

Recommended Adult Immunization Schedule — United States, October 2006–September 2007

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The Advisory Committee on Immunization Practices (ACIP) annually reviews the recommended Adult Immunization Schedule to ensure that the schedule reflects current recommendations for the licensed vaccines. In June 2006, ACIP approved the Adult Immunization Schedule for October 2006–September 2007. This schedule has also been approved by the American Academy of Family Physicians and the American College of Obstetricians and Gynecologists.

Changes in the Schedule for October 2006–September 2007

The 2006–2007 schedule differs from the previous schedule as follows:

- The broken red line has been deleted on the age-based schedule (Figure 1). Vaccination of persons with specific risk factors is now shown only with purple bars.
- Human papillomavirus (HPV) vaccine has been added to the age-based schedule, with a yellow bar indicating that the vaccine is recommended for women ≤ 26 years.
- Tetanus, diphtheria, and acellular pertussis (Tdap) vaccine has been added to the age-based schedule, with a hatched yellow bar indicating that Tdap is a one-time, 1-dose recommendation for persons ≤ 64 years.
- The purple bar for varicella vaccine has been shortened in anticipation of the recommendation for the use of zoster vaccine in persons aged ≥ 60 years.
- A new column has been added to the medical/other indications schedule (Figure 2) to clarify indications for hepatitis A and B vaccines. The indications “chronic liver disease” and “recipients of clotting factor concentrates” have been removed from the previous schedule’s third and fifth columns, respectively, and combined into a new column. The column has a yellow bar for hepatitis A and B vaccines, clarifying that these vaccines are recommended for all persons with these medical indications.
- HPV vaccine has been added to the medical/other indications schedule, with a yellow bar to indicate the vaccine

is recommended for women aged ≤ 26 years with all indications except pregnancy.

- Tdap was added to the medical/other indications schedule, with a hatched yellow bar to indicate that Tdap is a one-time, 1-dose recommendation for all indications except pregnancy.
- The tetanus and diphtheria footnote (#1) has been reworded to reflect ACIP recommendations for use of Tdap.
- A footnote (#2) has been added to reflect ACIP recommendations for HPV vaccination for all women aged ≤ 26 years.
- The measles, mumps, and rubella (MMR) footnote (#3) has been reworded to reflect ACIP recommendations to administer a second dose of mumps vaccine to adults in certain age groups and with certain risk factors.
- The varicella footnote (#4) has been reworded in accordance with ACIP recommendations for administering a routine second dose for all adults without evidence of immunity. The footnote also has been revised to reflect the new definition of immunity to varicella.
- The influenza footnote (#5) has been revised to reflect recent ACIP recommendations to vaccinate close contacts of children aged 0–59 months rather than 0–23 months (1).
- The hepatitis B footnote (#9) has been revised to reflect recommendations to vaccinate any adult seeking protection from hepatitis B virus infection and vaccinate adults in specific settings (e.g., sexually transmitted disease clinics) (2).

The Adult Immunization Schedule is available in English and Spanish at <http://www.cdc.gov/nip/recs/adult-schedule.htm>. General information about adult vaccinations, including recommendations concerning vaccination of person with HIV and other immunosuppressive conditions, is available from state and local health departments and at <http://www.cdc.gov/nip>. Vaccine information statements are available at <http://www.cdc.gov/nip/publications/vis>. ACIP statements for each recommended vaccine and provisional vaccine recommendations can be viewed, downloaded, and printed at <http://www.cdc.gov/nip/publications/acip-list.htm>. Instructions for reporting adverse events to the Vaccine Adverse Event Reporting System are available at <http://www.vaers.hhs.gov> or by telephone, 800-822-7967.

References

1. CDC. Prevention and control of influenza: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR* 2006;55(No. RR-10).
2. CDC. A comprehensive immunization strategy to eliminate transmission of hepatitis B virus infection in the United States: recommendations of the Advisory Committee on Immunization Practices (ACIP). Part II: immunization of adults. *MMWR*. In press 2006.

