Complete Summary

GUIDELINE TITLE

Recommended adult immunization schedule: United States, October 2007-September 2008.

BIBLIOGRAPHIC SOURCE(S)

Advisory Committee on Immunization Practices. Recommended adult immunization schedule: United States, October 2007-September 2008. Ann Intern Med 2007 Nov 20;147(10):725-9. [1 reference] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Vaccine-preventable diseases:

- Diphtheria
- Hepatitis A
- Hepatitis B
- Herpes Zoster
- Human Papillomavirus (HPV) infection
- Influenza
- Measles
- Meningococcal disease
- Mumps

- Pertussis
- Pneumonia
- Rubella
- Tetanus
- Varicella

GUIDELINE CATEGORY

Prevention

CLINICAL SPECIALTY

Family Practice
Geriatrics
Infectious Diseases
Internal Medicine
Nursing
Preventive Medicine

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Health Care Providers
Nurses
Physician Assistants
Physicians
Public Health Departments

GUIDELINE OBJECTIVE(S)

To update the Adult Immunization Schedule to reflect current recommendations for the licensed vaccines

TARGET POPULATION

Adults 18 years or older

INTERVENTIONS AND PRACTICES CONSIDERED

1. Vaccination with the following:
    - Tetanus, diphtheria, and acellular pertussis vaccine (Td/Tdap)
    - Human papillomavirus (HPV) vaccine
    - Measles, mumps, and rubella (MMR) vaccine
    - Varicella vaccine
    - Influenza vaccine
    - Intramuscular trivalent inactivated influenza vaccine (TIV)
    - Live-attenuated influenza vaccine (LAIV)
    - Pneumococcal polysaccharide vaccine (PPV)
    - Hepatitis A vaccine
    - Hepatitis B vaccine

- Meningococcal vaccine
- Meningococcal conjugate vaccine (MCV4)
- Meningococcal polysaccharide vaccine (MPSV4)
- Herpes zoster vaccine

2. Special consideration of immunization needs for adults based on medical and other conditions

MAJOR OUTCOMES CONSIDERED

Not stated

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

In June 2007, the Advisory Committee on Immunization Practices (ACIP) approved the Adult Immunization Schedule for October 2007 – September 2008. This schedule has also been approved by the American Academy of Family Physicians, American College of Obstetricians and Gynecologists, and American College of Physicians.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

***Note**: 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.*

Changes in the Schedule for October 2007 – September 2008

The 2007–2008 schedule differs from the previous schedule as follows:

- The yellow bar for varicella has been extended through all age groups on the age-based schedule (see figure below), indicating that varicella vaccine is recommended for all adults without evidence of immunity to varicella.
- Zoster vaccine has been added to the age-based schedule, with a yellow bar indicating that the vaccine is recommended for persons age 60 years or older.
- The title of the medical and other indications schedule (see figure, below) has been changed to "Vaccines That May Be Indicated for Adults Based on Medical and Other Indications," which indicates that not all of the vaccines are recommended on the basis of medical indications.
- The word *contraindicated* has been added to the red bars in the medical and other indications schedule and is removed from the legend, simplifying the presentation.
- The immunocompromising conditions column heading in the medical and other indications schedule has been shortened by removing the list of specific immunocompromising conditions.
- The human immunodeficiency virus (HIV) infection column in the medical and other indications schedule has been moved next to the immunocompromising conditions column.
- The HIV column in the medical and other indications schedule has been split into $CD4^+$ T lymphocyte count less than 200 cells/microliters and 200 cells/microliters or greater to highlight vaccine indications based on $CD4^+$ T lymphocyte counts.

