In February 2018, the Recommended Immunization Schedule for Adults Aged 19 Years or Older, United States, 2018 became effective, as recommended by the Advisory Committee on Immunization Practices (ACIP) and approved by the Centers for Disease Control and Prevention (CDC). The adult immunization schedule was also approved by the American College of Physicians, the American Academy of Family Physicians, the American College of Obstetricians and Gynecologists, and the American College of Nurse-Midwives.

CDC announced the availability of the 2018 adult immunization schedule in the Morbidity and Mortality Weekly Report (MMWR). The schedule is published in its entirety in the Annals of Internal Medicine.

The adult immunization schedule consists of figures that summarize routinely recommended vaccines for adults by age groups and medical conditions and other indications, footnotes for the figures, and a table of vaccine contraindications and precautions. Note the following when reviewing the adult immunization schedule:

- The figures in the adult immunization schedule should be reviewed with the accompanying footnotes.
- The figures and footnotes display indications for which vaccines, if not previously administered, should be administered unless noted otherwise.
- The table of contraindications and precautions identifies populations and situations for which vaccines should not be used or should be used with caution.
- When indicated, administer recommended vaccines to adults whose vaccination history is incomplete or unknown.
- Increased interval between doses of a multidose vaccine series does not diminish vaccine effectiveness; it is not necessary to restart the vaccine series or add doses to the series because of an extended interval between doses.
- Combination vaccines may be used when any component of the combination is indicated and when the other components of the combination are not contraindicated.
- The use of trade names in the adult immunization schedule is for identification purposes only and does not imply endorsement by the ACIP or CDC.

Special populations that need additional considerations include:

- Pregnant women. Pregnant women should receive the tetanus, diphtheria, and acellular pertussis vaccine (Tdap) during pregnancy and the influenza vaccine during or before pregnancy. Live vaccines (e.g., measles, mumps, and rubella vaccine [MMR]) are contraindicated.
- Asplenia. Adults with asplenia have specific vaccination recommendations because of their increased risk for infection by encapsulated bacteria. Anatomical or functional asplenia includes congenital or acquired asplenia, splenic dysfunction, sickle cell disease and other hemoglobinopathies, and splenectomy.
- Immunocompromising conditions. Adults with immunosuppression should generally avoid live vaccines. Inactivated vaccines (e.g., pneumococcal vaccines) are generally acceptable. High-level immunosuppression includes HIV infection with a CD4 cell count <200 cells/μL, receipt of daily corticosteroid therapy with ≥20 mg of prednisone or equivalent for ≥14 days, primary immunodeficiency disorder (e.g., severe combined immunodeficiency or complement component deficiency), and receipt of cancer chemotherapy. Other immunocompromising conditions and immunosuppressive medications to consider when vaccinating adults can be found in IDSA Clinical Practice Guideline for Vaccination of the Immunocompromised Host.

Additional information on vaccinating immunocompromised adults is in General Best Practice Guidelines for Immunization.

Additional resources for health care providers include:

- Details on vaccines recommended for adults and complete ACIP statements at www.cdc.gov/vaccines/hcp/acip-recs/index.html
- Vaccine Information Statements that explain benefits and risks of vaccines at www.cdc.gov/vaccines/hcp/vis/index.html
- Information and resources on vaccinating pregnant women at www.cdc.gov/vaccines/adults/rec-vac/pregnant.html
- Information on travel vaccine requirements and recommendations at www.cdc.gov/travel/destinations/list
- CDC Vaccine Schedules App for immunization service providers to download at www.cdc.gov/vaccines/schedules/hcp/schedule-app.html
- Adult Vaccination Quiz for self-assessment of vaccination needs based on age, health conditions, and other indications at www2.cdc.gov/nip/adultimmsched/default.asp
- Recommended Immunization Schedule for Children and Adolescents Aged 18 Years or Younger at www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html

Report suspected cases of reportable vaccine-preventable diseases to the local or state health department, and report all clinically significant postvaccination events to the Vaccine Adverse Event Reporting System at www.vaers.hhs.gov or by telephone, 800-822-7967. All vaccines included in the adult immunization schedule except 23-valent pneumococcal polysaccharide and zoster vaccines are covered by the Vaccine Injury Compensation Program. Information on how to file a vaccine injury claim is available at www.hrsa.gov/vaccinecompensation or by telephone, 800-338-2382. Submit questions and comments to CDC through www.cdc.gov/cdc-info or by telephone, 800-CDC-INFO (800-232-4636), in English and Spanish, 8:00am–8:00pm ET, Monday–Friday, excluding holidays.

