

Recommended Adult Immunization Schedule – United States, 2012

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

Figure 1. Recommended adult immunization schedule, by vaccine and age group¹

Vaccine ▼	Age group ►	19–21 years	22–26 years	27–49 years	50–59 years	60–64 years	≥65 years
Influenza ^{2,*}		1 dose annually					
Tetanus, diphtheria, pertussis (Td/Tdap) ^{3,*}		Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs					
Varicella ^{4,*}		2 doses					
Human papillomavirus (HPV) ^{5,*}	Females	3 doses					
	Males						
Zoster ⁶						1 dose	
Measles, mumps, rubella (MMR) ^{7,*}		1 or 2 doses				1 dose	
Pneumococcal (polysaccharide) ^{8,9}		1 or 2 doses					1 dose
Meningococcal ^{10,*}		1 or more doses					
Hepatitis A ^{11,*}		2 doses					
Hepatitis B ^{12,*}		3 doses					

*Covered by the Vaccine Injury Compensation Program.

Figure 2. Vaccines that might be indicated for adults, based on medical and other indications¹

Vaccine ▼	Indication ►	Pregnancy	Immunocompromising conditions (excluding human immunodeficiency virus [HIV]) ^{4,6,7,14}	HIV infection ^{4,7,13,14} CD4+ T lymphocyte count <200 cells/ μL ≥200 cells/ μL	Men who have sex with men (MSM)	Heart disease, chronic lung disease, chronic alcoholism	Asplenia ¹³ (including elective splenectomy and persistent complement deficiencies)	Chronic liver disease	Diabetes, kidney failure, end-stage renal disease, receipt of hemodialysis	Healthcare personnel	
Influenza ^{2,*}			1 dose TIV annually		1 dose TIV or LAIV annually		1 dose TIV annually			1 dose TIV or LAIV annually	
Tetanus, diphtheria, pertussis (Td/Tdap) ^{3,*}			Substitute 1-time dose of Tdap for Td booster; then boost with Td every 10 yrs								
Varicella ^{4,*}		Contraindicated		2 doses							
Human papillomavirus (HPV) ^{5,*}	Females		3 doses through age 26 years			3 doses through age 26 years					
	Males		3 doses through age 26 years			3 doses through age 21 years					
Zoster ⁶		Contraindicated		1 dose							
Measles, mumps, rubella (MMR) ^{7,*}		Contraindicated		1 or 2 doses							
Pneumococcal (polysaccharide) ^{8,9}			1 or 2 doses								
Meningococcal ^{10,*}			1 or more doses								
Hepatitis A ^{11,*}			2 doses								
Hepatitis B ^{12,*}			3 doses								

*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
 Tdap recommended for ≥65 if contact with <12 month old child. Either Td or Tdap can be used if no infant contact.
 Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications)
 No recommendation

These schedules indicate the recommended age groups and medical indications for which administration of currently licensed vaccines is commonly indicated for adults ages 19 years and older, as of January 1, 2012. 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/pubs/acip-list.htm).

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

Footnotes

1. Additional Information: Advisory Committee on Immunization Practices (ACIP) vaccine recommendations and additional information are available at www.cdc.gov/vaccines/pubs/acip-list.htm. Information on travel vaccine requirements and recommendations (e.g., for hepatitis A and B, meningococcal, and other vaccines) are available at wwwnc.cdc.gov/travel/page/vaccinations.htm.

2. Influenza vaccination.

- Annual vaccination against influenza is recommended for all persons age 6 months and older.
- Persons age 6 months and older, including pregnant women, can receive the trivalent inactivated vaccine (TIV).
- Healthy, nonpregnant adults younger than age 50 years without high-risk medical conditions can receive either intranasally administered live, attenuated influenza vaccine (LAIV) (FluMist), or TIV. Healthcare personnel who care for severely immunocompromised persons (i.e., those who require care in a protected environment) should receive TIV rather than LAIV. Other persons should receive TIV.
- The intramuscular or intradermal administered TIV are options for adults age 18–64 years.
- Adults age 65 years and older can receive the standard dose TIV or the high-dose TIV (Fluzone High-Dose).

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

- Give a one-time dose of Tdap to adults younger than age 65 years who have not received Tdap previously or for whom vaccine status is unknown to replace one of the 10-year Td boosters.
- Tdap is specifically recommended for the following persons: 1) pregnant women more than 20 weeks' gestation, 2) adults, regardless of age, who are close contacts of infants younger than age 12 months (e.g., parents, grandparents, or child care providers), and 3) healthcare personnel.
- Tdap can be given regardless of interval since the most recent tetanus or diphtheria-containing vaccine.
- Pregnant women not vaccinated during pregnancy should receive Tdap immediately postpartum.
- Adults age 65 years and older who do not have contact with an infant younger than age 12 months may also receive Tdap.
- Adults with unknown or incomplete history of completing a 3-dose primary vaccination series with Td-containing vaccines should begin or complete a primary vaccination series. Tdap should be substituted for a single dose of Td in the vaccination series, with Tdap preferred as the first dose.
- For unvaccinated adults, give the first 2 doses at least 4 weeks apart and the third dose 6–12 months after the second.
- If incompletely vaccinated (i.e., less than 3 doses), give remaining doses.