- The indication "recipients of clotting factor concentrates" has been removed from the chronic liver disease column heading because only 1 vaccine has this recommendation. The indication remains in the hepatitis A vaccine footnote.
- The yellow bar for varicella vaccine in the medical and other indications schedule has been extended to include HIV-infected persons with $CD4^+$ T lymphocyte counts of 200 cells/microliters or greater.
- Text has been added to the influenza vaccine yellow bar for the health care personnel indication in the medical and other indications schedule to indicate that health care workers can receive either trivalent inactivated influenza vaccine (TIV) or live, attenuated influenza vaccine (LAIV).
- The yellow bar for influenza vaccine has been extended to include the asplenia risk group in the medical and other indications schedule.
- The bar for meningococcal vaccine in the medical and other indications schedule has been revised to indicate that 1 or more doses of vaccine may be indicated.
- Zoster vaccine has been added to the medical and other indications schedule with a yellow bar to indicate that zoster vaccine is recommended for all indications except pregnancy, immunocompromising conditions, and HIV. A red bar, indicating a contraindication, has been inserted for pregnancy, immunocompromising conditions, and HIV infection with a $CD4^+$ T lymphocyte count less than 200 cells/microliters.
- The footnotes have been reformatted into paragraphs to make them easier to read.
- Language on vaccine contraindications in pregnancy has been removed from the footnotes of human Papillomavirus (HPV) (footnote 2); measles, mumps, rubella (MMR) vaccine (footnote 3); and varicella vaccine (footnote 4) to be consistent with the intent of the footnotes to summarize the indications for vaccine use. Pregnancy contraindications are given on the medical and other conditions schedule with a red bar.
- The HPV footnote (footnote 2) has been revised to clarify evidence of prior infection and that the HPV vaccine is not specifically indicated on the basis of medical conditions and to indicate that the efficacy and immunogenicity may be lower in immunocompromised persons or persons with certain medical conditions.
- The varicella footnote (footnote 4) has been revised to clarify that birth before 1980 in immunocompromised persons is not considered evidence of immunity and to add an epidemiologic link to a laboratory-confirmed case as a requirement for evidence of immunity in a health care provider diagnosis of a mild or atypical case.
- The pneumococcal (polysaccharide) vaccine footnote (footnote 6) has been revised to make it consistent with the column heading in the medical and other indications schedule by adding chronic alcoholism. The list of specific immunocompromising conditions has been deleted. The indication of "cerebrospinal fluid (CSF) leaks" has been moved from the immunocompromising condition column heading to the footnote text.
- The hepatitis A vaccine footnote (footnote 8) has been revised to clarify the dose schedule.
- The hepatitis B vaccine footnote (footnote 9) has been revised to delete persons who receive clotting factor concentrates as a risk group and to clarify the dose for special formulation indications.
- The meningococcal vaccine footnote (footnote 10) has been revised to clarify that persons who remain at increased risk for infection may be indicated for revaccination.

- A footnote (footnote 11) has been added to reflect ACIP recommendations for herpes zoster vaccination for persons age 60 years or older.
- A footnote (footnote 13) has been added to provide a reference for the use of vaccines in persons with immunocompromising conditions.

Recommended Adult Immunization Schedule: United States, October 2007—September 2008

Note: These recommendations must be read with the footnotes that follow.

Recommended Schedule for Adult Immunization, by Vaccine and Age Group

Vaccine	Age Group	19-49 years	50-64 years	≥ 65 years
Tetanus, diphtheria, pertussis (Td/Tdap)[1, *]		1 dose of Td booster every 10 y		
		Substitute 1 dose of Tdap for Td		
Human papillomavirus (HPV)[2, *]		3 doses for females (0, 2, 6 mo)		
Measles, mumps, rubella (MMR)[3, *]		1 or 2 doses	1 dose	
Varicella[4, *]		2 doses (0, 4-8 wk)		
Influenza[5, *]			1 dose annually	
Pneumococcal (polysaccharide)[6, 7]		1-2 doses		1 dose
Hepatitis A[8, *]		2 doses (0, 6-12 mo or 0, 6-18 mo)		
Hepatitis B[9, *]		3 doses (0, 1-2, 4-6 mo)		
Meningococcal[10, *]		1 or more doses		
Zoster[11]				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)

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. To file a claim for vaccine injury, contact the U.S. Court of Federal Claims, 717 Madison Place,

NW, Washington, DC 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, 24 hours a day, 7 days a week.