The following abbreviations are used for vaccines in the adult immunization schedule (in the order of their appearance):

- IIV inactivated influenza vaccine
- RIV recombinant influenza vaccine
- Td tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine
- MMR measles, mumps, and rubella vaccine
- VAR varicella vaccine
- ZVL zoster vaccine live
- HPV vaccine human papillomavirus vaccine
- PCV13 13-valent pneumococcal conjugate vaccine
- PPSV23 23-valent pneumococcal polysaccharide vaccine
- HepA hepatitis A vaccine
- HepA-HepB hepatitis A vaccine and hepatitis B vaccine
- HepB hepatitis B vaccine
- MenACWY serogroups A, C, W, and Y meningococcal vaccine
- MenB serogroup B meningococcal vaccine
- Hib Haemophilus influenzae type b vaccine

4. ACIP. Available at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html.
<table>
<thead>
<tr>
<th>Vaccine</th>
<th>19–21 years</th>
<th>22–26 years</th>
<th>27–49 years</th>
<th>50–64 years</th>
<th>≥65 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza¹</td>
<td>1 dose annually</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tdap² or Td²</td>
<td>1 dose Tdap, then Td booster every 10 yrs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MMR³</td>
<td>1 or 2 doses depending on indication (if born in 1957 or later)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VAR⁴</td>
<td>2 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RZV⁵ (preferred)</td>
<td>2 doses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZVL⁵</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPV–Female⁶</td>
<td>2 or 3 doses depending on age at series initiation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HPV–Male⁶</td>
<td>2 or 3 doses depending on age at series initiation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCV13⁷</td>
<td></td>
<td></td>
<td>1 dose</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPSV23⁷</td>
<td></td>
<td></td>
<td>1 or 2 doses depending on indication</td>
<td>1 dose</td>
<td></td>
</tr>
<tr>
<td>HepA⁸</td>
<td></td>
<td></td>
<td>2 or 3 doses depending on vaccine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HepB⁹</td>
<td></td>
<td></td>
<td>3 doses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MenACWY¹⁰</td>
<td>1 or 2 doses depending on indication, then booster every 5 yrs if risk remains</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MenB¹⁰</td>
<td></td>
<td></td>
<td>2 or 3 doses depending on vaccine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hib¹¹</td>
<td></td>
<td></td>
<td>1 or 3 doses depending on indication</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Legend:
- Recommended for adults who meet the age requirement, lack documentation of vaccination, or lack evidence of past infection
- Recommended for adults with other indications
- No recommendation
Figure 2. Recommended immunization schedule for adults aged 19 years or older by medical condition and other indications, United States, 2018

This figure should be reviewed with the accompanying footnotes. This figure and the footnotes describe indications for which vaccines, if not previously administered, should be administered unless noted otherwise.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Pregnancy¹⁻⁶</th>
<th>Immuno-compromised (excluding HIV infection)³⁻⁷,¹¹</th>
<th>HIV infection CD4+ count (cells/μL)³⁻⁷,⁹⁻¹⁰</th>
<th>Asplenia, complement deficiencies⁷,¹⁰,¹¹</th>
<th>End-stage renal disease, on hemodialysis⁷,⁹</th>
<th>Heart or lung disease, alcoholism⁷</th>
<th>Chronic liver disease⁸⁻⁹</th>
<th>Diabetes⁷,⁹</th>
<th>Health care personnel¹⁻⁴,⁹</th>
<th>Men who have sex with men⁶,⁸,⁹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influenza¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tdap² or Td²</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 dose annually</td>
<td>1 dose Tdap, then Td booster every 10 yrs</td>
</tr>
<tr>
<td>MMR³</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>contraindicated</td>
<td>1 or 2 doses depending on indication</td>
</tr>
<tr>
<td>VAR⁴</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>contraindicated</td>
<td>2 doses</td>
</tr>
<tr>
<td>RZV⁵ (preferred) or ZVL⁵</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>contraindicated</td>
<td>2 doses RZV at age ≥50 yrs (preferred)</td>
</tr>
<tr>
<td>HPV–Female⁶</td>
<td></td>
<td>3 doses through age 26 yrs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 or 3 doses through age 26 yrs</td>
<td></td>
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</tr>
<tr>
<td>HPV–Male⁶</td>
<td></td>
<td>3 doses through age 26 yrs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 or 3 doses through age 21 yrs</td>
<td>2 or 3 doses through age 26 yrs</td>
<td></td>
</tr>
<tr>
<td>PCV13⁷</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 dose</td>
<td></td>
</tr>
<tr>
<td>PPSV23⁷</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1, 2, or 3 doses depending on indication</td>
<td></td>
</tr>
<tr>
<td>HepA⁸</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 or 3 doses depending on vaccine</td>
<td></td>
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<tr>
<td>HepB⁹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3 doses</td>
<td></td>
</tr>
<tr>
<td>MenACWY¹⁰</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 or 2 doses depending on indication, then booster every 5 yrs if risk remains</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MenB¹⁰</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2 or 3 doses depending on vaccine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hib¹¹</td>
<td></td>
<td>3 doses HSCT recipients only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 dose</td>
<td></td>
</tr>
</tbody>
</table>