The Recommended Adult Immunization Schedule has been approved by the Advisory Committee on Immunization Practices, the American College of Obstetricians and Gynecologists, and the American Academy of Family Physicians. The standard *MMWR* footnote format has been modified for publication of this schedule.

Suggested citation: Centers for Disease Control and Prevention. Recommended Adult Immunization Schedule—United States, October 2006–September 2007. *MMWR* 2006;55:Q1–Q4.

FIGURE 1. Recommended adult immunization schedule, by vaccine and age group — United States, October 2006–September 2007

Vaccine	Age group (yrs)		
	19–49	50–64	≥65
Tetanus, diphtheria, pertussis (Td/Tdap) ^{1*}	1-dose Td booster every 10 yrs		
	Substitute 1 dose of Tdap for Td		
Human papillomavirus (HPV) ^{2*}	3 doses (females)		
Measles, mumps, rubella (MMR) ^{3*}	1 or 2 doses	1 dose	
Varicella ^{4*}	2 doses (0, 4–8 wks)	2 doses (0, 4–8 wks)	
Influenza ^{5*}	1 dose annually	1 dose annually	
Pneumococcal (polysaccharide) ^{6,7}	1–2 doses		1 dose
Hepatitis A ^{8*}	2 doses (0, 6–12 mos, or 0, 6–18 mos)		
Hepatitis B ^{9*}	3 doses (0, 1–2, 4–6 mos)		
Meningococcal ¹⁰	1 or more doses		

 For all persons in this category who meet the age requirements and who lack evidence of immunity (e.g., lack documentation of vaccination or have no evidence of prior infection)  Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications)

* Covered by the Vaccine Injury Compensation Program.

NOTE: These recommendations must be read along with the footnotes, which can be found on pages Q2–Q4 of this schedule.

Approved by the Advisory Committee on Immunization Practices, the American College of Obstetricians and Gynecologists, and the American Academy of Family Physicians

1. Tetanus, diphtheria, and acellular pertussis (Td/Tdap) vaccination. Adults with uncertain histories of a complete primary vaccination series with diphtheria and tetanus toxoid–containing vaccines should begin or complete a primary vaccination series. A primary series for adults is 3 doses; administer the first 2 doses at least 4 weeks apart and the third dose 6–12 months after the second. Administer a booster dose to adults who have completed a primary series and if the last vaccination was received ≥ 10 years previously. Tdap or tetanus and diphtheria (Td) vaccine may be used; Tdap should replace a single dose of Td for adults aged < 65 years who have not previously received a dose of Tdap (either in the primary series, as a booster, or for wound management). Only one of two Tdap products (Adacel[®] [sanofi pasteur, Swiftwater, Pennsylvania]) is licensed for use in adults. If the person is pregnant and received the last Td vaccination ≥ 10 years previously, administer Td during the second or third trimester; if the person received the last Td vaccination in < 10 years, administer Tdap during the immediate postpartum period. A one-time administration of 1-dose of Tdap with an interval as short as 2 years from a previous Td vaccination is recommended for postpartum women, close contacts of infants aged < 12 months, and all health-care workers with direct patient contact. In certain situations, Td can be deferred during pregnancy and Tdap substituted in the immediate postpartum period, or Tdap can be given instead of Td to a pregnant woman after an informed discussion with the woman (see <http://www.cdc.gov/nip/publications/acip-list.htm>). Consult the ACIP statement for recommendations for administering Td as prophylaxis in wound management (<http://www.cdc.gov/mmwr/preview/mmwrhtml/00041645.htm>).