Vaccines That May Be Indicated for Adults Based on Medical and Other Conditions

Vaccine	Indication	Pregnancy	Immuno-compromising conditions (excluding HIV), medications, radiation[13]	Human immunodeficiency virus (HIV) infection[3, 12, 13] CD4* T lymphocyte count		Diabetes, heart disease, chronic pulmonary disease, chronic alcoholism	Asplenia[12] (including elective splenectomy and terminal complement component deficiencies)	Chro liv dise
				<200 cells/µL	≥200 cells/µL			
Tetanus, diphtheria, pertussis (Td/Tdap)[1, *]		1 dose of Td booster every 10 y						
			Substitute 1 dose of Tdap for Td					
Human papillomavirus (HPV)[2, *]			3 doses for females age 26 y (0, 2, 6 mo					
Measles, mumps, rubella (MMR)[3, *]		Contraindicated			1 or 2 doses			
Varicella[4, *]		Contraindicated			2 doses (0, 4-8			
Influenza[5, *]		1 dose annually						
Pneumococcal (polysaccharide)[6, 7]			1-2 doses					
Hepatitis A[8, *]		2 doses (0, 6-12 mo or 0, 6-18 mo)						
Hepatitis B[9, *]					3 doses (0, 1-2, 4-6 mo)			
Meningococcal[10, *]		1 or more doses						
Zoster[11]		Contraindicated				1 d		

*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)

These schedules indicate the recommended age groups and medical indications for which administration of currently licensed vaccines are commonly indicated for adults age 19 years or older as of 1 October 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 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).

Footnotes

1. **Tetanus, diphtheria, and acellular pertussis (Td/Tdap) vaccination**
   - Tetanus, diphtheria, and acellular pertussis vaccine (Tdap) should replace a single dose of tetanus and diphtheria vaccine (Td) for adults age <65 years who have not previously received a dose of Tdap (either in the primary series, as a booster, or for wound management). Only 1 of 2 Tdap products (Adacel, Sanofi Pasteur) is licensed for use in adults.
   - 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 to 12 months after the second dose. Administer a booster dose to adults who have completed a primary series and if the last vaccination was received ≥10 years previously. Tdap or Td vaccine may be used, as indicated.
   - 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 1-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 age <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.
   - Consult the National Guideline Clearinghouse (NGC) summary of the ACIP statement on Preventing tetanus, diphtheria, and pertussis among adults for recommendations for administering Td as prophylaxis in wound management.

2. **Human papillomavirus (HPV) vaccination**
   - Human papillomavirus vaccination is recommended for all women age ≤26 years who have not completed the vaccine series. History of genital warts, abnormal Papanicolaou test, or positive HPV DNA test is not evidence of prior infection with all vaccine HPV types; HPV vaccination is still recommended for these women.

- 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 1 or more of the 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.
- Although HPV vaccination is not specifically recommended for females with the medical indications described in the table titled "Vaccines May Be Indicated for Adults Based on Medical and Other Conditions" (see above), it can be administered because it is not a live-virus vaccine. However, immune response and vaccine efficacy might be less than that in persons who do not have the medical indications described or who are immunocompetent.