Legend:
- **Recommended for adults who meet the age requirement, lack documentation of vaccination, or lack evidence of past infection**
- **Recommended for adults with other indications**
- **Contraindicated**
- **No recommendation**
Footnotes. Recommended immunization schedule for adults aged 19 years or older, United States, 2018

1. Influenza vaccination
www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/flu.html

General information
• Administer 1 dose of age-appropriate inactivated influenza vaccine (IV) or recombinant influenza vaccine (RIV) annually
• Live attenuated influenza vaccine (LAIV) is not recommended for the 2017–2018 influenza season
• A list of currently available influenza vaccines is available at www.cdc.gov/flu/protect/vaccine/vaccines.htm

Special populations
• Administer age-appropriate IV or RIV to:
  – Pregnant women
  – Adults with hives-only egg allergy
  – Adults with egg allergy other than hives (e.g., angioedema or respiratory distress): Administer IV or RIV in a medical setting under supervision of a health care provider who can recognize and manage severe allergic conditions

2. Tetanus, diphtheria, and pertussis vaccination
www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/tdap-td.html

General information
• Administer to adults who previously did not receive a dose of tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine (Tdap) as an adult or child (routinely recommended at age 11–12 years) 1 dose of Tdap, followed by a dose of tetanus and diphtheria toxoids (Td) booster every 10 years
• Information on the use of Tdap or Td as tetanus prophylaxis in wound management is available at www.cdc.gov/mmwr/preview/mmwrhtml/rr5517a1.htm

Special populations
• Pregnant women: Administer 1 dose of Tdap during each pregnancy, preferably in the early part of gestational weeks 27–36

3. Measles, mumps, and rubella vaccination
www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/mmr.html

General information
• Administer 1 dose of measles, mumps, and rubella vaccine (MMR) to adults with no evidence of immunity to measles, mumps, or rubella
• Evidence of immunity is:
  – Born before 1957 (except for health care personnel, see below)
  – Documentation of receipt of MMR
  – Laboratory evidence of immunity or disease
• Documentation of a health care provider-diagnosed disease without laboratory confirmation is not considered evidence of immunity

Special populations
• Pregnant women and nonpregnant women of childbearing age with no evidence of immunity to rubella: Administer 1 dose of MMR (if pregnant, administer MMR after pregnancy and before discharge from health care facility)
• HIV infection and CD4 cell count ≥200 cells/μL for at least 6 months and no evidence of immunity to measles, mumps, or rubella: Administer 2 doses of MMR at least 28 days apart
• Students in postsecondary educational institutions, international travelers, and household contacts of immunocompromised persons: Administer 2 doses of MMR at least 28 days apart (or 1 dose of MMR if previously administered 1 dose of MMR)
• Health care personnel born in 1957 or later with no evidence of immunity: Administer 2 doses of MMR at least 28 days apart for measles or mumps, or 1 dose of MMR for rubella (if born before 1957, consider MMR vaccination)
• Adults who previously received ≤2 doses of mumps-containing vaccine and are identified by public health authority to be at increased risk for mumps in an outbreak: Administer 1 dose of MMR
• MMR is contraindicated for pregnant women and adults with severe immunodeficiency