Refer to the ACIP statement for recommendations for giving 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.
- Special consideration for vaccination should be given to those who 1) have close contact with persons at high risk for severe disease (e.g., healthcare personnel and family contacts of persons with immunocompromising conditions) or 2) 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 healthcare facility. The second dose should be given 4–8 weeks after the first dose.
- Evidence of immunity to varicella in adults includes any of the following: 1) documentation of 2 doses of varicella vaccine at least 4 weeks apart; 2) U.S.-born before 1980 (although for healthcare personnel and pregnant women, birth before 1980 should not be considered evidence of immunity); 3) history of varicella based on diagnosis or verification of varicella by a healthcare provider (for a patient reporting a history of or having an atypical case, a mild case, or both, healthcare providers should seek either an epidemiologic link to a typical varicella case or to a laboratory-confirmed case or evidence of laboratory confirmation, if it was performed at the time of acute disease); 4) history of herpes zoster based on diagnosis or verification of herpes zoster by a healthcare provider; or 5) 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 age 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 age 13 through 21 years, if not previously vaccinated. Males age 22 through 26 years may be vaccinated.
- HPV vaccines are not live vaccines and can be given to persons who are immunocompromised as a result of infection (including HIV infection), disease, or medications. Vaccine is recommended for immunocompromised persons through age 26 years who did not get any or all doses when they were younger. The immune response and vaccine efficacy might be less than that in immunocompetent persons.
- Men who have sex with men (MSM) may especially benefit from vaccination to prevent condyloma and anal cancer. HPV4 is recommended for MSM through age 26 years who did not get any or all doses when they were younger.
- Ideally, vaccine should be given before potential exposure to HPV through sexual activity; however, persons who are sexually active should still be vaccinated consistent with age-based recommendations. HPV vaccine can be given to persons with a history of genital warts, abnormal Papanicolaou test, or positive HPV DNA test.
- A complete series for either HPV4 or HPV2 consists of 3 doses. The second dose should be given 1–2 months after the first dose; the third dose should be given 6 months after the first dose (at least 24 weeks after the first dose).
- Although HPV vaccination is not specifically recommended for healthcare personnel (HCP) based on their occupation, HCP should receive the HPV vaccine if they are in the recommended age group.

6. Zoster vaccination.

- A single dose of zoster vaccine is recommended for adults age 60 years and older regardless of whether they report a prior episode of herpes zoster. Although the vaccine is licensed by the Food and Drug Administration (FDA) for use among and can be administered to persons age 50 years and older, ACIP recommends that vaccination begins at age 60 years.
- Persons with chronic medical conditions may be vaccinated unless their condition constitutes a contraindication, such as pregnancy or severe immunodeficiency.
- Although zoster vaccination is not specifically recommended for healthcare personnel (HCP), HCP should receive the vaccine if they are in the recommended age group.

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

- Adults born before 1957 generally are 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, laboratory evidence of immunity to each of the three diseases, or documentation of provider-diagnosed measles or mumps disease. For rubella, documentation of provider-diagnosed disease is not considered acceptable evidence of immunity.
- *Measles component:* A routine second dose of MMR vaccine, given a minimum of 28 days after the first dose, is recommended for adults who 1) are students in postsecondary educational institutions; 2) work in a healthcare facility; or 3) plan to travel internationally. Persons who received inactivated (killed) measles vaccine or measles vaccine of unknown type from 1963 to 1967 should be revaccinated with 2 doses of MMR vaccine.
- *Mumps component:* A routine second dose of MMR vaccine, given a minimum of 28 days after the first dose, is recommended for adults who 1) are students in postsecondary educational institutions; 2) work in a healthcare facility; or 3) 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 healthcare 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 healthcare facility.
- *Healthcare personnel born before 1957:* For unvaccinated healthcare personnel born before 1957 who lack laboratory evidence of measles, mumps, and/or rubella immunity or laboratory confirmation of disease, healthcare facilities should consider routinely vaccinating personnel with 2 doses of MMR vaccine at the appropriate interval for measles and mumps or 1 dose of MMR vaccine for rubella.

