influenza vaccination</li> <li>Adults who experience only hives with exposure to eggs may receive RIV or, with additional safety precautions, IIV<sup>2</sup></li> </ul>  |
| <b>Influenza, live attenuated (LAIV)<sup>2,3</sup></b>                              | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) to any component of the vaccine, or to a previous dose of any influenza vaccine</li> <li>In addition, ACIP recommends that LAIV not be used in the following populations: pregnant women; immunosuppressed adults; adults with egg allergy of any severity; adults who have taken influenza antiviral medications (amantadine, rimantadine, zanamivir, or oseltamivir) within the previous 48 hours; avoid use of these antiviral drugs for 14 days after vaccination</li> </ul> | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>History of GBS within 6 weeks of previous influenza vaccination</li> <li>Asthma in persons age 5 years and older</li> <li>Other chronic medical conditions (e.g., other chronic lung diseases, chronic cardiovascular disease [excluding isolated hypertension], diabetes, chronic renal or hepatic disease, hematologic disease, neurologic disease, and metabolic disorders)</li> </ul>   |
| <b>Tetanus, diphtheria, pertussis (Tdap)</b><br><br><b>Tetanus, diphtheria (Td)</b> | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> <li>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 previous dose of Tdap or diphtheria and tetanus toxoids and pertussis (DTP) vaccine or diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccine</li> </ul>                                       | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>GBS within 6 weeks after a previous dose of tetanus toxoid-containing vaccine</li> <li>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</li> <li>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</li> </ul> |
| <b>Varicella (Var)<sup>3</sup></b>  | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> <li>Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy<sup>4</sup> or patients with human immunodeficiency virus [HIV] infection who are severely immunocompromised)</li> <li>Pregnancy</li> </ul>  | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product)<sup>5</sup></li> <li>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</li> </ul>  |
| <b>Human papillomavirus (HPV)</b>   | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>Pregnancy</li> </ul>  |
| <b>Zoster (HZV)<sup>3</sup></b>   | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) to a vaccine component</li> <li>Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, or long-term immunosuppressive therapy<sup>4</sup> or patients with HIV infection who are severely immunocompromised)</li> <li>Pregnancy</li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>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</li> </ul>   |
| <b>Measles, mumps, rubella (MMR)<sup>3</sup></b>                                    | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> <li>Known severe immunodeficiency (e.g., from hematologic and solid tumors, receipt of chemotherapy, congenital immunodeficiency, or long-term immunosuppressive therapy<sup>4</sup> or patients with HIV infection who are severely immunocompromised)</li> <li>Pregnancy</li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> <li>Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product)<sup>5</sup></li> <li>History of thrombocytopenia or thrombocytopenic purpura</li> <li>Need for tuberculin skin testing<sup>6</sup></li> </ul>   |
| <b>Pneumococcal: conjugate (PCV13), polysaccharide (PPSV23)</b>                     | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component (including, for PCV13, to any diphtheria toxoid-containing vaccine)</li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> </ul>   |
| <b>Meningococcal: conjugate (MenACWY), polysaccharide (MPSV4)</b>                   | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> </ul>   |
| <b>Hepatitis A (HepA)</b>   | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> </ul>   |
| <b>Hepatitis B (HepB)</b>   | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> </ul>   |
| <b>Haemophilus influenzae type b (Hib)</b>  | <ul style="list-style-type: none"> <li>Severe allergic reaction (e.g., anaphylaxis) after a previous dose or to a vaccine component</li> </ul>   | <ul style="list-style-type: none"> <li>Moderate or severe acute illness with or without fever</li> </ul>   |

### FOOTNOTES

- 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 increases the chance of a serious adverse reaction. Therefore, a vaccine should not be administered when a contraindication is present.
- 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)—United States, 2014–15 Influenza Season. *MMWR* 2014;63(32):691–97.
- LAIV, MMR, varicella, or zoster vaccines can be administered on the same day. If not administered on the same day, these live vaccines should be separated by at least 28 days.
- Immunosuppressive steroid dose is considered to be 2 or more weeks of daily receipt of 20 mg prednisone or the equivalent. Vaccination should be deferred for at least 1 month after discontinuation of such therapy. Providers should consult ACIP recommendations for complete information on the use of specific live vaccines among persons on immune-suppressing medications or with immune suppression because of other reasons.

- Vaccine should be deferred for the appropriate interval if replacement immune globulin products are being administered (see Table 5 in CDC. "General Recommendations on Immunization: Recommendations of the Advisory Committee on Immunization Practices [ACIP]." *MMWR* 2011;60(No. RR-2), available at [www.cdc.gov/vaccines/pubs/acip-list.htm](http://www.cdc.gov/vaccines/pubs/acip-list.htm)).

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

\* Adapted from "Table 6. Contraindications and Precautions to Commonly Used Vaccines" found in: CDC. "General Recommendations on Immunization: Recommendations of the Advisory Committee on Immunization Practices (ACIP)." *MMWR* 2011;60(No. RR-2), p. 40–41, and from Atkinson W, Wolfe S, Hamborsky J, eds. Appendix A. *Epidemiology and Prevention of Vaccine-Preventable Diseases* ([www.cdc.gov/vaccines/pubs/pink-book/index.html](http://www.cdc.gov/vaccines/pubs/pink-book/index.html)).

† Regarding latex allergy, consult the package insert for any vaccine given.

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