4. Varicella vaccination
www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/varicella.html

General information
• Administer to adults without evidence of immunity to varicella 2 doses of varicella vaccine (VAR) 4–8 weeks apart if previously received no varicella-containing vaccine (if previously received 1 dose of varicella-containing vaccine, administer 1 dose of VAR at least 4 weeks after the first dose)
• Evidence of immunity to varicella is:
  – U.S.-born before 1980 (except for pregnant women and health care personnel, see below)
  – Documentation of receipt of 2 doses of varicella or varicella-containing vaccine at least 4 weeks apart
  – Diagnosis or verification of history of varicella or herpes zoster by a health care provider
  – Laboratory evidence of immunity or disease

Special populations
• Pregnant women: Administer 2 doses of VAR at least 4 weeks apart if previously received no varicella-containing vaccine (if previously received 2 doses at least 4 weeks apart)
• Adults who previously received ≤2 doses of mumps-containing vaccine and are identified by public health authority to be at increased risk for mumps in an outbreak: Administer 1 dose of MMR
• MMR is contraindicated for pregnant women and adults with severe immunodeficiency

5. Zoster vaccination
www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/shingles.html

General information
• Administer 2 doses of recombinant zoster vaccine (RZV) 2–6 months apart to adults aged 50 years or older regardless of past episode of herpes zoster or receipt of zoster vaccine live (ZVL)
• Administer 2 doses of RZV 2–6 months apart to adults who previously received ZVL at least 2 months after ZVL
• For adults aged 60 years or older, administer either RZV or ZVL (RZV is preferred)

Special populations
• ZVL is contraindicated for pregnant women and adults with severe immunodeficiency

6. Human papillomavirus vaccination
www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hpv.html

General information
• Administer human papillomavirus (HPV) vaccine to females through age 26 years and males through age 21 years (males aged 22 through 26 years may be vaccinated based on individual clinical decision)
• The number of doses of HPV vaccine to be administered depends on age at initial HPV vaccination
  – No previous dose of HPV vaccine: Administer 3-dose series at 0, 1–2, and 6 months (minimum intervals: 4 weeks between doses 1 and 2, 12 weeks between doses 2 and 3, and 5 months between doses 1 and 3; repeat doses if given too soon)
  – Aged 9–14 years at HPV vaccine series initiation and received 1 dose or 2 doses less than 5 months apart: Administer 1 dose
  – Aged 9–14 years at HPV vaccine series initiation and received 2 doses at least 5 months apart: No additional dose is needed

Special populations
• Adults with immunocompromising conditions (including HIV infection) through age 26 years: Administer 3-dose series at 0, 1–2, and 6 months
• Men who have sex with men through age 26 years: Administer 2- or 3-dose series depending on age at initial vaccination (see above); if no history of HPV vaccine, administer 3-dose series at 0, 1–2, and 6 months
• Pregnant women through age 26 years: HPV vaccination is not recommended during pregnancy, but there is no evidence that the vaccine is harmful and no intervention needed for women who inadvertently receive HPV vaccine while pregnant; delay remaining doses until after pregnancy; pregnancy testing is not needed before vaccination

7. Pneumococcal vaccination
www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/pneumo.html

General information
• Administer to immunocompetent adults aged 65 years or older 1 dose of 13-valent pneumococcal conjugate vaccine (PCV13), if not previously administered, followed by 1 dose of 23-valent pneumococcal polysaccharide vaccine (PPSV23) at least 1 year after PCV13; if PPSV23 was previously administered but not PCV13, administer PCV13 at least 1 year after PPSV23
• When both PCV13 and PPSV23 are indicated, administer PCV13 first (PCV13 and PPSV23 should not be administered during the same visit); additional information on vaccine timing is available at www.cdc.gov/vaccines/vpd/pneumo/downloads/pneumo-vaccine-timing.pdf
Special populations

- Administer to adults aged 19 through 64 years with the following chronic conditions 1 dose of PPSV23 (at age 65 years or older, administer 1 dose of PCV13, if not previously received, and another dose of PPSV23 at least 1 year after PCV13 and at least 5 years after PPSV23):
  - Chronic heart disease (excluding hypertension)
  - Chronic lung disease
  - Chronic liver disease
  - Alcoholism
  - Diabetes mellitus
  - Cigarette smoking