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 $\geq$1 dose of MMR unless they have a medical contraindication, documentation of $\geq$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.
    - *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 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. 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 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 dose 1 of varicella vaccine upon completion or termination of pregnancy and before discharge from the health care facility. The second dose should be administered 4 to 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; 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 for 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 age 0 to 59 months, or persons of all ages with high-risk conditions); and anyone who would like to be vaccinated. Healthy, nonpregnant adults age $\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 influenza vaccine (FluMist, MedImmune Vaccines, Gaithersburg, Maryland) 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 the nephrotic syndrome; functional or anatomic asplenia (e.g., sickle cell disease or splenectomy); or immunosuppressive conditions. For persons age $\geq$65 years, 1-time revaccination if they were vaccinated $\geq$5 years previously and were age <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://wwwn.cdc.gov/travel/contentDiseases.aspx) and any person who would like to obtain immunity.
    - Single-antigen vaccine formulations should be administered in a 2-dose schedule at either 0 and 6 to 12 months (Havrix, GlaxoSmithKline), or 0 and 6 to 18 months (Vaqta, Merck & Co.). If the combined hepatitis A and hepatitis B vaccine (Twinrix, GlaxoSmithKline) 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 >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; international travelers to countries with high or intermediate prevalence of chronic HBV infection (a list of countries is available at http://wwwn.cdc.gov/travel/contentDiseases.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 micrograms/mL (Recombivax HB, Merck & Co.) or 2 doses of 20 micrograms/mL (Engerix-B, GlaxoSmithKline), 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 age ≤55 years, although meningococcal polysaccharide vaccine (MPSV4) is an acceptable alternative. Revaccination after 3 to 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 60 years of age or older 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 influenza* type b (Hib) vaccine may be used**
    - Hib conjugate vaccines are licensed for children age 6 weeks to 71 months. No efficacy data are available on which to base a recommendation concerning the use of the 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 are generally acceptable (e.g., pneumococcal, meningococcal, influenza [trivalent inactivated influenza vaccine]) and live vaccines are generally avoided when there are immune deficiencies or immunosuppressive conditions. For guidance related to specific conditions, refer to the NGC summary of the Centers for Disease Control and Prevention's General recommendations on immunization.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is not specifically stated for each recommendation.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Effective and age-appropriate administration of vaccines to adults
- Decline in vaccine-preventable diseases among adults

POTENTIAL HARMS

Adverse reactions to vaccination

CONTRAINDICATIONS

CONTRAINDICATIONS

Refer to the Major Recommendations field for the table titled "Vaccines that May Be Indicated for Adults Based on Medical and Other Conditions" for contraindications to recommended vaccines.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

Additional vaccines may be licensed and recommended during the year. Licensed combination vaccines may be used whenever any components of the combination are indicated and other components of the vaccine are not contraindicated and if approved by the U.S. Food and Drug Administration (FDA). Providers should consult the respective Advisory Committee on Immunization Practices (ACIP) statements for detailed recommendations.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Foreign Language Translations
Patient Resources
Quick Reference Guides/Physician Guides
Resources
Slide Presentation
Staff Training/Competency Material

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Staying Healthy

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Advisory Committee on Immunization Practices. Recommended adult immunization schedule: United States, October 2007-September 2008. Ann Intern Med 2007 Nov 20;147(10):725-9. [1 reference] PubMed

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2007 Nov 20

GUIDELINE DEVELOPER(S)

Centers for Disease Control and Prevention - Federal Government Agency [U.S.]

SOURCE(S) OF FUNDING

United States Government

GUIDELINE COMMITTEE

Advisory Committee on Immunization Practices

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Committee Members: Jon S. Abramson, MD (*Chairman*), Wake Forest University School of Medicine, Winston–Salem, North Carolina; Larry K. Pickering, MD (*Executive Secretary*), Centers for Disease Control and Prevention, Atlanta, Georgia; Ban Mishu Allos, MD, Vanderbilt University School of Medicine, Nashville, Tennessee; Carol Baker, MD, Baylor College of Medicine, Houston, Texas; Robert L. Beck, JD, Palmyra, Virginia; Janet R. Gilsdorf, MD, University of Michigan, Ann Arbor, Michigan; Harry Hull, MD, St. Paul, Minnesota; Susan Lett, MD, MPH, Massachusetts Department of Public Health, Jamaica Plain, Massachusetts; Tracy Lieu, MD, MPH, Harvard Pilgrim Health Care and Harvard Medical School, Boston, Massachusetts; Gina T. Mootrey, DO, MPH (Lead Staff, ACIP Adult Immunization Working Group), Centers for Disease Control and Prevention, Atlanta, Georgia; Julia Morita, MD, Chicago Department of Public Health, Chicago, Illinois; Dale L. Morse, MD, New York State Department of Health, Albany, New York; Kathleen Neuzil, MD, MPH, University of Washington, Seattle, Washington; Patricia Stinchfield, NP, Children's Hospitals and Clinics of Minnesota, St. Paul, Minnesota; Ciro Valent Sumaya, MD, MPH, Texas A&M University System Health Science Center, College Station, Texas; John J. Treanor, MD, University of Rochester School of Medicine and Dentistry, Rochester, New York; and Robin J. Womeodu, MD, Methodist Healthcare University Hospital, Memphis, Tennessee

