

FIGURE 1. Recommended adult immunization schedule — United States, 2002–2003

Vaccine	Age group (yrs)		
	19–49	50–64	≥65
Tetanus, diphtheria (Td)*	1 dose booster every 10 years [†]		
Influenza	1 dose annually for persons with medical or occupational indications or household contacts of persons with indications [§]	1 annual dose	
Pneumococcal (polysaccharide)	1 dose for persons with medical or other indications (1 dose revaccination for immunosuppressive conditions) ^{¶**}		1 dose for unvaccinated persons ^{¶¶} 1 dose revaccination ^{**}
Hepatitis B*	3 doses (0, 1–2, 4–6 months) for persons with medical, behavioral, occupational, or other indications ^{††}		
Hepatitis A	2 doses (0, 6–12 months) for persons with medical, behavioral, occupational, or other indications ^{§§}		
Measles, mumps, rubella (MMR)*	1 dose if MMR vaccination history is unreliable; 2 doses for persons with occupational, geographic, or other indications ^{¶¶¶}		
Varicella*	2 doses (0, 4–8 weeks) for persons who are susceptible ^{***}		
Meningococcal (polysaccharide)	1 dose for persons with medical or other indications ^{†††}		

□ For all persons in this age group

■ For persons with medical/exposure indications

■ Catch-up on childhood vaccinations

* Covered by the Vaccine Injury Compensation Program.

† A primary series for adults is 3 doses: the first 2 doses administered ≥ 4 weeks apart and the third dose administered 6–12 months after the second dose. Administer 1 dose if the person had received the primary series and the last vaccination was ≥ 10 years ago. The American College of Physicians Task Force on Adult Immunization supports a second option: a single Td booster at age 50 years for persons who have completed the full pediatric series, including the teenage/young-adult booster (1).

§ *Medical indications:* chronic disorders of the cardiovascular or pulmonary systems including asthma; chronic metabolic diseases, including diabetes mellitus, renal dysfunction, hemoglobinopathies, immunosuppression (including immunosuppression caused by medications or by human immunodeficiency virus [HIV]), requiring regular medical followup or hospitalization during the preceding year; or women who will be in the second or third trimester of pregnancy during the influenza season. *Occupational indications:* health-care workers. *Other indications:* residents of nursing homes and other long-term-care facilities; persons likely to transmit influenza to persons at high risk (in-home caregivers to persons with medical indications, household contacts and out-of-home caregivers of children aged ≤ 23 months or children with asthma or other indicator conditions for influenza vaccination, and household members and caregivers of elderly persons and adults with high-risk conditions); and anyone who wishes to be vaccinated (2).

¶ *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), immunosuppressive conditions (e.g., congenital immunodeficiency, HIV infection, leukemia, lymphoma, multiple myeloma, Hodgkin's disease, generalized malignancy, and organ or bone marrow transplantation), chemotherapy with alkylating agents, antimetabolites, or long-term systemic corticosteroids. *Geographic/other indications:* American Indian/Alaska Native. *Other indications:* residents of nursing homes and other long-term-care facilities (3).

** 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's disease, generalized malignancy, and organ or bone marrow transplantation), chemotherapy with alkylating agents, antimetabolites, or long-term systemic 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 (3).

†† *Medical indications:* hemodialysis patients and patients who receive clotting-factor concentrates. *Occupational indications:* health-care workers and public-safety workers who are exposed to blood in the workplace; persons in training in schools of medicine, dentistry, nursing, laboratory technology; and other allied health professions. *Behavioral indications:* injection-drug users, persons with more than one sex partner during the preceding 6 months, persons with a recently acquired sexually transmitted disease (STD), all clients in STD clinics, and men who have sex with men (MSM). *Other indications:* household contacts and sex partners of persons with chronic hepatitis B virus (HBV) infection, clients and staff of institutions for the developmentally disabled, international travelers who will be located for > 6 months in countries with high or intermediate prevalence of chronic HBV infection, and inmates of correctional facilities (4).

§§ For the combined hepatitis A–hepatitis B vaccine, use 3 doses at 0, 1, and 6 months. *Medical indications:* persons with clotting-factor disorders or chronic liver disease. *Behavioral indications:* MSM and users of injection-drug and noninjecting 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 (5).

¶¶ *Measles component:* Adults born before 1957 might be considered to be immune to measles. Administer 2 doses of MMR for adults with at least one of the following conditions and without vaccination history:

- adults born after 1956
- persons vaccinated with killed-measles–virus vaccine during 1963–1969
- students in postsecondary education institutions
- health-care workers
- susceptible international travelers to countries in which measles is endemic.