- Administer to adults aged 19 years or older with the following indications 1 dose of PCV13 followed by 1 dose of PPSV23 at least 8 weeks after PCV13, and a second dose of PPSV23 at least 5 years after the first dose of PPSV23 (if the most recent dose of PPSV23 was administered before age 65 years, at age 65 years or older, administer another dose of PPSV23 at least 5 years after the last dose of PPSV23):
  - Immunodeficiency disorders (including B- and T-lymphocyte deficiency, complement deficiencies, and phagocytic disorders)
  - HIV infection
  - Anatomical or functional asplenia (including sickle cell disease and other hemoglobinopathies)
  - Chronic renal failure and nephrotic syndrome

- Administer to adults aged 19 years or older with the following indications 1 dose of PCV13 followed by 1 dose of PPSV23 at least 8 weeks after PCV13 (if the dose of PPSV23 was administered before age 65 years, at age 65 years or older, administer another dose of PPSV23 at least 5 years after the last dose of PPSV23):
  - Cerebrospinal fluid leak
  - Cochlear implant

8. Hepatitis A vaccination

www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hepa.html

General information

- Administer to adults who have a specific risk (see below), or lack a risk factor but want protection, 3-dose series of single antigen hepatitis B vaccine (HepB) or combined hepatitis A and hepatitis B vaccine (HepA-HepB) at 0, 1, and 6 months (minimum intervals: 4 weeks between doses 1 and 2 for HepB and HepA-HepB; between doses 2 and 3, 8 weeks for HepB and 5 months for HepA-HepB)

Special populations

- Administer HepB or HepA-HepB to adults with the following indications:
  - Chronic liver disease (e.g., hepatitis C infection, cirrhosis, fatty liver disease, alcoholic liver disease, autoimmune hepatitis, alanine aminotransferase [ALT] or aspartate aminotransferase [AST] level greater than twice the upper limit of normal)
  - HIV infection
  - Percutaneous or mucosal risk of exposure to blood (e.g., household contacts of hepatitis B surface antigen [HBsAg]-positive persons; adults younger than age 60 years with diabetes mellitus or aged 60 years or older with diabetes mellitus based on individual clinical decision; adults in predialysis care or receiving hemodialysis or peritoneal dialysis; recent or current injection drug users; health care and public safety workers at risk for exposure to blood or blood-contaminated body fluids)
  - Sexual exposure risk (e.g., sex partners of HBsAg-positive persons; sexually active persons not in a mutually monogamous relationship; persons seeking evaluation or treatment for a sexually transmitted infection; and men who have sex with men [MSM])
  - Receive care in settings where a high proportion of adults have risks for hepatitis B infection (e.g., facilities providing sexually transmitted disease treatment, drug-abuse treatment and prevention services, hemodialysis and end-stage renal disease programs, institutions for developmentally disabled persons, health care settings targeting services to injection drug users or MSM, HIV testing and treatment facilities, and correctional facilities)
  - Travel to countries with high or intermediate hepatitis B endemicity

Close, personal contact with an international adoptee (e.g., household or regular babysitting) during the first 60 days after arrival in the United States from a country with high or intermediate endemicity (administer the first dose as soon as the adoption is planned)

Healthy adults through age 40 years who have recently been exposed to hepatitis A virus; adults older than age 40 years may receive HepA if hepatitis A immunoglobulin cannot be obtained

9. Hepatitis B vaccination

www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hepb.html

General information

- Administer to adults who have a specific risk (see below), or lack a risk factor but want protection, 3-dose series of single antigen hepatitis B vaccine (HepB) or combined hepatitis A and hepatitis B vaccine (HepA-HepB) at 0, 1, and 6 months (minimum intervals: 4 weeks between doses 1 and 2 for HepB and HepA-HepB; between doses 2 and 3, 8 weeks for HepB and 5 months for HepA-HepB)

Special populations

- Administer HepB or HepA-HepB to adults with the following indications:
  - Chronic heart disease (excluding hypertension)
  - Chronic lung disease
  - Chronic liver disease

• Alcoholism
• Diabetes mellitus
• Cigarette smoking

Administer 2 doses of MenACWY at least 8 weeks apart and revaccinate with 1 dose of MenACWY every 5 years, if the risk remains, to adults with the following indications:
- Anatomical or functional asplenia (including sickle cell disease and other hemoglobinopathies)
- HIV infection
- Persistent complement component deficiency
- Eculizumab use

