

**FIGURE 2. Vaccines that might be indicated for adults based on medical and other indications — United States, October 2007–September 2008**

Vaccine	Pregnancy	Indication							
		Immuno-compromising conditions (excluding human immunodeficiency virus [HIV]), medications, radiation <sup>13</sup>	HIV infection <sup>3,12,13</sup>		Diabetes, heart disease, chronic pulmonary disease, chronic alcoholism	Asplenia <sup>12</sup> (including elective splenectomy and terminal complement deficiencies)	Chronic liver disease	Kidney failure, end-stage renal disease, receipt of hemodialysis	Health-care personnel
			CD4+ T lymphocyte count	<200 cells/μL					
Tetanus, diphtheria, pertussis (Td/Tdap) <sup>1*</sup>		1 dose Td booster every 10 yrs							
		Substitute 1 dose of Tdap for Td							
Human papillomavirus (HPV) <sup>2*</sup>		3 doses for females through age 26 yrs (0, 2, 6 mos)							
Measles, mumps, rubella (MMR) <sup>3*</sup>	Contraindicated	1 or 2 doses							
Varicella <sup>4*</sup>	Contraindicated	2 doses (0, 4–8 wks)							
Influenza <sup>5*</sup>		1 dose TIV annually							
		1 dose TIV or LAIV annually							
Pneumococcal (polysaccharide) <sup>6,7</sup>		1–2 doses							
Hepatitis A <sup>8*</sup>		2 doses (0, 6–12 mos, or 0, 6–18 mos)							
Hepatitis B <sup>9*</sup>		3 doses (0, 1–2, 4–6 mos)							
Meningococcal <sup>10*</sup>		1 or more doses							
Zoster <sup>11</sup>	Contraindicated	1 dose							

\* Covered by the Vaccine Injury Compensation Program.

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)

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 mumps immunity, consider administering 1 dose on a routine basis and strongly consider administering 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. Women who do not have evidence of immunity should receive MMR vaccine on 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 single-antigen varicella vaccine unless they have a medical contraindication. Special consideration should be given to those who 1) have close contact with persons at high risk for severe disease (e.g., health-care personnel and family contacts of immunocompromised persons) 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).

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 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 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 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 health-care provider diagnosis; or 5) laboratory evidence of immunity or laboratory confirmation of disease.

Assess pregnant women 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 4–8 weeks after the first dose.

#### 5. Influenza vaccination

**Medical indications:** chronic disorders of the cardiovascular or pulmonary systems, including asthma; chronic metabolic diseases, including diabetes mellitus, renal or hepatic dysfunction, hemoglobinopathies, or immunosuppression (including immunosuppression caused by medications or human immunodeficiency virus [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 personnel 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 (e.g., 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 adults aged  $\leq 49$  years without high-risk medical conditions who are not contacts of severely immunocompromised persons in special care units can receive either intranasally administered live, attenuated influenza vaccine (FluMist<sup>®</sup>) or inactivated vaccine. Other persons should receive the inactivated vaccine.

## 6. Pneumococcal polysaccharide vaccination

*Medical indications:* chronic pulmonary disease (excluding asthma); chronic cardiovascular diseases; diabetes mellitus; chronic liver diseases, including liver disease as a result of alcohol abuse (e.g., cirrhosis); chronic alcoholism, 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; and cochlear implants and cerebrospinal fluid leaks. Vaccinate as close to HIV diagnosis as possible.

*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); or immunosuppressive conditions. For persons aged  $\geq 65$  years, one-time revaccination if they were vaccinated  $\geq 5$  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/content/diseases.aspx>) and any person seeking protection from HAV infection.

Single-antigen vaccine formulations should be administered in a 2-dose schedule at either 0 and 6–12 months (Havrix<sup>®</sup>), or 0 and 6–18 months (Vaqta<sup>®</sup>). If the combined hepatitis A and hepatitis B vaccine (Twinrix<sup>®</sup>) 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; and persons with chronic liver disease.

*Occupational indications:* health-care personnel 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 (e.g., persons with more than one 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; 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/content/diseases.aspx>); 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 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.

*Special formulation indications:* for adult patients receiving hemodialysis and other immunocompromised adults, 1 dose of 40  $\mu\text{g}/\text{mL}$  (Recombivax HB<sup>®</sup>) or 2 doses of 20  $\mu\text{g}/\text{mL}$  (Engerix-B<sup>®</sup>), administered simultaneously.

## 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  $\leq 55$  years, although meningococcal polysaccharide vaccine (MPSV4) is an acceptable alternative. Revaccination after 3–5 years might be indicated for adults previously vaccinated with MPSV4 who remain at increased risk for infection (e.g., persons residing in areas in which disease is epidemic).

## 11. Herpes zoster vaccination

A single dose of zoster vaccine is recommended for adults aged  $\geq 60$  years regardless of whether they report a prior episode of herpes zoster. Persons with chronic medical conditions may be vaccinated unless a contraindication or precaution exists for their condition.

## 12. 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.

## 13. Immunocompromising conditions

Inactivated vaccines generally are acceptable (e.g., pneumococcal, meningococcal, and influenza [trivalent inactivated influenza vaccine]) and live vaccines generally are avoided in persons with immune deficiencies or immune suppressive conditions. Information on specific conditions is available at <http://www.cdc.gov/vaccines/pubs/acip-list.htm>.

This schedule indicates the recommended age groups and medical indications for routine administration of currently licensed vaccines for persons aged  $\geq 19$  years, as of October 1, 2007. 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 those issued during the year, consult the manufacturers' package inserts and the complete statements from the Advisory Committee on Immunization Practices (available at <http://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 <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.

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