Footnotes (continued)

8. Pneumococcal polysaccharide (PPSV) vaccination.

- Vaccinate all persons with the following indications:
 - age 65 years and older without a history of PPSV vaccination;
 - adults younger than age 65 years with chronic lung disease (including chronic obstructive pulmonary disease, emphysema, and asthma); chronic cardiovascular diseases; diabetes mellitus; chronic liver disease (including cirrhosis); alcoholism; cochlear implants; cerebrospinal fluid leaks; immunocompromising conditions; and functional or anatomic asplenia (e.g., sickle cell disease and other hemoglobinopathies, congenital or acquired asplenia, splenic dysfunction, or splenectomy [if elective splenectomy is planned, vaccinate at least 2 weeks before surgery]);
 - residents of nursing homes or long-term care facilities; and
 - adults who smoke cigarettes.
- Persons with asymptomatic or symptomatic HIV infection should be vaccinated as soon as possible after their diagnosis.
- When cancer chemotherapy or other immunosuppressive therapy is being considered, the interval between vaccination and initiation of immunosuppressive therapy should be at least 2 weeks. Vaccination during chemotherapy or radiation therapy should be avoided.
- Routine use of PPSV is not recommended for American Indians/Alaska Natives or persons younger than age 65 years unless they have underlying medical conditions that are PPSV indications. However, public health authorities may consider recommending PPSV for American Indians/Alaska Natives who are living in areas where the risk for invasive pneumococcal disease is increased.

9. Revaccination with PPSV.

- One-time revaccination 5 years after the first dose is recommended for persons ages 19 through 64 years with chronic renal failure or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy); and for persons with immunocompromising conditions.
- Persons who received PPSV before age 65 years for any indication should receive another dose of the vaccine at age 65 years or later if at least 5 years have passed since their previous dose.
- No further doses are needed for persons vaccinated with PPSV at or after age 65 years.

10. Meningococcal vaccination.

- Give 2 doses of meningococcal conjugate vaccine quadrivalent (MCV4) at least 2 months apart to adults with functional asplenia or persistent complement component deficiencies.
- HIV-infected persons who are vaccinated should also receive 2 doses.
- Give a single dose of meningococcal vaccine to microbiologists routinely exposed to isolates of *Neisseria meningitidis*, military recruits, and persons who travel to or live in countries in which meningococcal disease is hyperendemic or epidemic.
- First-year college students up through age 21 years who are living in residence halls should be vaccinated if they have not received a dose on or after their 16th birthday.
- MCV4 is preferred for adults with any of the preceding indications who are age 55 years and younger; meningococcal polysaccharide vaccine (MPSV4) is preferred for adults age 56 years and older.
- Revaccination with MCV4 every 5 years is recommended for adults previously vaccinated with MCV4 or MPSV4 who remain at increased risk for infection (e.g., adults with anatomic or functional asplenia, persistent complement component deficiencies).

11. 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 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 of the adoptee 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 given as soon as adoption is planned, ideally 2 or more weeks before the arrival of the adoptee.
- Single-antigen vaccine formulations should be given in a 2-dose schedule at either 0 and 6–12 months (Havrix), or 0 and 6–18 months (Vaqta). 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 schedule may be used, given on days 0, 7, and 21–30, followed by a booster dose at month 12.

12. 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 one 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;
 - healthcare personnel and public-safety workers who are exposed to blood or other potentially infectious body fluids;
 - persons with diabetes 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 increased need for assisted blood glucose monitoring in long-term care facilities, likelihood of acquiring hepatitis B infection, its complications, or chronic sequelae, and 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 persons with chronic HBV infection; 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; healthcare 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 daycare facilities for persons with developmental disabilities.
- Give 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 given 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, given on days 0, 7, and 21–30, followed by a booster dose at month 12, may be used.
- Adult patients receiving hemodialysis or with other immunocompromising conditions should receive 1 dose of 40 µg/mL (Recombivax HB) given on a 3-dose schedule or 2 doses of 20 µg/mL (Engerix-B) given simultaneously on a 4-dose schedule at 0, 1, 2, and 6 months.

13. Selected conditions for which *Haemophilus influenzae* type b (Hib) vaccine may be used.

- 1 dose of Hib vaccine should be considered for persons who have sickle cell disease, leukemia, or HIV infection, or who have anatomic or functional asplenia if they have not previously received Hib vaccine.

14. Immunocompromising conditions.

- Inactivated vaccines generally are acceptable (e.g., pneumococcal, meningococcal, influenza [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/pubs/acip-list.htm.

Report all clinically significant postvaccination reactions to the Vaccine Adverse Event Reporting System (VAERS). Reporting forms and instructions on filing a VAERS report are available at www.vaers.hhs.gov or by telephone, 800-822-7967.

Information on how to file a Vaccine Injury Compensation Program claim is available at www.hrsa.gov/vaccinecompensation or by telephone, 800-338-2382. Information about filing a claim for vaccine injury is available through 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 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.