Administer 1 dose of MenACWY and revaccinate with 1 dose of MenACWY every 5 years, if the risk remains, to adults with the following indications:
- Travel to or live in countries where meningococcal disease is hyperendemic or epidemic, including countries in the African meningitis belt or during the Hajj
- At risk from a meningococcal disease outbreak attributed to serogroup A, C, W, or Y
- Microbiologists routinely exposed to Neisseria meningitidis
- Military recruits
- First-year college students who live in residential housing (if they did not receive MenACWY at age 16 years or older)

General Information: Serogroup B meningococcal vaccine (MenB)

- May administer, based on individual clinical decision, to young adults and adolescents aged 16–23 years (preferred age is 16–18 years) who are not at increased risk 2-dose series of MenB-4C (Bexsero) at least 1 month apart or 2-dose series of MenB-FHbp (Trumenba) at least 6 months apart
- MenB-4C and MenB-FHbp are not interchangeable

Special populations: MenB

- Administer 2-dose series of MenB-4C at least 1 month apart or 3-dose series of MenB-FHbp at 0, 1–2, and 6 months to adults with the following indications:
  - Anatomical or functional asplenia (including sickle cell disease)
  - Persistent complement component deficiency
  - Eculizumab use
  - At risk from a meningococcal disease outbreak attributed to serogroup B
  - Microbiologists routinely exposed to Neisseria meningitidis

11. Haemophilus influenzae type b vaccination

www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/hib.html

Special populations

- Administer Haemophilus influenzae type b vaccine (Hib) to adults with the following indications:
  - Anatomical or functional asplenia (including sickle cell disease) or undergoing elective splenectomy: Administer 1 dose if not previously vaccinated (preferably at least 14 days before elective splenectomy)
  - Hematopoietic stem cell transplant (HSCT): Administer 3-dose series with doses 4 weeks apart starting 6 to 12 months after successful transplant regardless of Hib vaccination history
### Table. Contraindications and precautions for vaccines recommended for adults aged 19 years or older*

The Advisory Committee on Immunization Practices (ACIP) recommendations and package inserts for vaccines provide information on contraindications and precautions related to vaccines. Contraindications are conditions that increase chances of a serious adverse reaction in vaccine recipients and the vaccine should not be administered when a contraindication is present. Precautions should be reviewed for potential risks and benefits for vaccine recipients.

#### Contraindications and precautions for vaccines routinely recommended for adults

<table>
<thead>
<tr>
<th>Vaccine(s)</th>
<th>Contraindications</th>
<th>Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>All vaccines routinely recommended for adults</td>
<td>Severe reaction, e.g., anaphylaxis, after a previous dose or to a vaccine component</td>
<td>Moderate or severe acute illness with or without fever</td>
</tr>
</tbody>
</table>