2. Human papillomavirus (HPV) vaccination. HPV vaccination is recommended for all women aged ≤ 26 years who have not completed the vaccine series. Ideally, vaccine should be administered before potential exposure to HPV through sexual activity; however, women

who are sexually active should still be vaccinated. Sexually active women who have not been infected with any of the HPV vaccine types receive the full benefit of the vaccination. Vaccination is less beneficial for women who have already been infected with one or more of the four HPV vaccine types. A complete series consists of 3 doses. The second dose should be administered 2 months after the first dose; the third dose should be administered 6 months after the first dose. Vaccination is not recommended during pregnancy. If a woman is found to be pregnant after initiating the vaccination series, the remainder of the 3-dose regimen should be delayed until after completion of the pregnancy.

3. Measles, mumps, rubella (MMR) vaccination. *Measles component:* adults born before 1957 can be considered immune to measles. Adults born during or after 1957 should receive ≥ 1 dose of MMR unless they have a medical contraindication, documentation of ≥ 1 dose, history of measles based on health-care provider diagnosis, or laboratory evidence of immunity. A second dose of MMR is recommended for adults who 1) have been recently exposed to measles or in an outbreak setting; 2) have been previously vaccinated with killed measles vaccine; 3) have been vaccinated with an unknown type of measles vaccine during 1963–1967; 4) are students in postsecondary educational institutions; 5) work in a health-care facility; or 6) plan to travel internationally. Withhold MMR or other measles-containing vaccines from HIV-infected persons with severe immunosuppression. *Mumps component:* adults born before 1957 can generally be considered immune to mumps. Adults born during or after 1957 should receive 1 dose of MMR unless they have a medical contraindication, history of mumps based on health-care provider diagnosis, or laboratory evidence of immunity. A second dose of MMR is recommended for adults who 1) are in an age group that is affected during a mumps outbreak; 2) are students in postsecondary educational institutions; 3) work in a health-care facility; or 4) plan to travel internationally. For unvaccinated health-care workers born before 1957 who do not have other evidence of

FIGURE 2. Recommended adult immunization schedule, by vaccine and medical and other indications — United States, October 2006–September 2007

Vaccine	Indication							
	Pregnancy	Congenital immunodeficiency, leukemia, ¹¹ lymphoma, generalized malignancy, cerebrospinal fluid leaks, therapy with alkylating agents, anti-metabolites, radiation, or high-dose, long-term corticosteroids	Diabetes, heart disease, chronic pulmonary disease, chronic alcoholism	Asplenia ¹¹ (including elective splenectomy and terminal complement deficiencies)	Chronic liver disease, recipients of clotting factor concentrates	Kidney failure, end-stage renal disease, recipients of hemodialysis	Human immunodeficiency virus (HIV) infection ^{3,11}	Health-care workers
Tetanus, diphtheria, pertussis (Td/Tdap) ^{1*}	1-dose Td booster every 10 yrs Substitute 1 dose of Tdap for Td							
Human papillomavirus (HPV) ^{2*}	3 doses for women through age 26 yrs (0, 2, 6 mos)							
Measles, mumps, rubella (MMR) ^{3*}	1 or 2 doses							
Varicella ^{4*}	2 doses (0, 4–8 wks)							
Influenza ^{5*}	1 dose annually							
Pneumococcal (polysaccharide) ^{6,7}	1–2 doses							
Hepatitis A ^{8*}	2 doses (0, 6–12 mos, or 0, 6–18 mos)							
Hepatitis B ^{9*}	3 doses (0, 1–2, 4–6 mos)							
Meningococcal ¹⁰	1 dose							

 For all persons in this category who meet the age requirements and who lack evidence of immunity (e.g., lack documentation of vaccination or have no evidence of prior infection)  Recommended if some other risk factor is present (e.g., on the basis of medical, occupational, lifestyle, or other indications)  Contraindicated

* Covered by the Vaccine Injury Compensation Program.

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mumps immunity, consider giving 1 dose on a routine basis and strongly consider giving a second dose during an outbreak. *Rubella component:* administer 1 dose of MMR vaccine to women whose rubella vaccination history is unreliable or who lack laboratory evidence of immunity. For women of childbearing age, regardless of birth year, routinely determine rubella immunity and counsel women regarding congenital rubella syndrome. Do not vaccinate women who are pregnant or who might become pregnant within 4 weeks of receiving vaccine. 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.