Mumps component: 1 dose of MMR should be adequate for protection. *Rubella component:* Administer 1 dose of MMR to women whose rubella vaccination history is unreliable and counsel women to avoid becoming pregnant for 4 weeks after vaccination. For women of childbearing age, regardless of birth year, determine rubella immunity and counsel women routinely regarding congenital rubella syndrome. Do not vaccinate pregnant women or those planning to become pregnant during the next 4 weeks. If pregnant and susceptible, vaccinate as early in postpartum period as possible (6).

*** Recommended for all persons who do not have reliable clinical history of varicella infection or serologic evidence of varicella zoster virus (VZV) infection; health-care workers and family contacts of immunocompromised persons; those who live or work in environments in which transmission is likely (e.g., teachers of young children, day care employees, and residents and staff members in institutional settings); persons who live or work in environments in which VZV transmission can occur (e.g., college students, inmates and staff members of correctional institutions, and military personnel); adolescents and adults living in households with children; women who are not pregnant but who might become pregnant in the future; and international travelers who are not immune to infection. Do not vaccinate pregnant women or those planning to become pregnant during the next 4 weeks. If pregnant and susceptible, vaccinate as early in postpartum period as possible (7,8).

††† Meningococcal vaccine (quadrivalent polysaccharide for serogroups A, C, Y, and W-135). *Medical indications:* consider vaccination for adults with terminal complement-component deficiencies or with anatomic or functional asplenia. *Other indications:* travelers to countries in which disease is hyperendemic or epidemic (e.g., the “meningitis belt” of sub-Saharan Africa and Mecca [Saudi Arabia] during Hajj). Revaccination at 3–5 years might be indicated for persons at high risk for infection (e.g., persons residing in areas in which disease is epidemic). Counsel college freshmen, especially those who live in dormitories, about meningococcal disease and the vaccine so that they can make an educated decision about receiving the vaccination (9). AAFP recommends that colleges should take the lead in providing education about meningococcal infection and vaccination and offer it to those who are interested. Health-care providers need not initiate discussion of the meningococcal quadrivalent polysaccharide vaccine as part of routine medical care.

FIGURE 2. Recommended immunizations for adults with medical conditions — United States, 2002–2003

Medical condition	Vaccine						
	Tetanus-diphtheria (Td)*	Influenza	Pneumococcal (poly-saccharide)	Hepatitis B*	Hepatitis A	Measles, mumps, rubella (MMR)*	Varicella*
Pregnancy		A					
Diabetes, heart disease, chronic pulmonary disease, and chronic liver disease, including chronic alcoholism		B	C		D		
Congenital immunodeficiency, leukemia, lymphoma, generalized malignancy, therapy with alkylating agents, antimetabolites, radiation, or large amounts of corticosteroids			E				F
Renal failure/end stage renal disease and recipients of hemodialysis or clotting factor concentrates			E	G			
Asplenia including elective splenectomy and terminal complement-component deficiencies			E,H,I				
Human immunodeficiency virus (HIV) infection			E,J			K	

For all persons in this age group
 For persons with medical/exposure indications
 Catch-up on childhood vaccinations
 Contraindicated

* Covered by the Vaccine Injury Compensation Program.

A. If pregnancy is at second or third trimester during influenza season.

B. Although chronic liver disease and alcoholism are not indicator conditions for influenza vaccination, administer 1 dose annually if the patient is aged ≥ 50 years, has other indications for influenza vaccine, or if patient requests vaccination.

C. Asthma is an indicator condition for influenza but not for pneumococcal vaccination.

D. For all persons with chronic liver disease.

E. Revaccinate once if ≥ 5 years have elapsed since initial vaccination.

F. Persons with impaired humoral but not cellular immunity might be vaccinated (8).

G. Hemodialysis patients: Use special formulation of vaccine (40 $\mu\text{g}/\text{mL}$) or two 1.0 mL 20 μg doses administered at one site. Vaccinate early in the course of renal disease. Assess antibody titers to hepatitis B surface antigen (anti-HBs) levels annually. Administer additional doses if anti-HBs levels decline to < 10 milliinternational units (mIU)/mL.

H. Also administer meningococcal vaccine.

I. Elective splenectomy: Vaccinate ≥ 2 weeks before surgery.

J. Vaccinate as close to diagnosis as possible when CD4 cell counts are highest.

K. Withhold MMR or other measles-containing vaccines from HIV-infected persons with evidence of severe immunosuppression (10).