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

To assure the integrity of the Advisory Committee on Immunization Practices (ACIP), the U.S. Department of Health and Human Services has taken steps to assure that there is technical compliance with ethics statutes and regulations regarding financial conflicts of interest. Concerns regarding the potential for the appearance of a conflict are addressed, or avoided altogether, through both pre- and postappointment considerations. Individuals with particular vaccine-related interests will not be considered for appointment to the committee. Potential

nominees are screened for conflicts of interest, and if any are found, they are asked to divest or forgo certain vaccine-related activities. In addition, at the beginning of each ACIP meeting, each member is asked to declare his or her conflicts.

Members with conflicts are not permitted to vote if a conflict involves the vaccine or biologic being voted upon. Members of the ACIP have disclosed the following: *Consultancies*: C. Baker (Novartis); J.J. Treanor (AlphaVax, Dynavax, Toyama Chemical). *Honoraria*: C. Baker (Merck & Co. Inc., Sanofi Pasteur, Inhibitex, GlaxoSmithKline, Chiron). *Stock ownership or options* (other than mutual funds): R.L. Beck (Applera, Gilead Sciences, GlaxoSmithKline, Merck & Co. Inc., Novartis, Pfizer Inc., Bristol-Myers Squibb, Wyeth). *Grants received*: J.J. Treanor (Glaxo-SmithKline, Merck & Co. Inc., Protein Sciences Corp., Sanofi, Wyeth).

Institutional conflicts of interest: J.R. Gilsdorf (University of Michigan, whose School of Public Health received royalties for the live, attenuated influenza vaccine); J.J. Treanor (University of Rochester, which has a patent for an HPV vaccine and receives licensing payment from Merck & Co. Inc. and GlaxoSmithKline).

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available from the Centers for Disease Control and Prevention (CDC) Web site:

- HTML Format
- Portable Document Format (PDF)

Print copies: Available from the Centers for Disease Control and Prevention, MMWR, Atlanta, GA 30333. Additional copies can be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402-9325; (202) 783-3238.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Recommended Adult Immunization Schedule: United States, October 2007 – September 2008. Available in PowerPoint format from the *Annals of Internal Medicine* Web site.
- Poland GA, Schaffner W. Adult immunization guidelines: a patient safety and quality-of-care issue. Ann Intern Med. 2007 Nov 20;147(10):735-7. Epub 2007 Oct 18. Electronic copies: Available from the *Annals of Internal Medicine* Web site.
- A Continuing Medical Education (CME) activity is available from the *Annals of Internal Medicine* Web site.

- An audio interview with one of the authors of the guideline is available as a podcast from the *Annals of Internal Medicine* Web site
- The Adult Immunization Schedule is available in English and Spanish in a variety of formats and as Personal Digital Assistant (PDA) download from the Centers for Disease Control and Prevention (CDC) Web site. See the related QualityTool summary on the Health Care Innovations Exchange Web site.
- General information about adult vaccinations, including recommendations on vaccination of persons with HIV and other immunosuppressive conditions is available from the Centers for Disease Control and Prevention (CDC) Web site

PATIENT RESOURCES

Vaccine Information Statements for individual vaccines are available in Portable Document Format (PDF) in a variety of languages from the Centers for Disease Control and Prevention (CDC) Web site.

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

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