4. Varicella vaccination. All adults without evidence of immunity to varicella should receive 2 doses of varicella vaccine. Special consideration should be given to those who 1) have close contact with persons at high risk for severe disease (e.g., health-care workers and family contacts of immunocompromised persons) or 2) are at high risk for exposure or transmission (e.g., teachers of young children; 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; non-pregnant women of childbearing age; and international travelers). 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 health-care workers 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 health-care provider (for a patient reporting a history of or presenting with an atypical case, a mild case, or both, health-care providers should seek either an epidemiologic link with a typical varicella case or evidence of laboratory confirmation, if it was performed at the time of acute disease); 4) history of herpes zoster based on health-care provider diagnosis; or 5) laboratory evidence of immunity or laboratory confirmation of disease. Do not vaccinate women who are pregnant or might become pregnant within 4 weeks of receiving the vaccine. Assess pregnant women for evidence of varicella immunity. Women who do not have evidence of immunity should receive dose 1 of varicella vaccine upon completion or termination of pregnancy and before discharge from the health-care facility. Dose 2 should be administered 4–8 weeks after dose 1.

5. Influenza vaccination. *Medical indications:* chronic disorders of the cardiovascular or pulmonary systems, including asthma; chronic metabolic diseases, including diabetes mellitus, renal dysfunction, hemoglobinopathies, or immunosuppression (including immunosuppression caused by medications or HIV); any condition that compromises respiratory function or the handling of respiratory secretions or that can increase the risk of aspiration (e.g., cognitive dysfunction, spinal cord injury, or seizure disorder or other neuromuscular disorder); and pregnancy during the influenza season. No data exist on the risk for severe or complicated influenza disease among persons with asplenia; however, influenza is a risk factor for secondary bacterial infections that can cause severe disease among persons with asplenia. *Occupational indications:* health-care workers and employees of long-term-care and assisted living facilities. *Other indications:* residents of nursing homes and other long-term-care and assisted living facilities; persons likely to transmit influenza to persons at high risk (i.e., in-home household contacts and caregivers of children aged 0–59 months, or persons of all ages with high-risk conditions); and anyone who would like to be vaccinated. Healthy, nonpregnant persons aged 5–49 years without high-risk medical conditions who are not contacts of severely immunocompromised persons in special care units can receive either intranasally administered influenza vaccine (FluMist®) or inactivated vaccine. Other persons should receive the inactivated vaccine.

6. Pneumococcal polysaccharide vaccination. *Medical indications:* chronic disorders of the pulmonary system (excluding asthma); cardiovascular diseases; diabetes mellitus; chronic liver diseases, including liver disease as a result of alcohol abuse (e.g., cirrhosis); chronic renal failure or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy [if elective splenectomy is planned, vaccinate at least 2 weeks before surgery]); immunosuppressive conditions (e.g., congenital immunodeficiency, HIV infection [vaccinate as close to diagnosis as possible when CD4 cell counts are highest], leukemia, lymphoma, multiple myeloma, Hodgkin disease, generalized malignancy, or organ or bone marrow transplantation); chemotherapy with alkylating agents, antimetabolites, or high-dose, long-term corticosteroids; and cochlear implants. *Other indications:* Alaska Natives and certain American Indian populations and residents of nursing homes or other long-term-care facilities.

7. Revaccination with pneumococcal polysaccharide vaccine. One-time revaccination after 5 years for persons with chronic renal failure or nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy); immunosuppressive conditions (e.g., congenital immunodeficiency, HIV infection, leukemia, lymphoma, multiple myeloma, Hodgkin disease, generalized malignancy, or organ or bone marrow transplantation); or chemotherapy with alkylating agents, antimetabolites, or high-dose, long-term corticosteroids. For persons aged ≥65 years, one-time revaccination if they were vaccinated ≥5 years previously and were aged <65 years at the time of primary vaccination.