#### Additional contraindications and precautions for vaccines routinely recommended for adults

<table>
<thead>
<tr>
<th>Vaccine(s)</th>
<th>Additional Contraindications</th>
<th>Additional Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>IIV³</td>
<td>Severe immunodeficiency, e.g., hematologic and solid tumors, chemotherapy, congenital immunodeficiency or long-term immunosuppressive therapy, human immunodeficiency virus (HIV) infection with severe immunocompromise</td>
<td>History of Guillain-Barré syndrome within 6 weeks after previous influenza vaccination</td>
</tr>
<tr>
<td></td>
<td>Pregnancy</td>
<td>Egg allergy other than hives, e.g., angioedema, respiratory distress, lightheadedness, or recurrent emesis; or required epinephrine or another emergency medical intervention (IIV may be administered in an inpatient or outpatient medical setting and under the supervision of a health care provider who is able to recognize and manage severe allergic conditions)</td>
</tr>
<tr>
<td>MMR²</td>
<td>Severe immunodeficiency, e.g., hematologic and solid tumors, chemotherapy, congenital immunodeficiency or long-term immunosuppressive therapy, HIV infection with severe immunocompromise</td>
<td>History of Guillain-Barré syndrome within 6 weeks after previous influenza vaccination</td>
</tr>
<tr>
<td></td>
<td>Pregnancy</td>
<td>Guillain-Barré syndrome within 6 weeks after a previous dose of tetanus toxoid-containing vaccine</td>
</tr>
<tr>
<td></td>
<td></td>
<td>History of Arthus-type hypersensitivity reactions after a previous dose of tetanus or diphtheria toxoid-containing vaccine. Defer vaccination until at least 10 years have elapsed since the last tetanus toxoid-containing vaccine</td>
</tr>
<tr>
<td>VAR²</td>
<td>Severe immunodeficiency, e.g., hematologic and solid tumors, chemotherapy, congenital immunodeficiency or long-term immunosuppressive therapy, HIV infection with severe immunocompromise</td>
<td>For pertussis-containing vaccine, progressive or unstable neurologic disorder, uncontrolled seizures, or progressive encephalopathy (until a treatment regimen has been established and the condition has stabilized)</td>
</tr>
<tr>
<td>ZVL²</td>
<td>Severe immunodeficiency, e.g., hematologic and solid tumors, chemotherapy, congenital immunodeficiency or long-term immunosuppressive therapy, HIV infection with severe immunocompromise</td>
<td>Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product)³</td>
</tr>
<tr>
<td></td>
<td>Pregnancy</td>
<td>Need for tuberculin skin testing³</td>
</tr>
<tr>
<td>HPV vaccine</td>
<td></td>
<td>Recent (within 11 months) receipt of antibody-containing blood product (specific interval depends on product)³</td>
</tr>
<tr>
<td></td>
<td></td>
<td>History of thrombocytopenia or thrombocytopenic purpura</td>
</tr>
<tr>
<td>PCV13</td>
<td>Severe allergic reaction to any vaccine containing diphtheria toxoid</td>
<td>Receipt of specific antiviral drugs (acyclovir, famciclovir, or valacyclovir) 24 hours before vaccination (avoid use of these antiviral drugs for 14 days after vaccination)</td>
</tr>
</tbody>
</table>

2. MMR may be administered together with VAR or ZVL on the same day. If not administered on the same day, separate live vaccines by at least 28 days.
3. Immunosuppressive steroid dose is considered to be daily receipt of 20 mg or more prednisone or equivalent for 2 or more weeks. Vaccination should be deferred for at least 1 month after discontinuation of immunosuppressive steroid 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.
4. Vaccine should be deferred for the appropriate interval if replacement immune globulin products are being administered. See: Best practices guidance of the Advisory Committee on Immunization Practices (ACIP). Available at www.cdc.gov/vaccines/hcp/acip-recs/general-recs/index.html.
5. Measles vaccination may temporarily suppress tuberculin reactivity. Measles-containing vaccine may be administered on the same day as tuberculin skin testing, or should be postponed for at least 4 weeks after vaccination.


#### Abbreviations of vaccines

<table>
<thead>
<tr>
<th>Vaccine(s)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IIV</td>
<td>Inactivated influenza vaccine</td>
</tr>
<tr>
<td>RIV</td>
<td>Recombinant influenza vaccine</td>
</tr>
<tr>
<td>Tdap</td>
<td>Tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis vaccine</td>
</tr>
<tr>
<td>Td</td>
<td>Tetanus and diphtheria toxoids</td>
</tr>
<tr>
<td>MMR</td>
<td>Measles, mumps, and rubella vaccine</td>
</tr>
<tr>
<td>VAR</td>
<td>Recombinant zoster vaccine</td>
</tr>
<tr>
<td>ZVL</td>
<td>Zoster vaccine live</td>
</tr>
<tr>
<td>HPV vaccine</td>
<td>Human papillomavirus vaccine</td>
</tr>
<tr>
<td>PCV13</td>
<td>13-valent pneumococcal conjugate vaccine</td>
</tr>
<tr>
<td>PPSV23</td>
<td>23-valent pneumococcal polysaccharide vaccine</td>
</tr>
<tr>
<td>HepA</td>
<td>Hepatitis A vaccine</td>
</tr>
<tr>
<td>HepA-HepB</td>
<td>Hepatitis A and hepatitis B vaccines</td>
</tr>
<tr>
<td>HepB</td>
<td>Hepatitis B vaccine</td>
</tr>
<tr>
<td>MenACWY</td>
<td>Serogroups A, C, W, and Y meningococcal vaccine</td>
</tr>
<tr>
<td>MenB</td>
<td>Serogroup B meningococcal vaccine</td>
</tr>
<tr>
<td>Hib</td>
<td>Haemophilus influenzae type b vaccine</td>
</tr>
</tbody>
</table>