8. Hepatitis A vaccination. *Medical indications:* persons with chronic liver disease and persons who receive clotting factor concentrates. *Behavioral indications:* men who have sex with men and persons who use illegal drugs. *Occupational indications:* persons working with hepatitis A virus (HAV)-infected primates or with HAV in a research laboratory setting. *Other indications:* persons traveling to or working in countries that have high or intermediate endemicity of hepatitis A (a

list of countries is available at <http://www.cdc.gov/travel/diseases.htm>) and any person who would like to obtain immunity. Current vaccines should be administered in a 2-dose schedule at either 0 and 6–12 months, or 0 and 6–18 months. If the combined hepatitis A and hepatitis B vaccine is used, administer 3 doses at 0, 1, and 6 months.

9. Hepatitis B vaccination. *Medical indications:* persons with end-stage renal disease, including patients receiving hemodialysis; persons seeking evaluation or treatment for a sexually transmitted disease (STD); persons with HIV infection; persons with chronic liver disease; and persons who receive clotting factor concentrates. *Occupational indications:* health-care workers and public-safety workers who are exposed to blood or other potentially infectious body fluids. *Behavioral indications:* sexually active persons who are not in a long-term, mutually monogamous relationship (i.e., persons with >1 sex partner during the previous 6 months); current or recent injection-drug users; and men who have sex with men. *Other indications:* household contacts and sex partners of persons with chronic hepatitis B virus (HBV) infection; clients and staff members of institutions for persons with developmental disabilities; all clients of STD clinics; international travelers to countries with high or intermediate prevalence of chronic HBV infection (a list of countries is available at <http://www.cdc.gov/travel/diseases.htm>); and any adult seeking protection from HBV infection. Settings where hepatitis B vaccination is recommended for all adults: STD treatment facilities; HIV testing and treatment facilities; facilities providing drug-abuse treatment and prevention services; health-care settings providing services for 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. *Special formulation indications:* for adult patients receiving hemodialysis and other immunocompromised adults, 1 dose of 40 µg/mL (Recombivax HB®) or 2 doses of 20 µg/mL (Engerix-B®).

10. Meningococcal vaccination. *Medical indications:* adults with anatomic or functional asplenia, or terminal complement component deficiencies. *Other indications:* first-year college students living in dormitories; microbiologists who are 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 (e.g., the “meningitis belt” of sub-Saharan Africa during the dry season [December–June]), particularly if their contact with local populations will be prolonged. Vaccination is required by the government of Saudi Arabia for all travelers to Mecca during the annual Hajj. Meningococcal conjugate vaccine is preferred for adults with any of the preceding indications who are aged ≤55 years, although meningococcal polysaccharide vaccine (MPSV4) is an acceptable alternative. Revaccination after 5 years might be indicated for adults previously vaccinated with MPSV4 who remain at high risk for infection (e.g., persons residing in areas in which disease is epidemic).

11. Selected conditions for which *Haemophilus influenzae* type b (Hib) vaccine may be used. Hib conjugate vaccines are licensed for children aged 6 weeks–71 months. No efficacy data are available on which to base a recommendation concerning use of Hib vaccine for older children and adults with the chronic conditions associated with an increased risk for Hib disease. However, studies suggest good immunogenicity in patients who have sickle cell disease, leukemia, or HIV infection or who have had splenectomies; administering vaccine to these patients is not contraindicated.

This schedule indicates the recommended age groups and medical indications for routine administration of currently licensed vaccines for persons aged ≥19 years, as of October 1, 2006. 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 (<http://www.cdc.gov/nip/publications/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 <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 <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 and contraindications for vaccination is also available at <http://www.cdc.gov/nip> or from the CDC-INFO Contact Center at 800-CDC-INFO (800-232-4636) in English and Spanish, 24 hours a day, 7 days a week.